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Effects of Police-Mental Health Collaborative Services on Calls, Arrests, and Emergency Hospitalizations

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Abstract

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Hospitalizations

by

Sean R.J. Zauhar

MA, University of St. Thomas, 2004

BA, St. Cloud State University, 2000

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Criminal Justice

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Abstract

With the increasing amount of police calls involving persons experiencing a mental health crisis (PICs), agencies are looking for ways to reduce the overuse of emergency services and criminal confinement. Police-mental health collaborative (PMHC) programs were developed to utilize the expertise of both mental health and law enforcement practitioners to provide immediate linkage to psychiatric services in an effort to prevent unnecessary involvement in the criminal justice system. The theoretical framework for this study was built on the sequential intercept model (SIM) along with the theories of social network and social support. The SIM identifies 5 key points where PICs can be diverted away from the criminal justice system. PMHC programs fall within the first intercept where persons with mental illness can be diverted at their first initial contact with law enforcement. Limited empirical research exists that show PMHC programs are reaching their intended objectives. The purpose of this quantitative study was to determine the effect of PMHC services on the likelihood that PICs will have future mental health calls (MHCs), arrests, and emergency hospitalizations (EHPs). Archival data from 1 midwestern police agency and online public court records was used in the analysis. The study employed OLS and logistic regression techniques, which revealed no statistically significant relationships between the PMHC interventions and the likelihood of future MHCs, arrests, and EHPs. However, significance was achieved for several covariates including transient status, prior history of MHCs, arrests, and EHPs. These findings will contribute to positive social change by informing policymakers and practitioners on best practices in community mental health crisis response.

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Dedication

First and foremost, this research study is dedicated to my wife, Kory, and my three daughters, Luna, Emma, and Mia for their unwavering love and support during the journey towards my doctoral degree.

This research study is also dedicated to the law enforcement and mental health professionals who work tirelessly every day to improve the lives of persons affected by mental illness and their families.

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First, I cannot thank my family enough; especially my wife, Kory, who has always supported me in all of my endeavors. Also to my three daughters, Luna, Emma, and Mia, who continually inspire me to be a better person. My committee chair, Dr. Tony Smith, who provided me with exceptional guidance, inspiration, and understanding throughout this journey. Committee members, Dr. Gary Kelsey and Dr. Michael Klemp-North, whose knowledge and expertise helped guide the completion of this dissertation. A special thanks to Chief Todd Axtell, Deputy Chief Mary Nash, Commander Stacy Murphy, and Sgt. Jamison Sipes of the St. Paul Police Department for their support and willingness to be part of this study.

No one person is ever self-made without the guidance, support, and love from the amazing people around them. Without the personal sacrifice from others, I would not be the person that I am today. I am deeply grateful to all of the people who have helped me along the way.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

The deinstitutionalization of psychiatric services in the 1960s marked a significant shift in public policy that contributed to community mental health issues becoming a criminal justice problem. The rapid influx of persons with mental illness (PMIs) moving back into the community without support services created a substantial public safety concern. By default, law enforcement officers were suddenly forced to handle a significant increase in the number of calls for service involving persons in a mental health crisis (Taheri, 2014; Shapiro et al., 2015). Today, it is estimated that mental health crisis calls account for 10-20% of all police calls for service (Akins, Burkhardt, & Lanfear, 2016; Rosenbaum, Tinney, & Tohen, 2017: Shapiro et al., 2015;). Local mental health resources are overburdened, which has turned jails into warehouses for PMIs and left others in the community without treatment (Abrahamian, 2015). The intersection between the criminal justice and mental health systems has drawn significant public debate. The relationship has inadvertently created a disproportionate number of PMIs in all levels of the criminal justice system (Abrahamian, 2015).

Due to limited mental health resources and mental health training for law enforcement, unfortunate tragedies have occurred. Nearly a quarter of all people who are shot and killed by the police each year in the United States exhibited signs of a mental health disorder (Akins et al., 2016; Washington Post, 2017). The infrequent, but highly publicized, police shootings of persons with a mental health disorder are symptoms of much larger, systemic issues. The lack of public service coordination often forces the police to respond to repeated calls for the same individuals. Their inability to find sustainable solutions increases the likelihood that a future incident may escalate in severity. To come to better resolutions, it will require stronger collaborative partnerships between law enforcement, mental health resources, and social services (Rosenbaum

et al., 2017; Wood & Beierschmitt, 2014). Recently, the International Association of Chiefs of Police has identified collaborative mental health programming as a top priority to better serve those affected by mental illness (IACP, 2018).

Background of Problem

With over 54 million Americans suffering from some form of mental illness less than a third seek assistance and treatment (Abrahamian, 2015). More than 25% of people will experience symptoms of a mental health disorder during their lifetime (Chappell, 2010). The issues surrounding mental illness are not new problems but have steadily become more complex since the deinstitutionalization of psychiatric services (Abrahamian, 2015). Prior to this movement, an estimated 550,000 people were held in psychiatric hospitals during the 1950s compared to only 30,000 people, today.

As people transitioned out of psychiatric institutions to community-based care, the federal funding never followed (Abrahamian, 2015; Akins et al., 2016). Federal funding for mental health care programs has been consistently cut since the Reagan Administration in the 1980s. The community care facilities that were supposed to replace psychiatric hospitals were never built. Therefore, PMIs were discharged into communities without access to treatment or support services. Persons affected by an untreated mental health condition can often display bizarre and erratic behavior that elicits a law enforcement response (Abrahamian, 2015; Akins et al., 2016).

The vast majority of police calls involving PMIs are nonviolent, low-level crimes (Abrahamian, 2015: Biasotti, 2011). However, in some cases, the limited availability of treatment and support services can lead to repeated law enforcement contacts resulting in criminal sanctions (Abrahamian, 2015: Biasotti, 2011). The unmanageable cycle of crisis

facilitates the criminalization of PMIs. These continual negative interactions with law enforcement contribute to the disproportionate number of PMIs involved in the criminal justice system (Abrahamian, 2015). The overuse of emergency services for PMIs is also a significant financial burden for many communities with already limited resources (Biasotti, 2011).

In the worst cases, an individual's mental health decompensates to the level where police intervention results in their death (Akins et al., 2016; Washington Post, 2017). While infrequent, some communities share similar stories where a person with severe and persistent mental illness was shot and killed by the police. These deadly incidents share several common underlying factors. In many cases, the families of the PMI were unable to get them appropriate mental health care due to financial constraints and the lack of local treatment options. Due to the lack of preventive measures, the person's mental health deteriorated to the point where they refused treatment. If the PMI did not pose a direct threat to themselves or someone else involuntary hospitalization was not an option. Depending on available resources, the only solution for many of the families was to use local emergency services (police, fire, and paramedics) when their informal controls were no longer effective (Akins et al., 2016).

A Call for Help Ends in Tragedy

The families of PMIs call the police out of desperation and do so with the fear of what might happen when officers arrive (Norfleet & Xiong, 2015). An unfortunate tragedy occurred for one family in Saint Paul, Minnesota. A woman's 30-year-old son, Phillip Quinn, was in the midst of a mental health crisis and was threatening to hurt himself (Norfleet & Xiong, 2015). Quinn had a long history of struggling with mental illness. He had just recently been released from a local hospital a week before because his mental health had decompensated. According to Quinn's family, he had told the hospital staff that he had planned on hurting himself. When he

was discharged from the hospital his mental state did not return to normal. The following week tragedy struck.

On September 24, 2015, Quinn's mother placed a 911 call because Quinn had refused to take his medication and had superficially cut himself (Xiong, 2016). Quinn fled the residence before police arrived but returned several hours later. Upon returning home, he threatened to stab several family members before locking himself in the garage. The police were called for the final time. They located Quinn outside the home. Quinn was screaming incoherently and holding a screwdriver. The officers were heard yelling at Quinn to put the screwdriver down. Without warning, Quinn ran towards one officer with the screwdriver raised above his head. The officer attempted to retreat but had no avenue of escape. The officer said he was forced to fire. Quinn was shot and killed in his family's front yard. A grand jury found that the officer's use of deadly force was justified. However, the community had mixed feelings on how the incident should have been handled. Quinn's family said they called the police for help; not to kill him. In the end, everyone agreed that PMIs deserve better access to mental health care in the community (Xiong, 2016).

These types of incidents are the worst-case scenarios but are symptomatic of the inadequacies in the mental health care system. Many people with severe and persistent mental illness fall through the gaps in public services (Ballard & Teasdale, 2016). They are left on their own to subsist without treatment. The untreated decompensation of a person's mental status can lead to bizarre behavior that can trigger a police response. The continual law enforcement contact with persons in crisis can result in criminal consequences (Ballard & Teasdale, 2016).

Types of Police-Mental Health Collaborative Programs

Several public safety and human service strategies have attempted to address the disproportionate number of PMIs within the criminal justice system (Ritter et al., 2011; Schulenberg, 2016). The primary focus has been on changing police behavior through advanced training to improve officers' interactions with persons in a mental health crisis (Schulenberg, 2016; Taheri, 2014). Many agencies across the United States have implemented crisis intervention team (CIT) training programs, a 40-hour course designed to teach police officers de-escalation strategies when encountering persons in a mental health crisis (Compton et al., 2014; Fahim, Semovski, & Younger, 2016; Ritter et al., 2011). Some experts have attempted to develop preventative strategies by identifying the individual characteristics of persons with mental illness who are most likely to have repeated contact with law enforcement (Ballard & Teasdale, 2016). More recently the focus has shifted to the development of police-mental health collaborative emergency and stabilization services to foster a better continuity of care for PMIs (Holmes, 2014; Wood & Beierschmitt, 2014). The collaborative mental health programming involves pairing police officers, mental health professionals, and social workers into crisis response teams (Fahim et al., 2016; Rosenbaum et al., 2017). The mental health teams have different protocols, but they generally respond either during an active crisis call or provide follow-up outreach services (Bureau of Justice Assistance, n.d.; Bonkiewicz, Green, Moyer, & Wright, 2014).

The Council of State Governments Justice Center (2018) identified five variations of police-mental health collaborative programs designed to reduce the likelihood that PMIs will have unnecessary contact with the criminal justice system. Each program will be briefly discussed here and further evaluated in the second chapter.

Crisis Intervention Team (CIT) programs

The crisis intervention team (CIT) program is a police-based jail diversion strategy that uses a group of specially trained police officers who respond to mental health related calls. The officers volunteer for the position and attend a 40-hour advance training course on mental health illness. They utilize partnerships with local mental health resources. It also requires specially trained dispatchers and non-refusal, 24-hour drop centers for officers to take people experiencing a mental health crisis (Council of State Governments Justice Center, 2018).

Co-Responder Programs

The co-responder program pairs a specially trained police officer with a mental health professional who respond to active mental health emergencies together. The police officer is responsible for safety while the mental health clinician undertakes diagnoses and treatment. The team works together to determine the most appropriate resource and level of care (Council of State Governments Justice Center, 2018).

Mobile Crisis Teams (MCT)

Mobile crisis teams (MCT) are a mental health-based response with teams of mental health professionals that respond when summoned by law enforcement or other community members. The MCT will respond and take over an emergency crisis call after the police have determined the scene is a safe. The MCT will assume responsibility for stabilizing, evaluating, and determining the most appropriate mental health service (Council of State Governments Justice Center, 2018).

Case Management Teams

Case management teams are teams of police officers and mental professionals who focus specifically on PMIs that have repeated contacts with law enforcement. They carry caseloads of

PMIs who are considered high utilizers of emergency services. The teams work with PMIs to develop personalized care plans to prevent further crises. They continually engage with the PMIs on their caseload to make sure they are connected with services and are following treatment plans (Council of State Governments Justice Center, 2018).

Hybrid Approach

Several law enforcement agencies have created unique collaborations with community partners and have developed hybrid programs that use parts of all four strategies. These agencies utilize several approaches to create a multi-layer response to better serve persons affected by mental illness (Council of State Governments Justice Center, 2018).

<div align="center">Bureau of Justice Assistance Learning Sites</div>

Since 2010, the Bureau of Justice Assistance has identified 10 police departments as national learning sites to assist other communities in building stronger police-mental health collaborative programs. The police departments included Arlington (MA) Police Department, Gallia, Jackson, Meigs Counties (OH) Sheriffs' Offices, Houston (TX) Police Department, Los Angeles (CA) Police Department, Madison County (TN) Sheriff's Office, Madison (WI) Police Department, Portland (ME) Police Department, Salt Lake City (UT) Police Department, Tucson (AZ) Police Department, and University of Florida Police Department (Bureau of Justice Assistance, n.d.).

Every community has slightly different needs based on the people they serve and their public service systems. The learning sites were established to provide a wide range of solutions for many different communities. Each learning site provides a multilayer response to persons in a mental health crisis through enhanced training programs, co-response teams, collaborative case management teams, comprehensive data collection procedures, and interagency information

sharing protocols. The learning sites differ by geographic locations, population density, as well as racial, ethnic, and cultural compositions. The national learning sites all utilize the same core elements but apply them in unique ways to meet the needs of persons living with mental illness in their communities.

Madison Police Mental Health Programming

For example, the Madison Police Department (MPD), which is one of the national learning sites, has developed a unique multilayer approach to provide the highest quality of service for PMIs (MPD, 2018). MPD has 468 sworn police officers and 115 civilian personnel that serves a community of 253,000 residents. They respond to over 8,000 mental related calls each year. The MPD mental health program was developed in partnership with the Journey Mental Health Center. MPD has a long history of being involved with mental health initiatives. Since the mid 1980s, they have designated a sergeant to act as a liaison between their community mental health resources and social service agencies. During the academy, every MPD officer receives 60 hours of crisis management and mental health intervention training (MPD, 2018). With assistance from their community partners, MPD officers receive ongoing training on mental health each year (MPD, 2018).

In 2004, the MPD (2018) developed their Mental Health Liaison Officer Program which was based on the CIT model. The mental health liaison officers (MHLOs) are patrol officers who volunteer for this collateral assignment within in each of their five patrol districts. MHLOs are each assigned to a police district where they assume the lead role to collaborate with local mental health resources, families, and PMIs. They work to proactively identify problems, service gaps, and provide linkages to mental health resources. In 2015, the MPD went further and created a specialized mental health unit with five full time police officers designated as mental health

officers (MHOs). The MHOs helped establish more efficient partnerships with community resources to prevent PMIs from unnecessarily entering the criminal justice system (MPD, 2018).

Saint Paul Police Department (MN) Mental Health Programming

Following the shooting death of Phillip Quinn in 2015, the Saint Paul Police Department began to search for new strategies on how to be more responsive to persons struggling with mental illness in their community (Sipes, 2018). The Saint Paul Police Department (SPPD) has 630 sworn police officers and 300 civilian personnel that serves a community of 307,000 residents. The SPPD responds to over 12,000 mental health related calls each year. Since 2005, the department had been providing CIT training for their downtown beat officers. The downtown beat officers work closely with the homeless, who frequently suffer from mental illness and chemical dependency. In 2012, the SPPD began mandating that all of their new police officers complete the 40-hour CIT training course during their first year of employment. In 2015, SPPD also added 60 plus hours of crisis management and de-escalation training in their recruit academy. Currently, the SPPD has provided CIT training to all 450 frontline personnel in their operations division (Sipes, 2018).

However, these training programs did not seem to be doing enough as the number of mental health calls continually increased each year (Sipes, 2018). As a result, in 2017, the SPPD created a MHLO program to bridge gap in communication between the police department and local mental health resources. The MHLO served two purposes. First, the MHLO was responsible with triaging mental health calls referred to them by patrol officers and other investigative units. The MHLO would send referrals to the county crisis team for individuals who were believed to need services. The MHLO also conducted co-response outreach visits with the crisis team when needed. Secondly, the MHLO was tasked with developing police-mental

health collaborative best practices to better serve persons affected by mental illness in their community (Sipes, 2018).

In 2018, after extensive research, the SPPD chose to create a hybrid mental health model based on the Madison (WI) Police Department's Mental Health Liaison/Officer Program and the Albuquerque (NM) Police Department's Crisis Intervention Unit. The SPPD Mental Unit (MHU) is comprised of one sergeant, three mental health officers, and two mental health clinicians. The Saint Paul PMHC program is a collaboration between the SPPD, People Incorporated Mental Health Services, Regions Hospital, and Ramsey County Mental Health. The team collaborates with additional community partners to address systems issues, provide linkage to services, and develop strategies to reduce repeated contacts with high utilizers of emergency services. The team is also responsible for providing mental health training to sworn personnel, civilian staff, and members of the community (Sipes, 2018).

This research study analyzed the efficacy of the police-mental health collaborative programs developed in the city of Saint Paul, Minnesota to reduce future mental health calls which rise to the level of urgency that law enforcement is required to respond.

Problem Statement

PMIs only compromise 5% of the general population but are disproportionately represented in all levels of the criminal justice system (Rosenbaum et al., 2017; Schulenberg, 2016). Due to limited community mental health resources, police officers at times are forced to arrest persons experiencing a mental health crisis because secure detention is the only way to keep them safe (Bonkiewicz et al., 2014; Ritter et al., 2011; Schulenberg, 2016). The unfortunate reality is that prisons and jails have become today's psychiatric hospitals. It is estimated that upon entry 25-40% of inmates have a behavioral health disorder (Barker, 2013; Kerle, 2016;

Rosenbaum et al., 2017). Criminal confinement cannot only delay needed treatment for PMIs but can cause additional trauma that affects recovery (Gottfried & Sheresa, 2017). PMIs are often released from these facilities with no support, which helps perpetuate the cycle of crisis (Lurigio & Watson, 2010).

Today, mental health calls absorb limited law enforcement resources for longer times than average calls for service (Lurigio & Watson, 2010). In some communities, officers overwhelm hospital emergency departments with persons in mental health crises. Hospital emergency rooms are often ill-equipped to treat people in a mental health crisis. They are also the most expensive treatment option (Barker, 2013). Therefore, PMIs are quickly discharged without being stabilized or given follow-up treatment plans. In the other circumstances, PMIs may not meet the threshold to be taken into protective custody, so they are left at home without any treatment. The continuous instability of a person's mental health can increase the likelihood that they will have a negative encounter with law enforcement (Akins et al., 2016).

A new approach is required to reduce interagency service gaps and provide people affected mental illness a better continuity of quality care (Bonkiewicz et al., 2014). The Bureau of Justice Assistance (n.d.) has offered financial assistance to law enforcement and community agencies to develop police-mental health collaborative (PMHC) programs. The PMHC programs consist of crisis intervention team (CIT) programs, police-mental health co-response teams, and collaborative case management teams (BJA, n.d.). The PMHC programs include teams of police officers with advanced mental health training, social workers, and mental health clinicians (Fahim et al., 2016; Shapiro et al., 2015). These programs not only focus on increasing public safety but promote recovery and resiliency for PMIs (Steadman & Morrissette, 2016).

Currently, limited empirical research exists on the benefits and efficacy of these police-mental health initiatives on reducing future mental health calls, arrests, and emergency hospitalization of PMIs (Bonkiewicz et al., 2014; Shapiro et al., 2015). These programs are a significant financial cost for law enforcement agencies and their community partners to develop, implement, and maintain (Shapiro et al., 2015). Beyond the financial risk, is the potential human cost in terms of the lives lost due to the deficiencies in public health systems. It is important to determine if PMHC programs are meeting their intended objectives of reducing the likelihood of a future mental health crisis.

Purpose Statement

The purpose of this quantitative study was to analyze the efficacy of police mental health collaborative (PMHC) programs to decrease the likelihood that PICs will have future contact with law enforcement. In this study I focused on the effects of mental health outreach services provided by PMHC teams on reducing future mental health calls, arrests, and emergency hospitalizations. The dependent variables of mental health calls, arrests, and emergency hospitalizations were used because they were identified as the initial points of entry for PICs into the criminal justice system (Bonkiewicz et al., 2014). The research site was within the SPPD, which had a PMHC program with its community partners. The quantitative data was gathered from official police and governmental reports. This study made a modest contribution to the body of knowledge on best practices for collaborative community response to mental health crises.

Research Question(s) / Hypothesis

Main Research Question

Is there a difference in the likelihood that persons experiencing symptoms of a mental health crisis will have a future mental health call, arrest, or emergency hospitalization after receiving outreach services provided by the PMHC team compared to the standard police service?

Sub-question 1

1. Is there a difference in the likelihood that PICs will have a future mental health call after receiving outreach services provided by the PMHC team compared to the standard police service?

Sub-question 2

2. Is there a difference in the likelihood that PICs will have a future arrest after receiving outreach services provided by the PMHC team compared to the standard police service?

Sub-question 3

3. Is there a difference in the likelihood that PICs will have a future emergency hospitalization after receiving outreach services provided by the PMHC team compared to the standard police service?

Hypotheses

The hypotheses are related to each of the research questions that will be tested.

$H_0 1$: There is no difference in the likelihood that PICs will have a future mental health call after receiving outreach services from a PMHC team compared to the standard police service.

H_a1: There is a decrease in the likelihood that PICs will have a future mental health call after receiving outreach services from a PMHC team compared to the standard police service.

H_02: There is no difference in the likelihood that PICs will a have future arrest after receiving outreach services from a PMHC team compared to the standard police service.

H_a2: There is a decrease in the likelihood that PICs will have a future arrest after receiving outreach services from a PMHC team compared to the standard police service.

H_03: There is no difference in the likelihood that PICs will have a future emergency hospitalizations after receiving outreach services from a PMHC team compared to the standard police service.

H_a3: There is a decrease in the likelihood that PICs will have a future emergency hospitalizations after receiving outreach services from a PMHC team compared to the standard police service.

Theoretical Considerations

The theoretical framework of this study is based on the sequential intercept model (SIM). The SIM identifies five key intercepts to divert PMIs away from the criminal justice system (Griffin, Heilbrun, Mulvey, DeMatteo, & Schubert, 2016). The five key intercept points are law enforcement and emergency services; initial detention and court hearings; specialty courts, reentry from jails, prisons, and hospitals; and community corrections and community support (Griffin et al., 2016; Munetz & Griffin, 2006). At each of the five intercept points, the SIM provides criminal justice practitioners with alternative treatment options opposed to criminal sanctions. The SIM makes the assumption that if a person receives treatment for their mental health disorder that it will reduce the likelihood of future criminal behavior.

The police-mental health collaborative programs fall within the first intercept of the SIM. The PMHC programs utilize strategies to divert an individual away from the criminal justice system upon their first initial contact (Griffin et al., 2016; Substance Abuse & Mental Health Services Administration, n.d.; Shapiro et al., 2015). The PMHC programs focus on the development of strong inter-agency public networks to provide PICs with critical support services to decrease the likelihood of contact with the criminal justice system (Helfgott, Hickman, & Labossiere, 2016; Rosenbaum et al., 2017). Within the SIM theoretical framework, the theories of social network and social support apply the reasoning as to why this approach may be effective (Cohen & Wills, 1985).

A person's underlying mental health disorder may be one of the significant contributing factors related to recidivism and repeated law enforcement contacts (Griffin et al., 2016). The model does not minimize other contributing factors to criminal behavior such as substance use, unemployment, criminal thinking, family dysfunction, antisocial peers, trauma, situation stress, and environmental factors (Griffin et al., 2016, p. 28). The SIM was designed to provide the foundational principles to develop more effective interdisciplinary treatment solutions. The negative encounters between PMIs and law enforcement have required a paradigm shift in how communities respond to mental health crises (Holmes, 2014; Steadman & Morrissette, 2016). SIM and the theories of social network and social support will be discussed further in Chapter 2.

Nature of Study

Today's law enforcement officers have become the gatekeepers at the intersection of the criminal justice and mental health systems (Skubby et al., 2013). Despite minimal training, police officers are responsible for making the initial assessment and determining which system PICs will enter. The overarching goal of PMHC programs is to reduce PICs from unnecessarily

entering the criminal justice system at this stage. In this research study I measured the outcomes of future mental health calls, arrests, and emergency hospitalizations following outreach services provided PMHC teams compared to the standard police service.

This quasi-experimental study was conducted by analyzing PMHC programs within a metropolitan police department in the Midwest. A single subject quantitative research design can assess changes in a phenomenon over time by introducing or taking away a treatment option (Creswell, 2009; Rudestam & Newton, 2014). A pretest/posttest nonequivalent comparison-group design was employed to measure the impact of PMHC outreach services on the likelihood that a PIC will have future contact with law enforcement. The quasi-experimental group consisted of the persons who received outreach services from the PMHC team. The nonequivalent comparison group was subjects who received the standard police service to persons in a mental health crisis.

The study included an analysis of the overall numbers of police contacts, arrests, and emergency hospitalizations that a PIC had prior and six months after receiving service from either the PMHC teams or the standard police response. A quantitative research method is useful in finding statistical comparisons to identify relationship and patterns (Creswell, 2009; Rudestam & Newton, 2014). This study helped evaluate the PMHC programs ability to divert persons with mental illness away from the criminal justice system, while also preventing future behavioral health crises that elicit a law enforcement response.

Definitions

The definitions section will provide a better understanding of law enforcement and mental health terminology found throughout the dissertation. Practitioners in both professions use jargon indicative of their working environments.

Call for service: A request for help that requires the police to immediately respond to address a problem. An officer may generate a call for service themselves if during the course of their routine patrol duties they encounter a situation that requires further investigation or intervention.

Computer Aided Dispatch (CAD): This computer program is used to record necessary information regarding calls for police and emergency services. The system prioritizes and classifies calls for service made by the public. CAD creates a permanent record starting from the initial call time to the final disposition as well as the personnel who handled the call for service.

*Emergency hospitalization***:** A police officer or mental health officer takes a person into protective custody and transports them involuntarily to the hospital due a medical or mental health condition.

Transient status: A person has no permanent residence and is currently living on the street or in a homeless shelter.

*Mental health call***:** A situation when an individual's behavior related to a mental health disorder rises to a level where law enforcement and/or other emergency services are summoned to immediately respond. The emergency call can be made by the person in crisis, a family member or friend, member of the public, or another public agency. The behavior may also be witnessed by a police officer during their routine duties, compelling them to intervene for safety concerns.

*Mental health professional/clinician***:** A person that is licensed to conduct mental health assessments.

Person with mental Illness (PMI): A person with a severe and persistent mental health condition that affects their cognitive ability and behavior.

Person in Crisis (PIC). SPPD term used to describe and identify persons experiencing symptoms of a mental health crisis including a suicide attempt, suicidal thoughts, paranoia, extreme despair, or other behavioral health issues.

Report management system (RMS): A software program that documents, records, and stores all information pertaining to every call for service and investigation conduct within a law enforcement agency.

*Standard police service/response***:** Is when a person calls the 911 emergency communications center and the nature of the call requires an immediate response by a police officer.

*911 Call***:** A call that comes into the 911 emergency center that rises to level of urgency that it is quickly communicated to law enforcement or other emergency services for an immediate response.

Assumptions, Limitations, and Scope

This study assumed that both law enforcement and mental health practitioners were able to identify persons in the community that are experiencing symptoms of a mental health crisis based on their observations during a mental health investigation. Within this group of public service professionals, it was assumed that PMHC team members were more effective in stabilizing persons in a mental health crisis and connecting them to the most appropriate mental health services compared to the standard service provided by police officers. Therefore, the outreach visits and linkages to mental health services provided by the PMHC teams should decrease the likelihood that PICs will have a future mental health crisis that summons emergency services. The study could not account for all other factors outside of the PMHC teams outreach services that may help stabilize a person's mental health.

The study was limited to the archival data provided by the Saint Paul Police Department, MN. The archival data provided official records of the encounters between law enforcement officers and PICs within the city of Saint Paul, MN. The quasi-experimental study design did have limitations (Burkholder, Cox, & Crawford, 2016). Unlike a true randomize experimental design, the quasi-experimental design lacked the ability to completely randomly select subjects. In this case, the study's population of interest was all PICs who had contact with the Saint Paul (MN) police officers and their PMHC team during the study's time frame. The study sample was randomly selected from this designated population of subjects.

Significance

PMHC programs have the potential to develop more efficient and cost-effective ways to serve persons affected by mental illness who lack basic resources and support (Fahim et al., 2016). This research filled a modest gap in understanding how police-mental health collaborative programs can potentially reduce the likelihood that PICs will have future negative encounters with law enforcement. (Ritter et al., 2011; Steadman & Morrissette, 2016). The current body of research had mainly focused on officer level outcomes opposed to patient and system level outcomes (Blevins, Lord, & Bjerregaard, 2014; Steadman & Morrissette, 2016). Additionally, most of the research was based on limited anecdotal evidence without quantitative data (Blevins et al., 2014).

The PMHC programs utilize strategies to divert an individual away from the criminal justice system at their initial contact (Griffin et al., 2016; SAMHSA, n.d.; Shapiro et al., 2015). Law enforcement agencies are heavily invested in community mental health issues when a police response results in a person's serious injury or death. While these tragedies are infrequent, they greatly affect persons with mental illness, their families, the officers involved and the community

(Morabito, Socia, Wik & Fisher, 2016; Shapiro et al., 2015). Even when police use of deadly force is deemed lawful, a family will be forever without a loved one. Moreover, the involved officers will carry the psychological and physical burden associated with the trauma from being in a deadly force encounter (Broome, 2014; Chappell, 2014; Fleischmann, Strode, Broussard, & Compton, 2018). These incidents are often controversial and can further divide an already fragile police-community relationship (Morabito et al., 2016).

The PMHC programs apply a problem-oriented policing approach to community mental health issues (Goldstein, 1979; Steadman & Morrissette, 2016). Like many community policing initiatives, they require strong community partnerships to find equitable solutions to recurring problems (Burkhardt et al., 2015). Instead of waiting until a crisis is beyond control, these programs invest resources up front when someone first displays the signs of a mental health concern. Some behaviors that could lead to criminal charges can be prevented if people have adequate access and are directed towards effective mental health treatment (Kerle, 2015). These new initiatives will not eradicate mental illness, but they may lead to significant changes in how communities respond to the needs of people affected by mental illness (Wood & Beierschmitt, 2014; Wood & Watson, 2017).

Summary

Since the deinstitutionalization movement began in the 1960s, law enforcement agencies have become steadily overburdened by the significant increase in a mental health-related calls for service (Shapiro et al., 2015; Taheri, 2014). The limited availability of community-based mental health resources amplified the problem (Abrahamian, 2015). Untreated mental illness led PMIs to have repeated contact with law enforcement, which has inadvertently led to the criminalization of mental illness. Several strategies have been used to address the problems when

the mental health and criminal justice system intersect. Newly emerging police-mental health collaborative programs are design to bridge service gaps and provide support for PMIs to avoid criminal sanctions. The sequential intercept model accompanied with the theories of social network and social support provide the theoretical framework on how PMHC team can reduce future mental health crises (Griffin et al., 2016; Shapiro et al., 2015). Limited empirical research was available on the efficacy of PMHC teams to reduce the likelihood that PICs will have future contact with law enforcement. The inability to identify and help people affected by mental illness can have terrible consequences (Akins, Burkhardt, & Lanfear, 2016; Washington Post, 2017; Xiong, 2016).

The most recent and available research that provided the basis for this study was explored in chapter two. An overview of the research design, data collection methods, analytical procedures and ethical considerations is detailed in chapter three.

Chapter 2: Literature Review

Overview

Changes in the mental health system and civil commitment laws have forced people with severe and persistent mental illness to live in the community without direct supervision (Noe, 2013). The lack of community mental health resources fail to engage PMIs who are in need of treatment services which contributes to the overuse of emergency services. The primary responsibility has fallen onto law enforcement to respond and provide assistance to people experiencing mental health emergencies. Police officers often receive minimal training on how to handle this type of situation. Officers are often left with few options other than to use their authority to make an arrest or involuntarily transport PMIs to the hospital. However, without formal strategies and treatment plans, the same issues kept recurring. Mental illness was not only criminalized, but in some instances ended with the loss of life.

Several police departments, both nationally and internationally, have developed unique police-mental health collaborative programs to better serve people affected by mental illness. Some of these programs have initially shown promising results. However, the current research has had several methodological concerns and lacked outcome-based measurements (Bonfine, Ritter, & Munetz, 2014; Brown-Cross et al., 2014). The PMHC programs have received accolades from politicians, police administrations, and community partners. But the admiration for these programs does not necessarily correspond with the research on their effectiveness (Blevins et al., 2014). PMHC programs utilize a significant amount of limited public resources, so it is critical to determine if they are meeting their intended objectives (Blevins et al., 2014; Booth et al., 2017; Brown-Cross et al., 2014). This chapter will review the previous literature on

PMHC teams including the CIT, co-responder, collaborative case management, and hybrid program models.

Chapter 2 will begin with a detailed explanation of the literature search strategy followed by a discussion of the theoretical framework employed for this study. The next section will outline the history of the intersect between the mental health and the criminal justice systems. Following the historical perspective, is an overview of the CIT model. The CIT model is the most prevalent program with the greatest amount of available research. Therefore, the research analysis on CIT was divided into subsections covering its effects on officer knowledge and behavior, utilization of arrest, and the use of force. After the CIT review, the next sections will evaluate the research on the other police-mental health specialized programs including the co-responder model, mobile crisis teams, collaborative case management, and hybrid models. Finally, the literature review concludes with a discussion on the current gap in the research that this study will address.

Literature Search Strategy

To locate the most recent and available research for this study, various scholarly sources from the Walden University Library and Governmental Websites were searched. The databases searched included ProQuest-Criminal Justice Database, SAGE Journals, Google Scholar, Psych INFO, Dissertations & Theses @ Walden University, and ProQuest Dissertations, and Theses Global. The terms used to search the scholarly resources and databases included law enforcement, police, mental health, mental illness, collaboration, co-responder, co-response, crisis, crisis intervention team, CIT, case management, embedded social worker, emergency, hospitalization, and training. Several governmental websites and databases were also utilized during the search including the Federal Bureau of Investigation (FBI), Bureau of Justice

Assistance (BJA), and the Council of State Governments. Additional information was gathered from the *Washington Post*'s Officer Involved Shooting Database and several mainstream news organizations to provide scope and anecdotal evidence of the research problem.

<div align="center">**Theoretical Foundation**</div>

Criminality versus Criminalization

Scholars have focused primarily on two different paradigms to explain the disproportional representation of PMI in the criminal justice system (Ballard & Teasdale, 2016). In 1972, Abramson first introduced the term "criminalization of the mentally ill" (Lord & Bjerregaard, 2014). In Abramson's early research, he found that PMIs were being arrested for minor crimes at a higher rate (Lord & Bjerregaard, 2014). The first paradigm focused on how an individual's mental disorder contributes to a higher level of criminality. Persons with mental instability may be more likely to display anti-social behaviors and commit criminal acts. The second paradigm focused on societal and structural deficiencies between public service systems that contributed to the disparity and marginalization of the mentally ill (Ballard & Teasdale, 2016).

Ballard and Teasdale (2016) recently illustrated the depth and complexity of the issue. They conducted an in-depth analysis exploring whether PMIs were more predisposed to criminal behavior or if systemic conditions existed that caused PMIs to have higher rates of contact with the criminal justice system. They interviewed 951 patients discharged from three psychiatric hospitals in Pittsburgh, Pennsylvania; Kansas City Missouri; and Worcester, Massachusetts, and compared arrests rates with 503 non-disorder persons from the same neighborhoods where the patients resided (Ballard and Teasdale, 2016). Ballard and Teasdale used nonequivalent comparison groups. The patients' group consisted of individuals whose behavior already raised

to the level of concern that secured hospitalization was required. While, the vast majority of the people from the community group never experienced secured detention or hospitalization. Therefore, individuals from the patient group were already predisposed to behavioral issues.

Ballard and Teasdale (2016) identified that 87% of the patient sample was considered to have antisocial personality disorder compared to 43% in the community sample. Persons with an antisocial personality disorder were seven times more likely to be arrested. The patient sample had a significantly higher level of drug use; which was 1.5 times more likely to lead to an arrest. The verbal IQ and rate of victimization were indicators associated with arrests of PMIs but not for the community sample (Ballard & Teasdale, 2016). A prior arrest was also indicative of a future arrest.

In conclusion, Ballard and Teasdale (2016) showed validation for both paradigms on the origin of the disproportional representation of PMIs in the criminal justice system. These findings demonstrate the need to develop a multifaceted approach to resolve these significant issues. This research study will view the problem through a structural paradigm to understand how PMHC teams can mitigate certain systemic factors that contributed to the disparity.

Sequential Intercept Model

The SIM provides a theoretical framework that supports the rationale as to why PMHC programs may help reduce the number of PMIs from unnecessarily entering the criminal justice system (Bonfine et al., 2014; Griffin et al., 2016; Steadman & Morrissette, 2016). As briefly discussed in Chapter 1, the SIM has five intercept points within the criminal justice process where alternative treatment options could be used to better serve PMIs. The five key intercept points for diversion are law enforcement and emergency services, initial detention and court hearing, jail and specialty courts, re-entry from jail and prisons, and community corrections

(Griffin et al., 2016, p.29). The model assumes that the significant disparity between the percentage of PMIs in the criminal justice system compared with non-disorder persons is related to systemic failures. Within each of the intercepts there are specialized interventions and treatments to divert PMIs away from the criminal justice system (SAMHSA, n.d.; Steadman & Morrissette, 2016)

The first intercept of SIM involves specialized police responses (SPR) to PMIs; which includes police-mental health collaborative programs (Griffin et al., 2016; SAMHSA, n.d.). This current study assumes that some PMIs can be diverted from the criminal justice process at their initial contact with law enforcement. As discussed in further detail later in this chapter, the SPRs include crisis intervention teams, co-responder teams, and collaborative case management teams. The teams include law enforcement and mental health professionals that have advanced training and greater access to alternative mental health resources. The PMHC teams draw on the knowledge from both disciplines to more accurately determine whether mental illness is the cause of the problem. The goals of SPRs are to reduce arrests, overuse of emergency services, and repeated mental health calls (Griffin et al., 2016; SAMHSA, n.d.).

The second intercept of SIM provides diversions that occur after an arrest and initial court appearance (Griffin et al., 2016; SAMHSA, n.d.). Based on the severity of the crime, PMIs maybe bettered served with treatment opposed to criminal sanctions. Post-arrest programs can be employed when PMIs have committed non-violent, low-level crimes, especially in communities that lack pre-arrest diversion programs. The courts will have a mental health professional assess a PMI to determine if an alternative treatment would be more beneficial for them.

The third intercept goes a step beyond post-arrest diversion, where some jurisdictions may utilize separate specialty courts. The specialty courts are designed for PMIs to avoid

criminal prosecution if they adhere to court-ordered treatment plans. The treatments plans allow PMIs to achieve stabilization and linkage to community resources while avoiding criminal prosecution (Griffin et al., 2016; SAMHSA, n.d.).

The fourth and fifth intercepts of the SIM are designed to provide PMIs support and linkage to mental health and social services following the release from jail, prison, and hospitals (Griffin et al., 2016). In most cases when people are released from either correctional or psychiatric facilities, there is no linkage to follow-up care. These programs work along with intercept five strategies that coordinate community corrections and mental health resources. It is common for persons on parole and probation to be mandated to attend treatment. Fostering partnerships between mental health resources and corrections will help develop more effective treatment programs following an offender's release (SAMHSA, n.d.).

The final intercept is an accessible and responsive mental health system (Griffin et al., 2016; Steadman & Morrissette, 2016). However, the development of an all-encompassing system will require a multi-disciplinary collaborative effort to find the most effective practices (SAMHSA, n.d.). Initially, the SIM assumed that the overrepresentation of PMIs in the criminal justice system was primarily related to behaviors caused by a mental health disorder that lead to law enforcement contact (Griffin et al., 2016). However, recent studies have contradicted that assumption and identified other relevant factors that contribute to this disparity.

As discussed in Chapter 1, contributing factors that play a role in criminal behavior include mental health disorders, substance abuse, unemployment, criminal thinking, family dysfunction, antisocial peers, trauma, situation stress, and environmental factors (Griffin et al., 2016, p. 28). The development of a vibrant and accessible crisis services are required, but traditional clinical treatments might not be enough. We know that people who come into contact

with law enforcement and emergency mental health services are often the same individuals. Further exploration is needed to determine how treatment for mental health disorders and substance use can work together with criminal justice interventions to reduce criminal behavior (Griffin et al., 2016; Shapiro et al., 2015; Steadman & Morrissette, 2016).

Theories of Social Network and Social Support

Social network and social support theories also contribute to the explanatory framework for this study and work in conjunction with the sequential intercept model (Cohen & Wills, 1985). Negative encounters between persons with mental illness and law enforcement have required a paradigm shift in how communities respond to mental health crisis (Steadman & Morrissette, 2016). The PMHC programs focus on the development of strong inter-agency public networks to provide persons with mental illness critical support services to decrease the likelihood of contact with the criminal justice system (Helfgott, Hickman, & Labossiere, 2016).

The tenants of these two theories are integral in understanding the rationale behind PMCH programs. These criminal justice diversion programs are designed to provide linkage to services to prevent a future mental health crisis (Helfgott et al., 2016). The social network theory is built on the concept that social relationships are the key to individual action and collective outcomes (Schmidt & Bevir, 2007, p. 2). Weak relationships lead to systematic breakdowns and failures in achieving beneficial results. A core objective behind the PMHC is to reduce gaps in services with enhanced collaboration and cooperation between public service agencies (Shapiro et al., 2015).

In collaboration with social network theory, the social support theory examines the benefits of human relationships on and individual's ability to cope with stress (Racino & Albrecht, 2006). The positive connections between individuals, family members, coworkers, and

the community helps establish a foundation of support. Social support can be both informal or formal supports provided by private or public entities. Individuals who have a strong social support system are more likely to have a greater resiliency following critical life events like a job loss, death of a family member, or a divorce (Racino & Albrecht, 2006). The theory has been used in the formation of disabilities studies, including a focus on persons with mental illness (Racino & Albrecht, 2006). Without strong social supports, people with severe and persistent mental illness have more difficulty coping with everyday problems and can easily reach the stage of crisis (BJA, n.d.).

Introduction to Policing and Persons with Mental Illness

The role of the police in society has been to preserve the peace and maintain public safety while upholding individual freedoms guaranteed by the U.S. Constitution (Charette, Crocker, & Billette, 2011). The most visible duties of a police officer are enforcing the laws, issuing citations and making arrests. However, official enforcement activities only comprise 10% of a police officer's daily work (Charette et al., 2011). Rather than using formal sanctions, police officers are more likely to use their discretionary powers to find informal resolutions to solve everyday problems (Morabito et al., 2012; Charette et al., 2011). One fundamental law enforcement duty is known as parens patriae; which is the duty of the government to take care of people who cannot take care of themselves (Bonkiewicz et al., 2014). Police officers routinely engage in these community caretaking duties that go largely unseen by the majority of the public (Morabito et al., 2012; Schulenberg, 2015).

However, the deinstitutionalization movement of the 1960's placed law enforcement into the role of caretakers for PMIs that went well beyond their capabilities. Rosenbaum, Tinney, & Token (2017) estimate that law enforcement officers currently conduct more street side mental

health evaluations than all of the largest psychiatric hospitals combined. While highly publicized recently, this issue is not a new policing challenge. As early as 1948, the Los Angeles Police Department issued a training bulletin that stated:

> An alert policeman anticipates the unpredictable thoughts and actions of a mentally ill
>
> person. He treats the patient with understanding and consideration, remembering,
>
> however, that the use of protective restraint is often necessary. (Dempsey, 2017, p. 323).

The Intersect of Mental Illness and the Criminal Justice System

Historically, the 1960s brought about many changes in American society including a significant shift in how PMIs were provided treatment. The deinstitutionalization of psychiatric services during this period strongly influenced the intersect between mental illness and the criminal justice system. Proponents of deinstitutionalization cited significant human rights violations due to the uninhabitable living conditions and the lack of treatment within psychiatric hospitals (Noe, 2013). The majority of people who placed into institutions never left, and they soon became overcrowded (Abrahamian, 2015; Akins et al., 2016). The hospitals operated with minimal staff overseeing too many patients. The patients rarely received any formal mental health treatment. Due to the horrible living conditions, President Kennedy proposed the closure of the majority of psychiatric institutions with the desire to establish community mental health clinics to provide outpatient care. In 1972, the U.S Supreme Court ruled that patients held in psychiatric hospitals had the right to treatment and upheld the process of deinstitutionalization (Abrahamian, 2015; Akins et al., 2016).

Along with the advent of newer medications, it also became possible to treat the symptoms associated with severe and persistent mental illness (Abrahamian, 2015; Akins et al., 2016). The purpose of deinstitutionalization was to move people with severe, but treatable

mental illness, out of hospitals and back into the community. With the assistance of local mental health services, the patients could be stabilized in their homes and live more productive lives. Due to President Kennedy's untimely death, he never lived to see out his vision. The majority of psychiatric hospitals did close, but the community mental health clinics never came to fruition. Federal funding for mental health resources slowly disappeared with significant cuts made during the Reagan Administration (Abrahamian, 2015; Akins et al., 2016).

Each state was left to fill the financial void due to the limited amount of federal funding for mental health treatment. Mental health systems varied considerably by state based on the availability of public funds and private donations. The community mental health systems have been patched together without a solid foundation or internal structural supports. A frequent topic of discussion amongst public service professionals is finding ways to fix the broken mental health system. However, Sue Abnerholden (2017), the executive director of the National Alliance on Mental Illness, Minnesota, routinely reiterates "We can't simply fix a broken system because it was never built in the first place." Abnerholden (2017) is quick to point out that significant changes did not take place until health insurance companies were mandated to treat mental illness as a medical condition.

While the closing of psychiatric hospitals attempted to solve one issue, it unintentionally created another problem. The lack of mental health resources and coordination between public service agencies has inadvertently put a significant burden on law enforcement. PMIs who fall in between these service gaps often rely on emergency services because they have nowhere else to turn. Emergency services are not only costly but are ineffective in providing long-term treatment (Browning et al., 2011). As the number of people living in psychiatric hospitals declined, the prison and jail population in the U.S. dramatically increased. Deinstitutionalization was not the

only cause for the rapidly increase incarceration rates, but it was a factor. Additional crime control policies such as the "Get tough on crime," and the "Three strike & you're out" legislation also significantly contributed to the dramatic increase in incarceration rates (Ballard & Teasdale, 2016). However, these policies alone do not account for the disparity of PMIs within the criminal justice system.

The deinstitutionalization movement, changes in mental health commitment laws, and limited community-based mental health services have led to the disproportionate representation of PMIs in all levels of the criminal justice system (Wells & Schafer, 2006). Police officers are traditionally given limited formalized training on how to effectively deal with persons in a mental crisis. In the end, police officers were left to use informal means learned through trial and error. PMIs who live in poverty-stricken communities are more likely to rely on emergency services due to the lack of alternative resources (Watson, Ottati, Draine, & Morabito, 2011).

Bitner's (1967) seminal work was the first study to analyze how police officers interacted with persons with severe mental illness. The study took place in Los Angeles, CA, within the infamous "Skid Row" neighborhood; which was an epicenter for homelessness, mental illness, and chronic substance use. From Bitner's (1967) observations he differentiated officer duties as either law enforcing or peacekeeping. Within the confines of the Skid Row neighborhood, Bitner (1967) observed that officers routinely used "psychiatric first aid" to avoid incarcerating PMIs and to keep the peace. Beat officers would periodically check the welfare of PMIs whom they had frequent contacts with during their work shift (Bitner, 1967). Due to long wait times and frequent service refusals; police officers preferred not to bring PMIs to hospital emergency rooms. They also did not believe that most of the individuals needed criminal confinement (Bitner, 1967). However, their methods at best provided temporary relief to a chronic problem.

In the event that officers were unable to pacify an incident through informal controls they were left with little option but to make an arrest (Bitner, 1967). These arrest situations of PMIs were commonly called "mercy bookings" and were one way to protect the person and the community. The arrests were typically for such minor criminal offenses as trespassing and disorder conduct (Abrahamian, 2015; Biasotti, 2011). PMIs were then quickly released from jail with no assistance or follow-up treatment plan. Without mental health stabilization, PMIs would fail to make court appearances for these minor infractions. Eventually missed court dates turned into arrest warrants leading to confinement. The incarceration itself may also contribute to additional psychological trauma to PMIs.

Without adequate treatment, the cycle of crisis continues. Every unmanageable mental health crisis only increases the likelihood that PMIs may have negative encounters with the police. Mental health calls consume already limited law enforcement resources and tend to take longer to handle compared to the average police call (Lurigio & Watson, 2010). The New York Police Department which has over 35,000 officers serving 8.6 million people responds to a mental health call every 6 minutes (Lurigio & Watson, 2010). The financial costs are high but, more importantly, untreated mental illness can contribute to an person's premature death. While a person affected by mental illness has a very minimal chance of being killed by a law enforcement officer, they are at a far higher risk of committing self-harm. Each year it is reported that police officers shoot and kill 250 people who displayed the symptoms of a mental health disorder at the time of the incident (Washington Post, 2017). However, the number of PMIs killed by law enforcement are a pale comparison to the 40,000 PMIs who commit suicide every year in the U.S (Center for Disease Control, 2018; Washington Post, 2017).

Many police agencies in the U.S. have adopted a community policing model based on community partnerships and collaborative problem solving (Borum, Deane, Steadman, & Morrissey, 1998; Goldstein, 1979). It is important to understand how the actions taken in either the mental health or criminal justice system can affect one another. Since long term psychiatric care rarely exists, more police departments, correctional facilities, courts, and probation offices are hiring mental health professionals to have on staff. Some police agencies have on-site mental health professionals for consultation or use mobile crisis services (Borum et al., 1998). The majority of law enforcement agencies have developed specialized responses to persons in mental health crises.

Research on Police-Mental Health Collaborations

The Crisis Intervention Team Model

The Crisis Intervention Team (CIT) program is the most popular specialized police-based response in the United States (Coleman & Cotton, 2010; Compton, Bahora, & Watson, 2008). The CIT program, also commonly known as the Memphis Model, was first developed in 1988 as a collaborative effort between the Memphis Police Department, University of Memphis, and the National Alliance on Mental Illness. It was created following a controversial shooting of a PMI by Memphis police officers (Brown-Cross et al., 2014; Browning, Hasselt, Van, & Vecchi, 2011). The individual had schizophrenia and was in a mental health crisis. Shortly after officers arrived on the scene, he charged at them while holding a knife and was killed. While the shooting was deemed justified, the community was outraged. The incident had occurred in an impoverished community of color, which contributed to already high racial tensions. The purpose of the CIT program was to develop ways to prevent similar tragedies from happening again (Coleman & Cotton, 2010; Compton et al., 2008).

The main objectives of the CIT model were to increase public safety, reduce arrests of PMIs, reduce injuries to police officers and PMIs, and to reduce the stigma associated with mental illness. Through collaborative community partnerships, they developed a 40-hour training course to help police officers identify the symptoms of a mental health crisis as well as coverage of techniques to help de-escalate the situation. The CIT program was designed for officers who volunteered for the program and had an aptitude to work this special population. According to CIT International, President Michael Woody (2017), "It takes special officers to work with special people." The officers go through the advanced 40-hour training course and upon completion are certified as CIT officers. After the certification, these officers agree to take the primary role in handling mental health calls during their shifts. CIT International recommended that at least 25% of an agency's patrol personnel should be trained to make sure a CIT officer is available on every shift.

Another vital component to the Memphis Model was working mental health providers to create 24-hour drop-off centers where police officers could take persons who were in need of emergency psychiatric services (Brown-Cross et al., 2014). Before the development of the CIT, Memphis officers would have exceptionally long wait times at hospital emergency departments and were routinely refused service. The City of Memphis established 24-hour drop-off centers that did not refuse patients brought in by police. They were located inside hospitals that served as a single point of entry into the mental health system making it easier to provide patients with referrals and aftercare services (Browning et al., 2011). With a 30 minute or less turnaround time, officers had better experiences and were more apt to utilize mental health services. Previously, the poor relationship with local mental health resource centers had contributed to the officers' overutilizing arrest as a preferred option.

The research on the effectiveness of CIT programs initially showed promising results in select locations. Twelve years after CIT was implemented in Memphis, Tennessee, reductions in SWAT callouts, officer injury rates, time spent on mental health calls, and arrests of PMIs were reported (Browning et al., 2011). An evaluation conducted three years after CIT was implemented in Albuquerque, New Mexico, showed a 58% reduction in the number of SWAT callouts related to PMIs (Browning et al., 2011). However, these initial studies had methodological concerns due to the lack of comparison groups, small sample sizes, and posttest only designs (Brown-Cross et al., 2014). Moreover, these studies were not peer-reviewed and contained a limited amount of quantitative data (Blevins, Lord, & Bjerregaard, 2014).

The CIT model was the prototype of police-mental health collaborations (Compton et al., 2008). The Memphis CIT Center lists 3,000 member programs, nationally and internationally (Brown-Cross et al., 2014). The International Association of Chiefs of Police (IACP) has promoted CIT training as the "gold standard" for police training and has recommended that police agencies mandate the training for all of their officers (Police Executive Research Forum, 2014). Adequately training police officers to handle mental health calls is a priority for police administrations and an area of high liability (Lurigio & Watson, 2010). As a result, CIT is rapidly being implemented nationwide as an evidence-based practice, despite any robust research on its effectiveness (Blevins et al., 2014; Booth et al., 2017; Brown-Cross et al., 2014). The available research on CIT programs focuses primarily on officer knowledge/skills, arrests/service referrals for PMIs and use of force/injuries.

Effects on Officer Knowledge, Skills, and Behavior

A primary objective of the CIT model was to provide police officers with a deeper understanding of how their behavior can positively or negatively impact the interactions with

persons who are affected by mental illness. The training curriculum is designed to change officers' attitudes towards PMIs and help reduce the stigma associated with mental illness. The second part of the training provides officers with better communication strategies to de-escalate persons in crisis and minimize the need to use force. Most studies have shown that officers who have attended CIT training increased their knowledge and awareness of mental health disorders to some degree. (Bahora, Hanafi, Chien, & Compton, 2008; Bonfine, Ritter, & Munetz, 2014; Davidson, 2014; Ellis, 2014; Tully & Smith, 2015). Attendees also said they felt more confident to handle future mental health calls. However, several studies did not find any evidence that CIT training had any effect on the outcomes of mental health calls (Booth et al., 2017). For instance, in a study of the Chicago Police Department, Compton et al. (2014) found that CIT officers were more likely to verbally negotiate with PMIs during mental health calls. On average, Chicago CIT officers spent 20% more time talking to resolve calls compared to non-CIT trained officers (Compton et al., 2014). However, a similar study on the MHIT program (Australia's version of CIT) found that there was no difference in verbal communication skills between non-CIT trained officers and CIT-trained officers (Booth et al., 2017). The MHIT officers did report spending less time on calls because of the awareness of other alternative solutions. Over 41% of the officers surveyed believed that CIT training did not affect practice (Booth et al., 2017). Contradictory to the Chicago study, Booth et al. (2017) analysis failed to support the role of CIT training to enhance skills to de-escalate a person in crisis.

Despite a consensus amongst researchers that most officers who attended CIT training had a positive experience, they were not able to show how the training had any effect on officer behavior in the field (Booth et al., 2017; Geller, 2008; Wells & Schafer, 2006). At the end of the 40-hour CIT course, some officers still felt they did not know enough about local community

resources to facilitate the diversion strategies (Tully & Smith, 2015). In the short-term, CIT training was effective in enhancing officer knowledge in the classroom but retention was limited (Compton et al., 2014). When Davidson (2014) conducted a 30-day follow-up survey beyond the initial pretest/posttest, he identified that the de-escalation skills were perishable and deteriorated with time. These findings suggested the need for follow-up training to maintain an officer's skill level, especially if they did not respond to very many mental health calls (Davidson, 2014). Senior CIT officers were quick to identified that field experience combined with the training was vital to becoming more effective in handling mental health calls (Ritter et al., 2010).

Overall, officer attitudes regarding their local mental health resources was more strongly influenced on whether they had access to a 24-hour drop off site for emergency psychiatric services (Borum, Deane, Steadman, & Morrissey, 1998). For example, in the Memphis Study, CIT officers were 70% more likely to have a favorable rating of their mental health services compared to 40% of non-CIT trained officers (Borum et al., 1998). But in comparison, only 15% of Knoxville and Birmingham CIT and non-CIT training officers believed that local mental health resources were helpful (Borum et al., 1998). Unlike the City of Memphis, the police officers in Knoxville and Birmingham did not have access to 24-hour drop off centers. The 24-hour drop off sites minimized officers down time and were very responsive to officers' needs. Therefore, officer attitudes may be more affected by the relationships with community mental health services opposed to the influence of CIT training (Wells & Schafer, 2006).

As CIT training is being mandated by more police agencies, researchers have also attempted to understand if officer attitudes were dependent on whether they volunteered or were mandated to attend. Ritter, Teller, Munetz, and Bonfire (2010) reported minor attitudinal differences between those officers that volunteered for the training and those that did not;

however, those small differences may be important. The officers who volunteered for the

training reported being more tolerant of PMIs. In some cases, when officers were mandated to

attend, they did not take the trainings seriously, caused classroom disruptions, and created a poor

learning environment for the other students (Woody, 2017). Mandating CIT training for all

sworn police personnel could negatively affect the program's desired outcomes (Ritter et al.,

2010; Woody, 2017).

Two primary research needs were identified to help understand the effect of CIT training

on officer knowledge and behavior. First, it is essential to determine if changing officer attitudes

and skills through training can lead to behavioral changes in the field (Bahora et al., 2008; Cross

et al., 2014). The majority of the research on the ability of CIT training to enhance officer

knowledge used a pretest/posttest design with limited follow-up after the conclusion of the 40-

hour course. Researchers could not precisely determine what components of CIT training were

most effective in changing officer perceptions of PMIs (Ritter et al., 2010). Future research

needs to examine CIT program's impact on officer behaviors as it relates to patient-level

outcomes, use of diversion strategies, and the use of force (Compton et al., 2014). Lastly,

researchers should examine how partnerships with mental health resources change and influence

police behavior (Cross et al., 2014).

Arrests, Emergency Hospitalizations, & Mental Health Service Referrals

CIT programs are designed to be the first intercept to help prevent PMIs from

unnecessarily entering the criminal justice system. The diversion process starts by avoiding

arrest of PMIs when possible. While an earlier study in Memphis (TN) showed a reduction in the

arrest rates of PMIs, a study in Akron (OH) showed that CIT training did not have any influence

on officer arrest decisions (Franz & Borum, 2011; Watson, & Fulambarker, 2013). Most

encounters between the police and PMIs do not end in arrest and are often handled informally (Charette et al., 2011; Lurigio & Watson, 2010; Morabito et al., 2012). While past research indicated that PMIs were more susceptible to arrest, the current research shows that police are less likely to arrest a person for a minor offense when they suspect mental illness is the cause (Abrahamian, 2015; Biasotti, 2011; Lurigio & Watson, 2010; Watson et al., 2011).

Comparatively, when CIT programs were first established fewer police departments had access to 24-hour-drop off centers for persons in mental health emergencies, so arrest was a more viable option. However, today more agencies have better access to emergency psychiatric care. The purpose of CIT training was to provide officers with an enhanced knowledge base to determine if PMIs were in need of emergency care. While CIT-trained officers are more likely to provide linkage to services, both CIT and non-CIT trained officers were shown to hospitalize PMIs who displayed similar behavioral characteristics (Broussard et al., 2010; Watson, 2010; Watson et al., 2011). Broussard et al. (2010) analyzed the characteristics of PMIs brought to a psychiatric emergency department of a large urban hospital by CIT-trained and non-CIT-trained officers. The largest percentage of PMIs brought into the hospital were by CIT officers. However, there was no difference in the characteristics of the PMIs brought to the hospital by either set of officers (Broussard et al., 2010). An earlier study reported similar findings (Strauss et al., 2005).

Similarly, Ritter et al. (2011) observed when CIT-trained and non-CIT trained officers found indications of substance use, failing to take medications, signs of mental or physical illness, and a risk of violence they both were more likely to seek emergency hospitalization. In most instances, CIT officers are expected take the lead role on all of the mental health calls during their shift. The difference in hospital admission rates of PMIs between CIT and non-CIT

trained officers may be more dependent on which officers responded to a greater volume of

mental health calls (Broussard et al., 2010; Strauss et al., 2005). Therefore, it is unknown to what

extent CIT officers are more effective than non-CIT-trained officers at recognizing PMIs who

require emergency care.

Furthermore, the size of the police agency and availability of resources also significantly

influenced whether PMIs were brought to hospital emergency rooms (Lord, Bjerregaard,

Blevins, & Whisman, 2011; Watson, 2010). Smaller agencies were more likely to handle matters

informally due to a lack of mental health resources and the potentially long wait times at regional

hospitals (Lord et al., 2011). At the same time, when mental health services were limited in

certain Chicago police districts, officers chose informal resolutions over hospitalization or arrest

(Watson et al., 2011). It is also a common trend for CIT programs to see emergency

hospitalizations go up initially, but then plateau with time regardless of the agency's size (Lord

et al., 2011).

Fisher and Grudzinskas (2010) examined the body of research on the outcomes of arrest

versus service referrals and found several shortcomings. In many cases, researchers could not

isolate the effects of CIT when other systemic changes that occurred during the same period. For

example, in one case, the change of a new director in an emergency psychiatric department

caused officers to routinely be denied drop-offs which decreased the number of PMIs being

brought to the hospital. The poor relationship caused officers to find other alternatives to

hospitalization because they knew there was a strong possibility they would be refused service. It

is unclear if CIT programs' have long term effects on arrest and hospitalization rates opposed to

other systemic and organizational factors.

Use of Force and Injuries

Another core objective of the CIT model is to reduce police use of force and decrease injuries to officers and PMIs. Police are given the legal authority to use force when reasonable and necessary to protect the public as well as themselves. While police calls for service may frequently involve PMIs, they are most often for low-level, nonviolent crimes and quality of life issues (Chappell, 2016). PMIs are rarely dangerous but they can act in a bizarre manner and may not immediately follow directions given by police officers (Chappell, 2014; Johnson, 2011). Police officers tended to show more leniency towards persons with mental illness, believing that PMIs have less control over their actions and, therefore, not holding them as accountable for their behavior (Johnson, 2011). Despite overwhelming praise for CIT programs, little empirical evidence shows that they reduce the police use of force during interactions with PMIs (Morabito et al., 2012).

In general, mentally unstable people with co-occurring substance use were more likely to resist arrest, become assaultive, and possess weapons (Johnson, 2011; Rossler & Terrill, 2016). Compton et al. (2014) collected data from officer surveys within the Chicago Police Department and found CIT training did not affect the use of force. Skeem (2008) observed that Las Vegas Police Department's CIT officers used force in only 6% of all the encounters with PMIs, despite nearly half of the calls being suicide attempts. When officers did use force, they chose less-lethal options such as physical control techniques and the Taser, which have a lower potential to cause injuries. Even when there was a serious risk of violence, officers used minimal amounts of force (Skeem, 2008). The physical resistance and demeanor of the PMI were the strongest predictors of any force being used (Compton et al., 2011; Morabito et al., 2012; Rossler & Terrill, 2016).

In a more recent study, Rossler and Terrill (2016) found when officers did employ force against PMIs, they used slightly higher levels of force. However, despite the increased level of force used during the encounters, PMIs did not have an increased risk of injury. The study aligned with prior research which found no statistical significance between CIT certification and the rates of injury of officers and PMIs (Watson, 2010; Morabito et al., 2012; Compton et al., 2011). CIT officers themselves did not believe CIT training reduced injuries (Tully & Smith, 2015).

Previously, studies in Albuquerque and Memphis also indicated they had a significant reduction in SWAT callouts after implementing CIT programs. With the growing public demand for the demilitarization of law enforcement, police administrators are looking for ways to reduce the use of these specialized tactical teams. A police department's utilization of their Special Weapons and Tactics (SWAT) teams can be the highest and most visible force option when deployed in the community. Compton, Demir, and Olivia (2009) collected data comparing the numbers of CIT-certified officers and the number of SWAT callouts per year in the city of Atlanta between 1999-2007. They did not find any statistical significance between the number of CIT-trained officers and the number of SWAT callouts. In the Albuquerque Study, researchers failed to address the corresponding policy changes that also affected how their SWAT team was deployed. Along with the implementation of CIT, the Albuquerque Police Department (APD) no longer deployed their SWAT team to calls involving suicidal persons who only posed a danger to themselves and no one else. The APD policy change itself may have significantly contributed to the 58% reduction in SWAT callouts.

Outside of the Washington Post's national police shooting database, there is limited quantitative data on the number of PMIs killed by the police each year (WSP, 2018). Overall, the

use of force by police officers in the United States occurs infrequently. According to the Bureau of Justice Assistance (2008) force is used in less than 1% of all police-citizen contacts. The Albuquerque and Saint Paul Police Department's reported less than .2% of their police-citizen encounters end in the use of force (Sipes, 2018). In any incident, regardless of CIT certification, mental illness alone was not a predictor of the use of force by officers (Morabito et al., 2012; Rossler & Terrill, 2016; Watson, 2010).

Issues Facing the Memphis CIT Model

The growth of CIT programs does not correspond with the empirical research vouching its effectiveness in reaching program objectives. (Lurigio & Watson, 2010; Lord et al., 2011; Taheri, 2016; Watson & Fulamarker, 2013). Despite CIT's objectives being amenable to scientific research, most findings were descriptive and anecdotal. The majority of research on CIT is based on the perceived benefits of the program and lacks quantitative data (Blevins et al., 2014; Geller, 2008). Blevins et al. (2014) discussed in many cases, research can be difficult because agencies lack proper documentation and data collection procedures on mental health calls. They also lacked inter-agency Memorandum of Understandings (MOUs) that not only made outcomes impossible to track but significantly limit information sharing between systems (Charette et al., 2011). Despite increases in police training and knowledge, CIT training was not related to a decrease in the number of mental health calls in any research locations (Wood & Beierschmitt, 2014).

With hundreds of CIT programs across the U.S., very few research studies have completed an outcome-based evaluation on their effectiveness on reducing future mental health crises (Blevins et al., 2014; Brown-Cross et al., 2014). Early reports showed promising results on the reductions in arrests and increases in emergency hospitalizations. However, most of the

"evidence" was anecdotal. Additionally, the majority of the studies lacked comparison groups with no evidence on the type of arrests that either decreased or increased (Blevins, et al., 2014; Browning et al., 2011). Blevins et al. (2014) identified one major hindrance to research was a lack of official documentation of mental health calls. Many departments did not track information from their CIT calls (Blevins et al.,, 2014). Bonfine, Ritter, and Munetz (2014) also identify inconsistent documentation of encounters with PMIs, which made it difficult to collect and analyze the data accurately. With no standardized measures, even agencies that did keep more detailed records would collect data that did not have a shared meaning, making it nearly impossible to compare findings with other jurisdictions (Blevins et al., 2014; Taheri, 2016).

For CIT to become an evidence-based practice more outcome-based research needs to be completed. Taheri's (2016) meta-analysis of the evaluation research found that most studies were descriptive in nature with methodologies that did not address the efficacy of CIT on reaching its core objectives. The meta-analysis of the previous research did find that CIT training was statistical significantly related with arrest, use of force, or officer injury. However, the overall findings were mixed, and the analysis was weakened due to methodological limitations. Currently, a significant portion of the collected data comes from officer self-reported surveys and not from official governmental reports. Taheri (2016) suggested that more experimental studies would help address major internal validity issues associated with no comparison groups. However, Watson (2010) discussed the ethical and political concerns when trying to conduct a randomized controlled experiment where one group is provided with exceptional resources while another group is left with a decreased safety net (Watson & Watson, 2017).

Despite its popularity and feel good motivation, there is a strong need to understand CIT's efficacy on reaching its desired outcomes. Cross et al. (2014) identified how officer

training alone might not be enough to offset the influence of organizational factors. Compton et al. (2014) concluded that future research is needed on system-level outcomes. CIT programs are expensive to develop, implement, and maintain so it would also be fiscally responsible to determine their overall effectiveness (Cross et al., 2014). Future research could evaluate the potential cost saving due to the enhanced collaboration between the criminal justice and mental health systems on reducing high utilizers of emergency services. If police-mental health programs failed to identify key factors for success, then these programs may be a temporary trend in policing (Cross et al., 2014).

The research is still emerging and has room for many evaluations methods (Lord et al., 2011). It is unknown if CIT benefits are long-term or disappear with time. It is challenging to isolate CIT as a single intervention because environmental, organizational, and political factors are different in each community which can mitigate the effects of police training (Geller, 2008). Taheri (2016) concluded, "That is, although no one could be against encouraging this education for officers, without more evidence of its effectiveness, it remains simply a blindly adopted novelty."

The Problem When Training is the Sole Focus

The CIT co-founder, Sam Cochran (2016) is known for saying "CIT is more than just training" yet some agencies still focus solely on the police training component and minimize community partnerships. This simple phrase is far more than a slogan. CIT is not just law enforcement training but a community program. The training is excellent, but do not expect the same results without collaborative partnerships to develop robust crisis systems (Cochran, 2016). The purpose behind CIT was to change organizational infrastructures and systems. When training is the sole focus, the benefits of CIT programs are significantly diminished.

Tully and Smith (2015) also reiterated how criminal justice diversion strategies are ineffective without strong partnerships between law enforcement and community mental health resources. The purpose of the collaborative partnership is to reduce bureaucratic inefficiencies to more effectively direct PMIs to emergency psychiatric services while minimizing officer downtime (Morabito et al., 2012). Not only are community partnerships a key element to the success of a CIT program, but flexibility at higher administrative levels is required to maintain inter-agency support for the programs (Brown-Cross et al., 2014). CIT programs can also vary greatly depending on the needs of the community; which makes it difficult to identify CIT as a uniform intervention (Brown-Cross et al., 2014).

Going Beyond CIT

Steadman and Morrissette (2016) highlighted the importance of going beyond CIT training and developing a more effective crisis care continuum. The CIT training component of the program has been more widely adopted due to the ease of implementation and immediate visibility to the community (Brown-Cross et al., 2014). However, developing more robust criminal justice and mental health partnerships is not occurring at the same pace. These new partnerships challenge the status quo and require practitioners to shift from their traditional roles (Brown-Cross et al., 2014). CIT programs must engage with mental health resources, especially with emergency psychiatric service centers (Watson & Fulambarker, 2013). Geller (2008) also discussed the fact that mental health systems are faced with PMIs who do not want help or treatment services. According to Geller (2008) in many recurring incidents, "CIT" might just as well stand for "Consecutive Interventions without Treatment" (p.58).

Brown-Cross et al. (2014) identified several concerns for future research. The authors believed future studies should seek to show the relationship between learning, training, and behavioral outcomes. They also addressed how organizational factors such as structure, policy, and common practices are rarely taken into account when they can considerably effect officer decision-making. They recommended that researchers delve deeper into the effects of weaker and stronger community partnerships on the effectiveness of CIT programs. Community partnerships are a critical component to the CIT model but have been understudied (Brown-Cross et al., 2014; Compton et al., 2008). Identifying key organizational and community factors related to effective CIT programs may help generalize findings to other locations.

Fisher and Grudzinskas (2010) examined whether alternate PMHC models need to be considered besides the CIT model. The authors wanted to determine what types of research strategies are needed to analyze the effectiveness of CIT and its impact on the mental health system. They also discussed the rise of specialized mental health units after the Memphis shooting in 1988. Fisher and Grudzinskas also note that a CIT program goes beyond police training and becomes a systemic intervention. Many of the improvements influenced by the CIT model might be due to the development of more effective partnerships and not necessarily the interventions themselves (Fisher & Grudzinskas, 2010). Developing and maintaining CIT programs take a considerable amount of time, personnel, and financial resources.

Fisher and Grudzinskas (2010) found several important and useful ways to measure the efficacy of CIT programs. They identified such indicators as reducing the use of emergency psychiatric services, reducing arrests for minor offense, increasing use of community interventions, and decreasing the rates of injury for officers and PMIs (Fisher & Grudzinskas, 2010). Brown-Cross et al. (2014) recommended the use of propensity score matching to develop

comparison groups. Other important factors to track would include the number of mental health referrals, arrests, and informal resolutions. Despite the growing popularity of CIT, the research on its effectiveness does not align with its rapid expansion (Fisher & Grudzinskas, 2010). Fisher and Grudzinskas believed future research should attempt to understand the difference in efficacy between the generalist approach and the CIT model. This new research approach could help validate the last 30 years of research.

Wood and Beierschmitt (2014) discussed the concepts of case management versus place management to address recurring issues involving PMIs. This collaborative approach should be a data-driven recovery philosophy to reduce recidivism. The additional data flowing into the mental health system from law enforcement could help identify hotspots of vulnerability and high utilizers of both systems (Wood & Beierschmitt, 2014). Wood and Beierschmitt discovered that the city of Philadelphia had numerous criminal justice intercepts for PMIs. A point of contention for all of their stakeholders was finding better strategies to handle PMIs who overuse emergency room services (Wood & Beierschmitt, 2014). In Philadelphia, police officers identified the city center as a hotspot of vulnerability due to the social conditions and physical environment. One proposed solution was to direct mobile crisis teams to those areas to provide preventive care and stabilization services. Police rarely linked consumers to mental health resources outside of a crisis situation (Wood & Beierschmitt, 2014).

Wood and Beierschmitt (2014) also identified information sharing between systems as a needed priority. While information from the health care system can only be shared with the police in emergencies, the sharing of police and ambulance data could help health care facilities identify high utilizers. Currently, the research does not show that CIT programs reduce arrests or repeated contacts of PMIs (Wood & Watson, 2017; Charette et al., 2011). Many times police

officers are not even aware if an individual was on a mental health commitment. To achieve

long-term recovery, the police and mental health professionals need to find ways to obtain

voluntary engagement from PMIs (Wood & Beierschmitt, 2014). Future PMHC programs should

use integrated data sets to further promote evidence-based practices. Focusing on both "case-

based" and "place-based" interventions will help direct limited resources to where they are

needed the most (Wood & Watson, 2017; Wood & Beierschmitt, 2014).

Police mental health programs have used the CIT model as their foundation and have

added co-response and collaborative case management teams. Wood and Beierschmitt (2014)

discussed how collaborative case management and place management is the next step to address

reoccurring problems. Charette, Crocker, and Billette (2011) identified the need to develop more

diversion programs aimed to reduce repeated calls for service. Without question, many

communities have a great need for more street-level psychiatric services to assist the police

(Charette et al., 2011). However, further problems arise when agencies lack formal

memorandums of understanding and do not clearly identify their new roles (Charette et al., 2011;

Compton et al., 2010).

There is a need to go beyond what the police can do and have broader community

involvement to fill in the gaps of service (Wood & Beierschmitt, 2014). A new path should not

exclude the police but uses their knowledge to create a more focused response to reduce future

mental health crisis (Wood & Beierschmitt, 2014). Several police agencies have developed

strong police-mental health collaborative programs that operate well above CIT (Cross et al.,

2014).

The Co-Responder Model

While the Memphis CIT model was the most widely adopted PMHC program in the U.S, the co-responder model was the most prevalent in Canada. The co-responder model pairs a police officer and mental health professional together in a team which responds to calls for service calls involving persons in a mental health crisis (Abrahamian, 2015). The primary objective of the co-response teams is to utilize the knowledge of both the criminal justice and mental health practitioner to find better resolutions when people are in crisis (Shapiro et al., 2015). The partnership utilizes the police officer's skills to maintain safety, while the mental health professional uses their expertise to de-escalate and determine the best course of treatment (Helfort, Hickman, & Labossiere, 2016). The objectives of the co-responder programs are to link PMIs to community mental health services at the time of the crisis to avoid the high costs of emergency hospitalization and criminal confinement (Abrahamian, 2015; Helfort et al., 2016). The co-responder teams not only connect PMIs to mental health resources, but also help with substance use, housing, and other social services. In the end, the team's goal is to provide a better continuum of care for persons affected by mental illness and reduce the burden on emergency services (Shapiro et al., 2015).

Co-responder programs have also recently become more popular in the U.S., despite limited research on their effectiveness. Little is known which common factors of co-responder programs will contribute to their overall success (Chappell, 2014; Dempsey, 2017; Shapiro et al., 2015). Shapiro et al., (2015) did find some evidence that several programs with strong connections with their community mental health resources were able to alleviate some of the burdens on their local criminal justice system. While more co-response teams are being implemented, little is known about their sustainability and outcomes over time. Future research

needs to understand the mechanisms that are tied to specific outcomes so they can be adopted to other jurisdictions. The scientific research on co-response teams faces similar obstacles evaluations of the CIT model have suffered (Chappell, 2014; Shapiro et al., 2015).

Co-responder programs have gone by several different names including the Crisis Outreach and Support Team in Hamilton (Ontario), the Crisis Response Team (Seattle, WA), the Mental Health Mobile Crisis Team in Halifax (Nova Scotia), and the Police, Ambulance and Clinical Early Response in Melbourne (Victoria). In this review, these programs will all be identified as co-responder programs as they all include the pairing of police officers and mental health professionals.

The Hamilton Mobile Crisis Rapid Response Team Study

Aschbrenner, Naslund, and Stephen-Bartels (2016) conducted a 12-month evaluation of the Hamilton Mobile Crisis Rapid Response Team (MCRRT). The MCRRT was a collaborative partnership between the St. Joseph Healthcare Hamilton Crisis Outreach and Support Team (COAST) and the Hamilton Police Department (Aschbrenner et al., 2016). The MCRRT paired a police officer with a mental health crisis worker who were dispatched to emergency 911 calls that were believe to be mental health related (Aschbrenner et al., 2016). The objective of the MCRRT was to direct people to community resources and avoid unnecessary transports to hospital emergency rooms (Aschbrenner et al., 2016). Each MCRRT officer attended the 40-hour CIT course but worked closely with the mental health clinician to improve their skills. The team had significantly more time and options when handling mental health calls. If the team could de-escalate the situation, they may stabilize the person in their home and provide them with a follow-up treatment plan. However, in the case when emergency services were required, the

MCRRT team would transport the PMI to the most appropriate community resource, crisis residence, or hospital.

In a 12-month period, the MCRRT program had a 49% reduction in the amount of people being brought to the emergency room (Aschbrenner et al., 2016). When patients were taken to the emergency room, only 20% were discharged by the emergency room doctor compared to 53% previously. Out of 80% of the patients evaluated by the psychiatrist, 54% required hospitalization. The MCRRT was able to increase the admission rate by 29% as compared to situations where police officers brought PMIs to the hospital themselves. The MCRRT not only had a higher admittance rate but they reduced emergency rooms visits by using alternative community resources (Aschbrenner et al., 2016).

Aschbrenner et al. (2016) surveyed a group of police officers to determine which PMIs they believed should go to the hospital compared to who was actually transported by the MCRRT. The officers who were surveyed said they would have brought 308 of the patients to the emergency room while the MCRRT only took 203 of the patients to the hospital (Aschbrenner et al., 2016). The MCRRT was more effective in determining what resources PMIs need and was able to reduce the burden on emergency services.

The Seattle Crisis Response Team Pilot Project

Helfgott, Hickman, and Labossiere (2016) conducted a descriptive analysis of the Seattle Police Department's Crisis Response Team (CRT) pilot project between 2010-2012. The team was composed of dedicated CIT-trained officers who were paired with mental health professionals. The purpose of the evaluation was to determine if adding mental health professionals to the team had any effect on call resolution times, repeated contacts, and referrals to services. The CRT was an enhancement to their Crisis Response Unit (CRU) which was

established in 1998. The goal of the CRT was to find alternative solutions to avoid arrest and emergency hospitalization. The CRT was designed to link people to services to reduce repeated contacts and to avoid the high cost associated with emergency room admissions and criminal confinement (Helfgott et al., 2016).

The CRT team were referred cases that involved persons who had an escalating mental health condition, posed an imminent public safety risk, or were high utilizers of emergency services (Helfgott et al., 2016). During the 12-month evaluation period, the CRT conducted 669 outreach visits with less than 1% resulting in an arrest. In 100% of the cases, when PMIs were considered high utilizers of emergency services, the teams referred them to local community-based resources with no arrests. While the team avoided arrests and emergency hospitalizations of high utilizers, they did not reduce repeated calls for service generated by the same individuals (Helfgott et al., 2016). High utilizers pose unique challenges with many co-occurring issues including substance use, homelessness, and other physical/social disadvantages.

It was helpful for the mental health professional to facilitate and coordinate with local community services to find alternative treatments. While patrol officers could facilitate the same resolutions, they do take a considerable amount of time and require more knowledge in the area of social work. It would be unrealistic for patrol officers to be expected to negotiate this level of care in between managing other emergency calls for service. The CRT did alleviate a significant burden for patrol officers and reduced officer down time in the field (Helfgott et al., 2016). The CRT averaged three contacts with each individual on their caseload. In 43% of the cases referred to the CRT, the PMIs did not have a repeated law enforcement contact after being linked to services.

Helfgott et al. (2016) discussed how many studies on PMHC programs were mostly descriptive with small samples sizes and no comparison groups. They reiterated that the current research has not been able to identify the key components of PMHC programs that work in diverse communities. Furthermore, they emphasized the need for future research to evaluate the program's effect on patient-level outcomes.

Police Ambulance Crisis Emergency Response (PACER)

Huppert and Griffiths (2015) evaluated the first three months of the Police Ambulance Crisis Emergency Response (PACER) pilot program in Melbourne, Australia. The PACER program was based on three different PMHC programs in the U.S, which included the Crisis Intervention Team (CIT) from the Memphis Police Department, the Psychiatric Emergency Response Team (PERT) from the San Diego Police Department, and the System-Wide Mental Assessment Response Team (SMART) from the Los Angeles Police Department (Huppert & Griffiths, 2015, p.521). Since 2007, the New South Wales Providence had a Mental Health Intervention Team which was similar to the CIT model. The PACER teams were designed to supplement the MHIT teams during active crisis calls.

The PACER teams were comprised of a police officer and a mental health clinician (Huppert & Griffiths, 2015). The teams operated 7-days a week between the hours of 3:00 pm and 11:00 pm. The teams were either dispatched to known mental health calls or were called by officers already on scene to determine if a person was in a mental health related crisis. The mental health professional was responsible with triaging and de-escalating the person in crisis. The police officer was responsible for managing safety issues and gathering additional information from family members and friends. Huppert and Griffiths (2015) did not have access to mental health call data before the study started for a comparison. The teams did encounter a

small number of high utilizers of emergency services (Huppert & Griffiths, 2015). During the three month study, Huppert and Griffiths (2015) found that the PACER teams improved response times for mental health evaluations and reduced unnecessary hospitalizations.

The Mental Health Mobile Crisis Team Study (Nova Scotia, Canada)

Kisely et al. (2010) examined the effectiveness of a Mental Health Mobile Crisis Team (MHMCT) in Nova Scotia, Canada. The MHMCT paired plainclothes police officers and mental health professionals together who responded to active mental health crisis calls. The authors used a mixed methodology of quantitative data based on interviews with police officers, mental health staff, consumers and their families. Kisely et al. (2010) used a pre-test and post-test comparison group design to evaluate the availability, accessibility, and satisfaction of the MHMCT services. They observed two different services areas where one area received MHMCT services and the other area only received the standard police service. The MHMCT calls for service increased from 464 to 1666 calls within the first year of operation. Overall, the MHMCT reduced the amount of time spent on the scene of a mental health call from 165 minutes for the standard police response to 136 minutes for the teams. Kisely et al. (2010) found that PMIs who had contact with the team had a higher level of engagement with treatment services.

Kisely et al. (2010) analyzed the number of calls to their 24-hour crisis line, the number of crisis calls to the police, the number of outreach visits conducted by the MHMCT, and the time it took from the initial call to when the MHMCT arrived on scene (p.664). By year two the MHMCT responded to 7558 mental health calls compared to only 2782 mental health calls before the program started. The number of mobile interventions went from 162 to 613 by the end of the second year. The MHMCT staff and officers were encouraged by how well they worked together on calls to more effectively solve complex issues (Kisely et al., 2010).

Mobile Crisis Teams

By the 1990's over 30 states had Mobile Crisis Teams (MCT) which were made up of licensed mental health professionals, registered nurses, and psychiatrists (Lord & Bjerregaard, 2014). Their duties included responding to crisis calls, providing stabilization services, and case management. MCTs are a mental health-based response with teams of mental health professionals that respond when summoned by law enforcement or other community members. The MCT will respond and take over an emergency crisis call after the police have determined the scene is safe. They assume responsibility for stabilizing the situation and determining the most appropriate treatment option. These teams usually operate under the control of local mental health organizations and services.

A significant benefit of the MCTs is they tended to use the least restrictive treatment options and directly met with PMIs out in the community (Lord & Bjerregaard, 2014). MCTs were believed to be an inventive way for the police to collaborate with local mental health resources to solve quality of life issues for PMIs. Most law enforcement officers had favorable views of MCTs and believed they prevented PMIs from going to jail. MCTs have existed since the 1960s, but limited research or formal evaluations have been conducted on their effectiveness (Lord & Bjerregaard, 2014). This next section will cover several key studies on mobile crisis teams in the U.S., Canada, and Australia.

The Mental Health Acute Assessment Team (Sidney, Australia)

Faddy, McLaughlin, Cox, and Muthuswamy (2017) examined the effects of the Mental Health Acute Assessment Team (MHAAT) on the outcomes of mental health calls in Western Sydney, Australia. In 2013, this area of Western Sydney received 60,000 calls that were identified as mental health related. The area had a diverse immigrant community with 45% of

residents reporting that English was their second language. Most residents were considered middle and working class. The MHAAT consisted of an extended care paramedic (ECP) and a mental health clinical nurse consultant (CNC) (Faddy et al., 2017). The ECP had advanced training in patient assessment and risk mitigation. The CNC was responsible for the mental health assessment and determining placement. The team could either transport PMIs directly to emergency psychiatric services, alternative community resources, or stabilize them in their home. The MHAAT operated between 11:00 and 23:00 hours.

During the study's timeframe, the team met with 398 persons in an acute mental health crisis. A total of 66% of the individuals had consumed drugs or alcohol the same day of the contact. In only nine cases, the PMI had to be restrained and handcuffed by police. In 70% of the incidents, the MHAAT was able to stabilize PMIs in their homes or used alternative community resources to avoid emergency hospitalization. After the initial contact with the team, 96% of the individuals remained in the community and did not generate another call after being linked to services. They discovered that referrals made by the MHAAT were more likely to connect PMIs to services compared to the referrals made by CIT officers. The team also used embedded social workers who could use their commitment authority to involuntarily commit PMIs into community mental health programs. When social workers' used their commitment authority, they were successful 83.4% of the time in linking PMIs to services (Faddy et al., 2017).

Following the study, Faddy et al. (2017) identified how the MHAAT lacked the ability to follow-up on the PMIs who were left at home or track the outcomes for people after they were transported to the hospital. The authors also discussed the importance of determining how employment status can impact a PMIs ability to follow treatment plans. In addition to co-occurring substance use, Faddy et al. (2017) recognized that previous criminal behavior,

homelessness, and failure to follow treatment plans were factors that increased the probability that PMIs would have contact with law enforcement.

Mecklenburg County Mobile Crisis Team Study

Lord and Bjerregaard (2014) analyzed the Mobile Crisis Team (MCT) utilized in Mecklenburg County, North Carolina. Between 2011-2012, the MCT had 3636 face to face outreach visits with 30% of them being initiated by police. The authors only included calls when the MCT physically responded to the scene. They did not include incidents when the MCT handled the incident over the phone or sent a service referral by email. Lord and Bjerregaard (2014) focused primarily on the types of calls police were most likely to request a mobile crisis team and the proceeding outcomes.

When officers requested the MCT, the PMIs were more likely to be under the influence of alcohol, suffered from a mood disorder, were psychotic, and displayed indications of potentially violent behavior (Lord & Bjerregaard, 2014). Similar to the MHAAT study, the Mecklenburg MCTs were more likely to encounter PMIs who had severe, persistent mental illness accompanied by homelessness and a past criminal record (Lord & Bjerregaard, 2014). While 81% of the PMIs were in need of emergent care, 63% were stabilized and remained in their home. However, diversion options were significantly predicted based on the needs of PMI in all of the models. Lord and Bjerregaard (2014) identified that younger males who had psychotic/mood disorders, co-occurring substance use, and displayed violent behavior were more likely to come into contact with law enforcement. However, the MCTs were also more likely to be able to divert them to alternative community resources. The authors did recognize that the study lacked a comparison group of PMIs who did not receive outreach services by the MCTs.

DeKalb County, Georgia Mobile Crisis Team Study

Scott (2000) evaluated the effectiveness of the MCT in handling mental health-related calls in DeKalb County, Georgia. Over a 3-month period, in 1995, the author analyzed the demographics, arrests, and hospitalizations rates of the PMIs who had contact with the Dekalb County MCT. A cost comparison of using the MCT versus the standard police service was also calculated. Compared to 72% of mental health calls handled by the police, only 45% of the calls handled by the MCT resulted in emergency hospitalizations. Out of the PMIs that were hospitalized, the MCT involuntarily committed only 36% of patients versus 67% of PMIs brought in by police officers. The average cost per call when the MCT responded was 23 percent lower than the standard police service (Scott, 2000).

Scott (2000) was able to create a comparison group with the mental health crisis calls that had only received the standard police service. The demographics that were collected included age, race, gender, homelessness, and prior hospitalizations. There was no statistically significant differences between age, race, gender, homelessness, or whether the PMIs were admitted to a psychiatric hospital in the previous six months (Scott, 2000). Mental health professionals, police officers, and PMIs who were served by the teams reported a positive experience. One significant drawback to the program was that it only had one MCT that provided limited coverage to an area with greater need.

The Nebraska Post Crisis Assistance Program (PCAP)

Bonkiewicz et al. (2014) evaluated the Post Crisis Assistance Program (PCAP) in Lincoln, Nebraska which was designed to prevent PMIs from having future arrests, emergency hospitalizations, or repeated contacts with the police. The Lincoln Police Department (LPD) investigates over 2500 mental health calls each year. LPD collaborated with local mental health

resources to create the PCAP program (Bonkiewicz et al., 2014). The PCAP was designed to help PMIs when a crisis was not occurring. A significant amount of research has been conducted on interventions during an ongoing crisis call, but few analyze aftercare programs. The PCAP program was designed to complement their CIT program.

LPD policy requires an officer to write a report whenever they encounter PMIs during a criminal investigation. After a call, an officer can refer a PMI to the PCAP program by sending an email to the mental health association. Data sharing between agencies is critical for the success of mental health programs. After an officer submits a referral, a peer specialist will conduct a home visit within 24-48 hours for non-clinical services. The service is free and voluntary. The peer specialist can help the PMI find a support group or develop self-help strategies.

Depending on officer awareness of the program, Bonkiewicz et al. (2014) were unable to determine the factors that caused an officer to send a request to the PCAP. At times, peer specialists were unable to contact some people who were transient. Each encounter was counted even if the PMI declined service. If a person had repeated contacts with the PCAP, the first time they had contact was used. The authors chose to use propensity match scoring to predict who would receive services and the difference in the three outcomes based on the service referral. Besides tracking demographic information, Bonkiewicz et al. (2014) collected participants' criminal history, number of emergency hospitalizations, and police contacts six months before and six months after they had contact with the PCAP team.

At the end of the 6-month period, the PCAP program significantly reduced the likelihood that a PMI would have repeated contact with law enforcement. The likelihood of a future arrest was reduced by 19%, and emergency hospitalizations were down by 10% (Bonkiewicz et al.,

2014). The PCAP was a successful way to connect PMIs to services post-crisis and develop long-term stabilization plans (Bonkiewicz et al., 2014).

Collaborative Case Management Teams

Some PMHC programs went a step beyond the mobile crisis models and developed investigative teams that conduct collaborative case management. The teams carry caseloads of PMIs who either had repeated contact with emergency services or posed public safety concerns. The teams typically did not respond to 911 crisis calls but, instead, conducted initial and follow-up outreach visits. A referral for follow-up by the PMHC team could be initiated by an officer's report, or a request by other agencies, family members or the public. The teams work with PMIs to develop a personalized care plan to prevent future crises. They continually engage with PMIs to make sure they are connected with services and are following treatment plans.

The Tucson Mental Health Investigative Support Team

Shortly after the shooting of U.S. Representative, Gabrielle Giffords, the Tucson Police Department and the Pima County Sheriff's Office created a Mental Health Investigative Support Team (MHIST). In Arizona, state law requires law enforcement to handle the transportation of individuals who have their outpatient treatment revoked to psychiatric detention facilities (Balfour et al., 2017). The MHIST team concentrate on monitoring high utilizers of emergency services. They were also responsible for locating and transporting PMIs who violated their treatment requirements (Balfour et al., 2017).

The team operated in plain clothes and unmarked cars, handling non-criminal nuisance cases as well as situations where individuals had a criminal history and posed a public safety issue. The goal of the MHIST was to divert PMIs away from the criminal justice system when possible (Balfour et al., 2017). To avoid confidentiality-related issues over healthcare

information, the MHIST detectives concentrated on providing information to mental health providers demonstrating the desire to have persons avoid arrest. In some cases, MHIST detectives had developed trusting relationships with PMIs who voluntarily signed waivers to allow detectives access to their health records to help them more effectively. In 2015, MHIST served 484 civil commitment transport orders without a single use of force (Balfour et al., 2017).

Albuquerque Police Department Crisis Intervention Unit

The Albuquerque Police Department has developed a Crisis Intervention Unit (CIU) with a police psychiatrist and a Community Outreach and Support Team (COAST) (Rosenbaum, 2010). COAST started in 2005, and they added a psychiatrist in 2007. The CIU is led by a psychiatrist acting as the unit commander, one lieutenant, one sergeant, seven detectives and two data analysts. The psychiatrist adds a unique element to the team (Rosenbaum, 2010). The psychiatrist can conduct street-level assessments, write mental health pickup orders, and bridge the gap between law enforcement and mental health services. COAST is comprised of five civilian crisis specialists and one sergeant who are directed to meet PMIs in the field, and develop strategies to link PMIs to services for long-term treatment. The APD COAST program has been able to successfully link PMIs who have committed nonviolent and non-criminal offenses to mental health resources which has reduced the burden on front-line patrol personnel (Rosenbaum, 2010).

One primary focus of the CIU was to find solutions for PMIs who misuse 911 for non-emergency matters and repeatedly used limited police resources. PMIs who experience delusions and do not follow their treatment plans often generate many unnecessary 911 calls. These individuals are found in many community and can quickly absorb the time of first responders (Rosenbaum, 2010). These calls typically do not require emergency services, but because of the

unknown nature of the incidents a police response is mandated. Currently, no national best practices exist on how to more effectively handle these incidents. Rosenbaum (2010) outlined steps on how police officers, social workers, and mental health professionals can work together to prevent the problem of psychiatric 911 abuse. These people are often not a danger to themselves or others and do meet the criteria to be placed in protective custody. However, these high utilizers use a significant amount of emergency service resources. The issue of 911 misuse is a problem across the country. The PMIs who typically abuse 911 services are categorized as "lonely complaints" and are simply calling 911 for the opportunity to talk with someone.

The first step is to identify repeated calls for service that are psychiatric related. Next, develop a collaborative team who can build a relationship with that person to find a solution. In one case, after multiple attempts, detectives were finally able to connect with an individual who had been homeless and refused services for years. But because they had the time to make continuous follow-up visits they were able to build trust with him. The individual is now in housing and is doing well while staying connected with treatment services. Very few psychiatrists in the United States are employed by a law enforcement agency, work alongside detectives, conduct evaluations in the field, assist with training, and participate in community outreach (Rosenbaum, Tineny, & Tohen, 2017). These partnerships bring new perspectives to find solutions to chronic community issues.

In Albuquerque as high as a one third of calls for police service involve persons with mental illness (Rosenbaum et al., 2017). In the past five years, mental calls have increased by 48% for the Albuquerque Police Department. More PMIs are being diverted away from the criminal justice system with 80% of those facing criminal sanctions for minor offenses being transported to a hospital (Rosenbaum et al., 2017). The CIU has gone beyond conducting follow-

up home visits. Through the development of strong interagency networks and enhanced community partnerships, the team now informs best practices in police-mental health programming.

Summary

PMHC programs utilize several distinctive strategies to keep PMIs from unnecessarily entering the criminal justice system. These strategies include training front-line officers in CIT, utilizing co-responder teams, forming collaborative case management and investigative teams (Dempsey, 2017). The PMHC programs fall within the first intercept of the sequential intercept model which is the foundation of the theoretical framework for this study (Griffin et al., 2016). As more law enforcement agencies are establishing PMCH programs, it is important to determine if they are reaching their intended objectives. Despite the growing popularity and rapid expansion of these type of programs, caution should be exercised as there is a limited amount of research on their effectiveness (Geller, 2008; Taheri, 2016). They are costly to develop, maintain, and require more supporting evidence to become sustainable best practices in community mental health response. Previous studies have had several methodological issues such as the lack of comparison groups, limited quantitative data, and the use of posttest only designs (Lord et al., 2011; Lurigio & Watson, 2010; Taheri, 2016; Watson & Fulamarker, 2013). In most cases, the evidence was anecdotal without outcome-based measurements. Therefore, the purpose of this study will be to fill a modest gap in the research by utilizing comparison groups, collecting quantitative data from official sources, and conducting pre- and posttest analysis; which has been missing from previous research. In doing so, the study will provide a better understanding on how PMHC programs in one select location can affect the outcomes of mental health calls compared to the standard police response. This research will aid in the development

of future PMHC strategies to prevent the criminalization of persons affected by mental illness and potentially help save lives. The next chapter will discuss the research design, data collection methods, analytical procedures and ethical considerations.

Chapter 3: Research Methods

The purpose of this chapter is to provide information regarding the research methods that were used to collect and analyze the data to evaluate the efficacy of PMHC teams. The agency selected for this study, the SPPD, has documented and tracked the dispositions of mental health calls within their computerized record management system. The agency's data collection and retention policies made it possible to extract the necessary information to investigate the research questions. The research design and approach are described in the first section. The remaining sections of this chapter focused on the setting and sample for the research, data collection procedures, analytic methods and ethical considerations for the study. The Walden IRB approval number is 03-25-19-0573231.

Research Design and Rationale

This research study was based on a quasi-experimental design that used archival data collected by the SPPD as well as data from the Minnesota public court record systems. This quantitative study employed a pretest/posttest design between three groups of subjects. The quasi-experimental groups consisted of PICs who either received PMHC outreach services from the SPPD MHLO or the SPPD MHU. The nonequivalent comparison group was PICs who received the standard police service to a mental health call before the implementation of either PMHC program.

The primary independent variable was exposure to PMHC outreach services. The PMHC outreach services had two different levels of treatment. First, PICs who received services from the MHLO and second, PICs who received services from the MHU. The PMHC outreach services include the following actions: follow-up phone calls, co-response outreach visits, referrals for treatment services, emergency hospitalizations, and arrests. Standard police service

includes the following actions: mediation, arrest, and emergency hospitalization. The dependent variables were mental health calls, arrests, and emergency hospitalizations measured before and after the PIC's initial contact with either the MHLO, the MHU or SPPD officers within the study's timeframe. This study employed various bivariate and multivariate techniques to analyze the difference in service outcomes between the three comparison groups (O'Sullivan, Rassel, Berner, & Taliaferro, 2017). Covariates of age, gender, race, ethnicity, transient status, diagnosed mental illness, substance use, and violent behavior were also be used to determine their effect on service outcomes.

Appropriateness of Design

The study only evaluated one agency's PMHC programs, but a single subject quantitative research design can assess changes in a phenomenon over time by introducing or taking away a treatment option (Rudestam & Newton, 2014). The use of archival data was utilized to get an official account of the number of documented interactions between police officers and PICs. Other data collection methods such as surveys or interviews would not have guaranteed the level of accuracy. SPPD officers are required to complete a report documenting each mental health investigation.

Setting and Sample

The City of Saint Paul, Minnesota is located in the Twin Cities metropolitan area. The SPPD has 630 sworn police officers and 300 civilian personnel that serves a community of 307,000 residents. The SPPD responds to over 350,000 calls for service each year with 12,000 calls being primarily related to mental health issues (Sipes, 2018). Since, 2008 the number of mental health calls SPPD officers respond to has nearly doubled. Within the last several years, SPPD has operated two different PMHC programs to better serve persons affected by mental

illness in their community. As described in Chapter 1, SPPD's first PMHC initiative was the MHLO program, which operated from January 2017 to December 2017. The MHLO program included one designated CIT officer who collaborated with local mental health services. However, since July 2018, SPPD has implemented a more robust PMHC program with the establishment of their MHU. The MHU consisted of one sergeant, three officers, and two embedded social workers who focus on reducing systems barriers to get PICs better access to mental health treatment (Sipes, 2018).

Participants

The participants were PICs who came into contact with SPPD police officers, the MHLO and the MHU as a result of a being involved in a mental health call within the study's selected timeframe. A mental health call refers to a situation when an individual's behavioral health rises to level of concern that someone calls 911 which summons an immediate police response. A mental health call could have been initiated by the PIC, a relative or friend, the public, or another law enforcement officer. The mental health calls included suicide attempts, suicidal threats, delusions/paranoia, depression/extreme despair or other mental health related issues.

The determination that an individual was a PIC was based on the evaluation by the public service professionals whom they had come into contact with during a mental health call (Sipes, 2018). These professionals include the 911 telecommunicators, SPPD police officers, the MHLO, MHU officers, and MHU clinicians. The 911 telecommunicators are the first persons who may label the individual as a PIC or classify the incident as a mental health call. The 911 telecommunicators are trained to gather necessary information to identify calls that are potentially mental health related. They will then relay that information to the officers responding to the call. When the officers arrive on the scene they will further evaluate the subject to

determine if the incident is primarily related the person's mental health. SPPD officers receive introductory training in the police academy on identifying persons who may be affected by mental illness. Some officers have also attended the 40-hour basic CIT course to more readily identify people with mental health concerns. The MHLO and the MHU Officers receive an increased level of mental health training compared to the average SPPD police officer. The MHLO and MHU officers are required to attend the 40-hour basic CIT course, several advance mental health courses, and receive on-going training from the mental health clinicians they work alongside. The MHU clinicians are licensed to conduct mental health assessments. With their advanced education, training, and experience, they are considered subject matter experts on diagnosing mental health disorders (Sipes, 2018).

All of the subjects within this study who were identified as PICs did not have a formal mental health assessment by a medical professional resulting in a specific diagnosis. However, each subject did display behavior that the responding public service professionals recognized as the symptoms of a mental health crisis based on their training and experience. Identifying and diagnosing specific mental health disorders can be difficult even for experienced mental health professionals. In a controlled clinical setting, several mental health professionals can have varying opinions on an individual's mental health diagnosis (Milton, Mullan & Hunt, 2016). The practitioners responding to mental health crises in the community do not have the ability to monitor an individual over an extended period of time in a controlled environment (Wood & Watson, 2017). A similar classification protocol to identify PICs has been used in most of the studies on specialized police responses to mental health emergencies (Blevins et al., 2014; Bonkiewicz et al., 2014; Morabito & Socia, 2015).

While the PICs primarily came into contact with patrol officers due to a 911 call, they came into contact with the MHLO and MHU in several ways. The MHLO and MHU review and triage mental health reports completed by patrol officers in the field. Officers can also email or call the MHLO or MHU directly to refer people for follow-up services. Both teams also receive referrals from other public entities and law enforcement agencies. The MHLO and MHU infrequently respond to active 911 crisis calls, and primarily provide outreach services *following* a mental health call. During the outreach visits, the MHLO and MHU conduct an assessment and provide PICs linkage to mental health resources and social services. They also conduct proactive outreach visits to check on persons on their collaborative caseload to make sure they are following their treatment plans.

Sampling Method

A sampling frame was created using the population of PICs who came into contact with St. Paul police officers, the MHLO, and the MHU – see Figure 1 for details. The population was divided into three groups based on the type of service they received; which will be either the standard police service, MHLO service, or the MHU service. Using SPSS, a simple random sample of 180 subjects were drawn from each group for a total of 540 subjects; which was narrowed based on selection criteria to 464 subjects. Random sampling also known as probability sampling is useful to obtain a representative sample in order to make inferences about a population (Burkhardt et al., 2017; O'Sullivan, 2017).
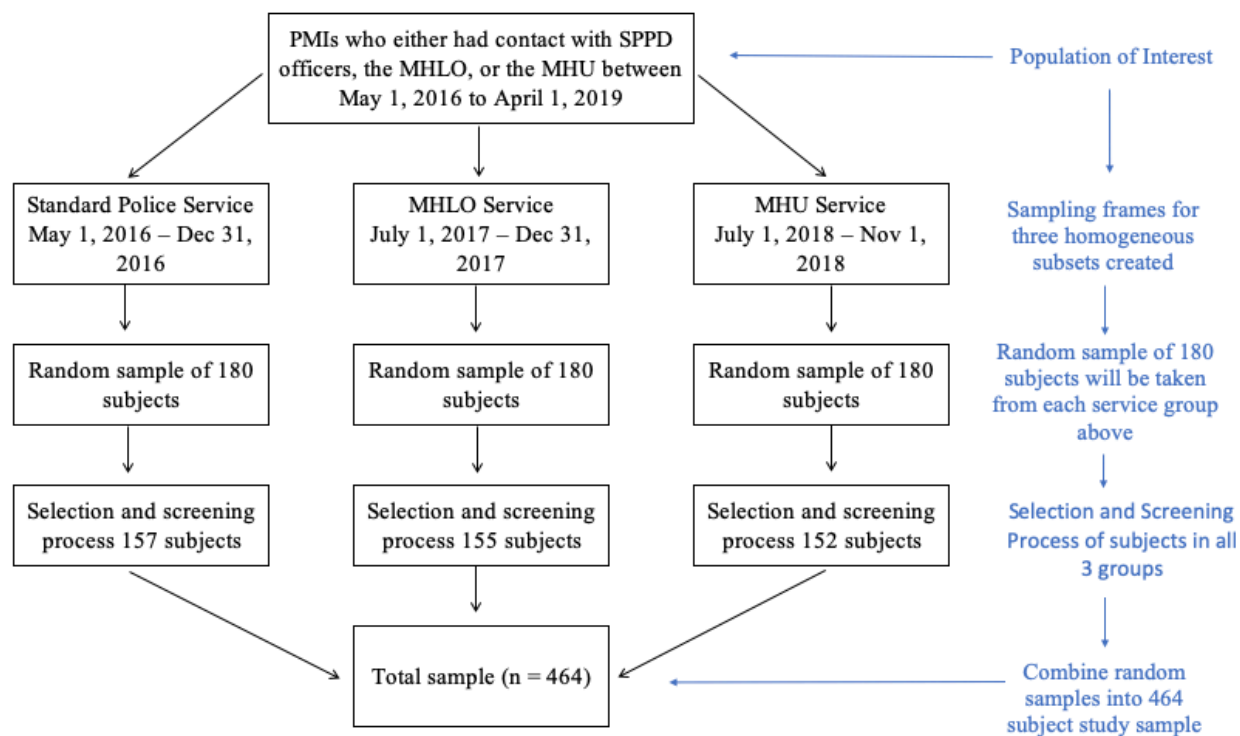
Figure 1. Sampling frame

Power Analysis

A power analysis was performed to minimize Type II errors – see Figure 2. In order to compare each outcome measure, the alpha (α) level was set at α = .05. The standard Cohen's effect size convention of d = .80 was used (Burkhardt et al., 2017; Cohen, 1988; Dattalo, 2008). Utilizing the G*Power 3 software, a power analysis was computed for a OLS regression at p < .05, with the effect size of .15 and power of .80. The results indicated a desired sample size of 143 participants. The study's sample size of 464 subjects met this recommendation.
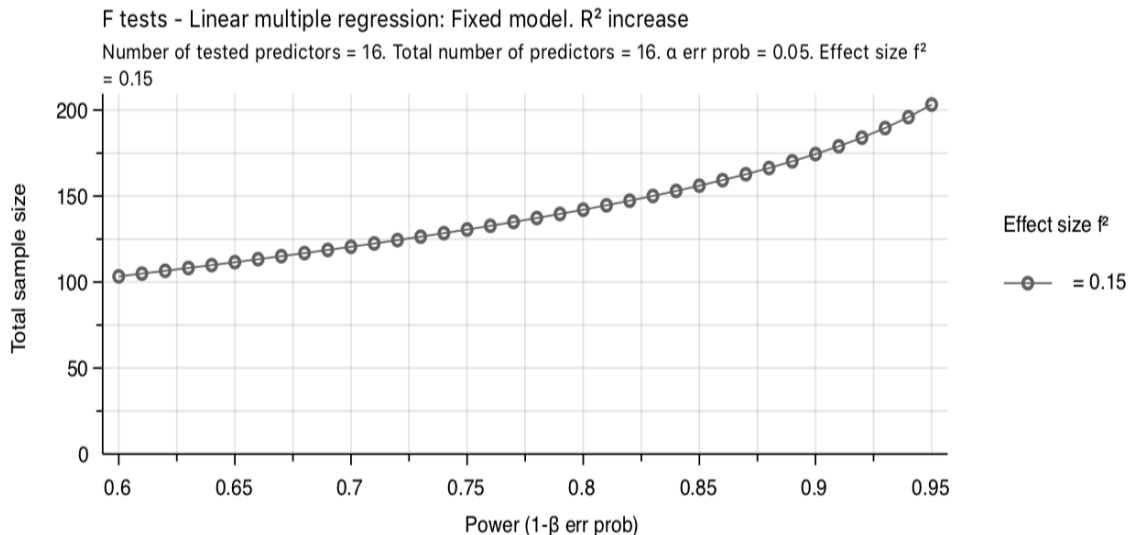
Figure 2. Power analysis for linear multiple regression

Treatment

The police-mental health collaborative team's outreach services following a mental health call utilizes the expertise and knowledge of both law enforcement and mental health practitioners to better serve PICs to prevent a future crisis. Traditionally police officers have received minimal training how to effectively deal with people in a mental health crisis. The standard police response to PICs was to either find an informal resolution, take the person to the hospital, or make an arrest. The MHLO and MHU have access to a variety of community-based resources to stabilize a PIC and avoid secure detention. These services are not only less expensive, but they keep PICs in the community and reduce the use of emergency services. The MHLO and MHU services include follow-up phone calls, outreach visits, treatment referrals, emergency hospitalization, and arrest. The purpose of the outreach services is to provide linkage to mental health resources to reduce future mental health crises.

The PMHC services provided by the MHLO and MHU will be considered two different levels of treatment as the SPPD mental health program evolved in two distinct stages (Sipes, 2018). The MHLO was the first phase of their PMHC programming. The MHLO consisted of one CIT officer who was responsible to handle the follow-up on mental health calls when requested by officers, investigative units, other agencies, and members of the community. They would coordinate with local mental health resources for PICs who may need linkage to services. Since, the MHLO program only consisted of one CIT officer, they were limited in the amount of services they could provide based on their time and availability. While they did have greater access to local mental health resources, the MHLO could not always provide PICs with immediate access to the services. The MHLOs coordinated response with the county crisis team took time to set up and did not always occur on the same day. In comparison, the MHU developed after the MHLO program, was comprised of one sergeant, 3 officers, and 2 embedded social workers (Sipes, 2018). The MHU could respond the same day, conduct mental health assessments, and provide immediate linkages to services. The level of availability and accessibility of each program could have a varying effect on the outcomes of mental health calls compared to the standard police service.

Research Instruments and Procedures

SPPD collects data in a multitude of ways. Their record management system held the majority of information which documents their officers' interactions with the public. The system documents and tracks all of the information from the initial call to the officer's final disposition and outcome. It contained the initial call information obtained from the 911 telecommunicator who received the emergency call before dispatching officers to respond. It also contained the officer's final disposition along with their corresponding report documenting the incident. The

department requires their officers to document interactions with PICs during mental health calls in a police report. Additional data was obtained from each PMHC team's case management system. Finally, Minnesota's online public court records were also utilized to verify participants arrest history before and after the intervention.

The time frame of the study was from May 1, 2016 to April 1, 2019. The information in this study was derived from the contacts made with PICs by SPPD officers, the MHLO and the MHU. First, the outcomes of the standard police service for a mental health call was evaluated between May 1, 2016 to December 31, 2016. Second, the service outcomes of the MHLO program was evaluated between July 1, 2017 to December 31, 2017. Lastly, the service outcomes of MHU was evaluated between July 1, 2018 to Nov 1, 2018. The dates for the evaluation of the standard police service were chosen prior to the implementation of either PMHC program to avoid any potential effects from those initiatives. Since the MHU did not incorporate the embedded social workers into the team until July of 2018, the timeframe was limited for the post analysis. Therefore, the number of mental health calls, arrests, and emergency hospitalization for each subject was only collected six months after the initial incident.

The data for this research comes from governmental databases and is considered public information. However, permission to access this information was granted by the Chief of Police of the St. Paul Police Department. As previously discussed this research fills a modest gap in understanding the efficacy of police-mental health programs. Many police agencies would be reluctant to agree to be part of such a research study because of the risk of unfavorable findings that may reflect poorly on their reputation. SPPD's missions and values are reflective of the principles outlined in the Department of Justice's recommendation for 21st Century Policing.

SPPD is a progressive police agency that continually seeks new ways to improve practice while maintaining public trust though governmental transparency.

The research data was secured in a password protected USB drive that was only accessible to this researcher. SPPD also retained a copy of the research data, which was secured on their computer database systems in accordance with their state laws and department policy. The raw data will be made available on request.

Measures

Date of Initial Mental Health Crisis

The date of the PIC's first mental health call within the study's time frame was used as the initial comparison point for the pre-test/post-test analysis. The researcher gathered information about all of the PIC's mental health calls, arrests, and emergency hospitalizations prior to- and then 6 months after the initial incident date. The mental health call was coded as a suicide attempt, suicidal threats, delusions/paranoia, depressed/extreme despair, or other mental health related issues. In each case, an officer responded to a mental health call and completed a report.

The initial contact made by the MHLO or the MHU with a PIC was counted as their initial incident date. Any additional contacts after that initial incident with the same individual was collected but not recognized as a repeated contact if the interactions were part of their mental health treatment plan. However, if the same PIC had a reoccurring mental health crisis that generate another 911 call that was counted as a repeated contact and additional mental health call.

Dependent Variables

The dependent variables were count measures: mental health calls (*hereinafter* MHCs), arrests, and emergency hospitalizations (*hereinafter* EHPs). The number of MHCs, arrests, and EHPs were collected six months after the initial mental health incident. These dependent variables were also recoded dichotomously for additional analysis. If a subject had any additional MHC six months after the initial incident date it was coded "0" for *No* and "1" for *Yes*. If a subject had an arrest six months after the initial incident date it was coded "0" for *No* and "1" for *Yes*. Lastly, if a participant had an EHP six months after the initial incident date it was coded "0" for *No* and "1" for *Yes*.

Independent Variables

PMHC Outreach Services

The primary variable in this study was the PMHC outreach services provided by either the MHLO or the MHU following a mental health call. The subjects were divided into three groups based on whether they receive the standard police service, MHLO services, or MHU services as a result of a mental health call. This categorical variable was dummy coded into three variables for analysis. First, the standard police service variable was coded "0" for "No" did not receive standard police services and "1" for "Yes" did receive standard police services. Second, the MHLO service variable was coded "0" for "No" did not receive MHLO services and "1" for "Yes" did receive MHLO services. Third, the MHU service variable was coded "0" for "*No*" did not receive MHU services and "1" for "*Yes*" did received MHU services.

Covariates

Subject Demographics Variables

Demographic information including age, gender, race, ethnicity, transient status, diagnosed mental illness was also collected at time of mental health crisis. Age was scaled at the ratio level (years). Gender was scaled categorically with female as "0" and male as "1". Race was measured as non-White with "0" for "No" and "1" for "Yes". Ethnicity was measured as non-Hispanic with "0" for "No" and "1" for "Yes". Transient status was also measured categorically with as "0" for "No" not homeless and "1" for "Yes" the subject was homeless. Diagnosed Mental Illness was measured categorically as "0" for "No" and "1" for "Yes" if it was known to the responding police officers or PMHC team members at the time of the incident if the subject had been diagnosed with a mental illness on record.

Subject's History Variables

Prior Mental Health History. A search was conducted in the SPPD's data systems on the number of times a person was ever the subject of a mental health call 12-months before the initial incident date. This variable was collected and measured at a ratio level.

Prior Criminal History

A search was conducted in the SPPD data systems as well as the Minnesota online public court records for the subject's criminal histories. Excluding traffic citations, the total number of misdemeanor and felony arrests was combined for each subject and measured at a ratio level. Similar to the mental health history, this variable was created to reflect the number of arrests a subject had 12-months before the initial incident date.

Prior Emergency Hospitalization History

A search was conducted in the SPPD's data systems on the number of times a subject was ever the subject of an emergency hospitalization 12-months before the initial incident date. This variable was collected and measured at a ratio level.

Incident Characteristics Variables

Violent Behavior

At the time of the mental health incident was the subject displaying violent behavior or threats of violence was measured categorically with "0" for "*No*" and "1" for "*Yes*".

Substance Use

Whether the subject was using alcohol or drugs at the time of the initial incident was measured categorically with "0" for "*No*" and with "1" for "*Yes*".

Suicidal

Whether the subject threatened or attempted to commit suicide at the time of the incident was measured categorically with "0" for "*No"* and *"*1" for "*Yes*".

Offense Type

The offense type is whether the subject's behavior at the time of the incident was a violation or criminal offense and if so, what was the level of violation. The offense type variable was measured categorically with "0" for no violation or crime, "1" for a misdemeanor violation, and "2" for a felony crime.

The offense type was also dummy coded for the regression analysis. The following variables were coded as follows; no violations was "0" for *No* and 1 for "*Yes*", a misdemeanor violation was "0" for *No and* 1 for "*Yes*", and a felony crime was "0" for *No* and 1 for "*Yes*".

Data Collection and Analysis

Research Questions and Hypotheses

The research questions were based on the main objectives of police-mental health collaborative programs outlined by the Council of State Governments (2018) and the U.S. Department of Justice. Repeated mental health calls, arrests, and emergency hospitalizations are key indicators of the efficacy of the PMHC programs. The research questions sought to understand if PMHC programs could keep PICs engaged with mental health services to reduce future contacts with law enforcement, thus reducing the likelihood of future contact with the criminal justice system.

Research Question 1

Is there a difference in the likelihood that PICs will have a future mental health call after receiving outreach services provided by PMHC teams compared to the standard police service?

The hypothesis derived from this question understands that PMHC teams have an enhanced knowledge and ability to connect PICs to mental health and other social services. The enhanced ability of PMHC team to provide the most appropriate level of care for PICs could prevent a future mental health call.

Hypothesis for Question 1

$H_0 1$: There is no difference in the likelihood that PICs will have a future mental health call after receiving outreach services from a PMHC team compared to the standard police service.

$H_a 1$: There is a decrease in the likelihood that PICs will have a future mental health call after receiving outreach services from a PMHC team compared to the standard police service.

Research Question 2

Is there a difference in the likelihood that PICs will have a future arrest after receiving outreach services provided by the PMHC teams compared to the standard police service?

The hypothesis derived from this question understands that PMHC teams have an enhanced knowledge and ability to connect PICs to mental health and other social services. The PMHC teams enhanced ability to provide the appropriate level of care could prevent a future mental health call; which could result in an arrest for criminal offense.

Hypothesis for Question 2

$H_0 2$: There is no difference in the likelihood that PICs will a have future arrest after receiving outreach services from a PMHC team compared to the standard police service.

$H_a 2$: There is a decrease in the likelihood that PICs will have a future arrest after receiving outreach services from a PMHC team compared to the standard police service.

Research Question 3

Is there a difference in the likelihood that PICs will have a future emergency hospitalization after receiving outreach services provided by the PMHC team compared to the standard police service?

The hypothesis derived from this question understands that PMHC teams have an enhanced knowledge and ability to connect PICs to mental health and other social services. This increased ability to provide the appropriate level of care for PICs would prevent a future mental health crisis that would elicit a law enforcement response; which could result in an emergency hospitalization due the acute nature of crisis. The PMHC teams also have a greater access to local community mental health resources to avoid overuse of hospitalization.

Hypothesis for Question 3

$H_0 3$: There is no difference in the likelihood that PICs will have a future emergency hospitalizations after receiving outreach services from a PMHC team compared to the standard police service.

$H_a 3$: There is a decrease in the likelihood that PICs will have a future emergency hospitalizations after receiving outreach services from a PMHC team compared to the standard police service.

Data Collection

As previously described, the archival data collected for this research study were taken from several sources. It is important to understand where and how this data was created and recorded. When a 911 call comes into an emergency dispatch center, a 911 telecommunicator enters the preliminary data into a Computer-Aided Dispatch or CAD system. The 911 telecommunicator then immediately dispatches police officers and/or other emergency services to the location of the call. The police officers initially receive the information via radio communication with the same information being sent to the computer terminals located in their police vehicles. Once officers arrive at a call location they may relay additional information to the dispatch center such as the names of suspects, victims, and witnesses. They also utilize the dispatch center to verify if individuals have outstanding warrants, and commonly check the availability of resources at psychiatric hospitals and detoxification centers.

After police officers resolve the incident, either by an informal means or by official enforcement, they document their actions in a police report. The police reports are stored in the department's record management system (RMS). The RMS creates a permanent records of these official interactions between the public and the police. These interactions can range from

mediating a neighborhood dispute to making arrests for serious violent crimes. The system records the date, time, reason for the call, offenses, officers' actions, and demographic information of victims, suspects, and witnesses. A significant portion of the data collected for this research study was taken from the police department's record management and CAD systems.

Additionally, arrest data was taken from the online public court records in Minnesota. After an individual is arrested and/or convicted of a criminal offense, the information becomes public information and is then posted in the public court database. More data was collected from the PMHC team's case management databases. In each case, when a PMHC team provides outreach services for PICs they document that interaction within their case management system. Depending on the type of outreach service provided, the team will conduct a thorough needs assessment to provide the best quality of care. The teams collect information on the each PIC they contact either in person or by phone; which includes demographic information, types of mental health issues, individual safety plans, and recommendations for services.

Analytical Procedures

This research was a pretest/posttest analysis with a nonequivalent comparison group design. To determine the intervention's effects on future mental health calls, arrests, and emergency hospitalizations, data was gathered from incidents where PICs either received service from the MHLO, the MHU or patrol officers. After the data was collected, it was coded and inputted into SPSS 25.0 for evaluation. A variety of bivariate and multivariate techniques were employed during this study to analyze the effects of PMHC services on mental health call outcomes. OLS and logistic regression were the primary techniques used to investigate the relationship between the dependent and independent variables. The choice of the analytic test

was based on the results of the data collection process and whether the dependent variable was binary or continuous.

First, a bivariate correlation analysis was conducted. This analysis measured the strength and direction of the relationships between the variables (O'Sullivan, Rassel, Berner, & Taliaferro, 2017). Both OLS and logistic regression models require little to no multicollinearity between the independent variables (Menard, 2010; Warner, 2013). Therefore, the correlation analysis helped identify independent variables that were too strongly related and potentially influence one another opposed to the dependent variable. According to Warner (2013) in order to meet the assumption of these regression models, the correlation coefficients of the independent variables should to be .90 or lower.

Next, an OLS regression was performed for each continuous dependent variable. The model included the types of service interventions that the police utilized to resolve a mental health call, subject demographics and history, and the incident characteristics. OLS regression requires that several key assumptions such as linearity, normality, homoscedasticity, and measurement level are met in order for the model to produce the best estimates (Menard, 2010; Warner, 2013).

Lastly, a logistic regression analysis was performed for each binary dependent variable. A logistic regression was useful to explain the relationship between one binary dependent variable and one or more categorical or continuous independent variables (Menard, 2010; Warner, 2013). The logistic regression helped determine the probability that a subject would have a future mental health call, arrest, or emergency hospitalization based on the type of service intervention.

Threats to Validity

As with any research project, this study was not immune to external and internal threats to validity (Burkholder, Cox, & Crawford, 2016). Several factors were identified and efforts were made to address any potential issues. First, when utilizing only one research site it may be difficult to generalize findings to other communities which may have unique needs and systems. The needs of PICs within the Saint Paul community may differ when compared to other communities with geographic, economic, and cultural differences. However, despite the individualized needs of certain populations, the main organizational factors that make a PMHC team successful are transferable to other communities.

Secondly, the study's classification protocol on how a subject was identified as a PIC has limitations. The determination was primarily based on the education, training, and experience of the public safety practitioners who respond and evaluate the subjects during a mental health investigation. This group of practitioners had varying levels of training and experience, which could have influenced the accuracy of classifying a subject as a PIC. In some cases, they received information from family members, located psychiatric medications, or knew from previous contacts that a subject has a diagnosed mental illness. While in other incidents, the information was not available because individuals refused prior help or were experiencing a mental health emergency for the first time. Depending on the subject's level of cooperation, the PMHC teams had the ability to conduct formal mental health assessments and diagnosis. However, the standard police service did not have the capability to provide this same level of assessment or care. Under perfect circumstances, information would have been available for each subject regarding a diagnosed mental illness by a medical professional.

As previously discussed, the study used archival data stored by the SPPD to get the most accurate account of the official interactions between the police and PICs. SPPD officers were required to write a report when encountering PICs as a result of a mental health investigation. The overall use of archival data minimized the risk of excluding relevant cases. This method was better suited to test the study's hypotheses opposed to interviews or surveys based on a subject's or an officer's recollections. The objective of this study was to obtain quantitative data instead of anecdotal evidence. The individuals were chosen because they were the subject of a mental health call that was documented in a police report. To avoid selection bias, the researcher developed a sampling frame for each time period and randomly select subjects from all three groups to create the study sample (Burkholder et al., 2016).

Additionally, if a significant number of subjects unexpectedly die or relocate outside of the St. Paul area it could have affected the findings (Burkholder, Cox, & Crawford, 2016; Creswell, 2009). For example, if a subject moved outside of Ramsey County where the city of St. Paul is located, it was more difficult to track their future law enforcement contacts because Minnesota county record management systems are not interlinked. Therefore, the researcher also verified the subjects' residency throughout the study's timeframe by utilizing the same departmental and state public databases. If the subject died or relocated outside of Ramsey County during the study's time frame they were excluded; unless their departure was directly related to a law enforcement action or treatment program.

The St. Paul PMHC programs also could not account for all of the local mental health resource programs within the city that could help stabilize a person's mental health. An individual's success in mental health treatment could occur for a number of different reasons outside the span of control of the PMHC teams. The PMCH programs also could not control for

the efficacy of mental health treatments to reduce future mental health crises. Therefore, ineffective treatment methods, the lack of social support and a person's unwillingness to accept help may significantly affect whether a subject will have a future contact with law enforcement. However, the main purpose of the PMHC teams was to provide diversion, support, and linkage to services; not to provide the actual treatment themselves.

Subject Privacy and Ethical Considerations

The data was taken from law enforcement reports and public court records; which are considered public information. The St. Paul Police Chief also give permission to identify SPPD as the research site. However, a priority was made to protect the identity of the law enforcement officers, mental health professionals, and persons who experienced a mental health crisis who were involved in the study. To protect the identities of the individuals who had contact with either police officers or the PMHC team an alpha-numeric identifier system was created. Each subject in the study was given their own alpha-numeric identifier within the data set. The list of corresponding subject names and alpha identifiers was placed on a secured database accessible only by this researcher.

Within the research findings themselves, it was not necessary to use any information that would personally identify any of the subjects. The purpose of the research was to observe changes in the number of mental health calls, arrests, and emergency hospitalizations. However, certain demographic information was important to include in the analysis to help identify populations whom may have required different service strategies.

Lastly, the researcher was a sworn law enforcement officer with the Saint Paul Police Department, but did not work with or supervise any of the officers within the agency's mental health unit. The researcher's position did not have any influence on the service outcomes as the

data was collected from archival data. This researcher remained an independent observer and in no way was influenced either positively or negatively based on their employment status.

Summary

This chapter outlines the research methods that was used to collect and analyze the data for this study. First, the data was taken from archival information collected by the Saint Paul Police Department Police Department's report management system. Additional data was collected from the Minnesota online public court records. The purpose of this study was to understand the effects of PMHC services on the likelihood that PICs will have future police contacts compared to the standard police service. The data was analyzed using bivariate and multivariate techniques to understand the relationships between the dependent and independent variables. Ordinary Least Squares (OLS) and logistic regression were chosen as the most appropriate methods to test the research hypotheses. Specific procedures were taken to protect the identity and maintain the confidentiality of the individuals involved in this research study. Due to the sensitive nature of the information contained within the archival data, no personal information or events were identified in the study. Chapter 4 contains the study sample, data collection process, subject demographics, analytic methods and the results.

Chapter 4: Results

The purpose of this quantitative analysis was to utilize archival data to understand if the

PMHC outreach services provided by the St. Paul Police Department mental health programs had

an effect on future police contacts involving persons who were subjects of a mental health call.

The primary focus was understanding if there was a difference in the likelihood that an

individual would have a future mental health call, arrest, or emergency hospitalization after

receiving specialized services from the police-mental health teams compared to the standard

police service. This chapter provides a summary of the demographic characteristics of the

sample, the methods of analysis, and results.

Data Collection Process

The population of interest for this research were persons who were experiencing the

symptoms of mental health crisis that reached to the level of concern that police were summoned

as a result of a 911 call between May 1, 2016 and April 1, 2019 with the city of St. Paul, MN.

The subjects had contact with either St. Paul police officers, the MHLO, or the MHU within the

study's time frame. First, the outcomes of the standard police service for a mental health call was

evaluated between May 1, 2016 to December 31, 2016. Second, the service outcomes of the

MHLO program was evaluated between July 1, 2017 to December 31, 2017. Lastly, the service

outcomes of MHU was evaluated between July 1, 2018 to Nov 1, 2018.

The St. Paul Police Department's record management systems, the SPPD Mental Health

Unit's case management system, and the Minnesota online public court records were accessed to

develop the data set. While SPPD responds to over 12,000 calls each year that were designated

as mental health related, the majority of those calls were minor in nature and not well

documented. Within those 12,000 calls for service, officers were only required to write a report

when: (a) the subject posed a serious risk of injury to self or others, (b) the subject's mental health had decompensated to a level where they could not care for themselves, (c) the subject was the cause of repeated calls for service, or (d) the subject was transported by the direction of a police officer to a medical facility. From May 1, 2016 to December 31, 2016, there were 451 incidents that met these criteria where SPPD patrol officers responded and wrote a report. Between July 1, 2017 and December 31, 2017, there were 516 incidents that met these criteria and were serviced by the MHLO. Lastly from July 1, 2018 to Nov 1, 2018, there were 484 incident that also met these criteria and were serviced by the MHU. Due to a lower number of subjects in the standard police service group, the observation period was extended from six to eight months to capture a similar number of subjects as the other two service groups.

The original data set that was collected contained 1,451 mental health related incidents serviced by all three interventions. Any subject that had contact with more than one intervention during the study's time frame was eliminated from the data set. After this initial analysis was completed, the subjects were regrouped by intervention (standard police service, MHLO, and MHU) and entered into SPSS for random selection. Prior to data collection, a power analysis using *G*Power* software was conducted which indicated a minimal sample size of 143 subjects per group. To achieve an adequate sample size, a random sample of 180 subjects were extracted using SPSS from each intervention group. After the random selection, subjects from all three interventions were combined into a single data set.

Demographic information and initial incident characteristics were first collected and coded for the initial data set. Through this process, subjects were eliminated from the study for several reasons. Some incidents were miscategorized and did not the meet criteria for a mental health call. Several subjects did not reside within the city of St. Paul, relocated, or died within

the study's time frame so they were also removed. After the selection and screening process, 464

subjects met the research plan criteria. The final data set included 157 subjects in the standard

police service group, the 155 subjects in the MHLO service group, and 152 subjects in the MHU

service group.

Intervention

The primary variables evaluated in this study were the effect of outreach services

provided by the MHLO and the MHU compared to the standard police response on future mental

health call outcomes. While both police-mental health initiatives provided similar services, the

MHU was a more robust intervention with more staff and a greater ability to provide immediate

outreach services. Both services reviewed all reportable mental health incidents and determined

if a subject needed a follow-up phone call, a referral to an outside agency for care, or an

immediate outreach visit by the SPPD mental health team. The primary focus was these

intervention's effect on future MHCs, arrests, and EHPs.

Demographics

All subjects had contact with either St. Paul police officers, the MHLO, or the MHU

because they had displayed the symptoms of a mental health emergency that generated a police

call for service. The variable list in Table 1 shows the descriptive statistics of subject

demographics, subject history, incident characteristics, and the dependent variables.

Table 1.

Variable List (n = 464)

Variable	Description	Min/Max	Mean	SD
Dependent Variables				
MHCs (1)	Number of mental health calls 6 months after incident.	0-11	.39	.942
Arrests (1)	Number of arrests 6 months after incident.	0-7	.42	.942
EHPs (1)	Number of emergency hospitalizations 6 months after incident.	0-8	.24	.685
MHCs (2)	Was the subject involved in another MHC in the 6 months following the incident? (0=No, 1=Yes)	0-1	.24	.426
Arrests (2)	Was the subject arrested in the 6 months following the incident? (0=No, 1=Yes)	0-1	.23	.424
EHPs (2)	Was the subject emergency hospitalized 6 months following the incident? (0=No, 1=Yes)	0-1	.16	.369
Independent Variables				
Std. Police Service	Did the subject receive standard police services? (0=No, 1=Yes)	0-1	.34	.474
MHLO Service	Did the subject receive MHLO services? (0=No, 1=Yes)	0-1	.33	.472
MHU Service	Did the subject receive MHU services? (0=No, 1=Yes)	0-1	.33	.470
Subject Demographics				
Age	Age of subject at time of the incident	18-94	37.77	13.78
Gender	Subject's Gender (0=Female, 1=Male)	0-1	.57	.495

Table 1.

Variable List (n = 464) (continued)

Variable	Description	Min/Max	Mean	SD
Ethnicity	Was the subject non-Hispanic (0=No, 1=Yes)	0-1	.93	.261
Transient Status	Was the subject homeless at time of the incident? (0=No, 1=Yes)	0-1	.23	.42
Diagnosed MI	Did the subject have a diagnosed mental illness? (0=No, 1=Yes)	0-1	.49	.50
Subject History				
Prior MHCs	Number of mental health calls the subject had 12 months before the incident.	0-9	.59	1.19
Prior Arrests	Number of arrests the subject had 12 months before the incident.	0-11	.74	1.54
Prior EHPs	Number of hospitalizations the subject had 12 months before the incident.	0-6	.34	.808
Incident Characteristics				
Offense Type	What level of offense did the subject commit at time of incident? (0=No Violation, 1= Misdemeanor, 2= Felony)	0-2	.17	.462
Display Violence	Did subject display/threaten violence at time of the incident? (0=No, 1=Yes)	0-1	.24	.428
Substance Use	Was the subject suspected of being under the influence of alcohol/drugs at time of the incident? (0=No, 1=Yes)	0-1	.34	.475
Suicidal	Did subject attempt or threaten suicide at time of the incident? (0=No, 1=Yes)	0-1	.50	.501

Subject Demographic

Table 1 represents the subject demographics for the sample (*n* = 464). The ages ranged from 18-94 years old, with 35 being the median age. Within the sample, 26% of the subjects were female and 74% were male; 55% were identified as white with 45% as non-white; and only 7% were Hispanic. All subjects lived within the St. Paul community, with 23% being identified as homeless or living in temporary shelters. At the time of the incident, just over half of the subjects were known to have a diagnosed mental illness.

Subject History

Table 1 also shows the history of prior MHCs, prior arrests, and prior EHPs. While not presented in this table, nearly a quarter of the subjects had a previous MHC within the 12 months before the initial incident. Within the same period, 30% of the subjects had been arrested at least once. Only 19% of the subjects had been EHP by the police within the past 12 months of the initial incident.

Incident Characteristics

Table 1 illustrates the incident characteristics which included the level of the potential criminal violation committed and whether the subject was violent, suicidal, or had co-occurring substance use. In the vast majority of incidents (86%), the subject did *not* commit any criminal violation. When subjects did commit a misdemeanor or felony level crime, most often officers chose not to utilize arrest when they determined the primary cause was related to the subject's mental health. Out of 65 mental health calls where a crime was committed only three arrests were made. The subjects displayed violent behavior in 24% of the incidents and about half were suicidal of the time. In 34% of the incidents, the subjects were identified by officers as being under the influence of drugs or alcohol.

Dependent Variables

Lastly, Table 1 displays the descriptive characteristics for the dependent variables of future MHCs, arrests, and EHPs six months after the initial incident. Within the study's sample, nearly 24% of the subjects had an additional MHC. Similarly, nearly a quarter of the subjects also had an additional arrest within the first 6 months after the initial incident. However, subjects were least likely to have an additional EHP with only 16% of the them having an additional EHP within the 6 months following the first incident.

Main Research Questions

To test the main research questions several statistical techniques were employed. Zero order correlations using Pearson's r were undertaken for the bivariate analysis portion of this study. As for the multivariate techniques employed, logistic regression was chosen for dependent variables that were binary measures and OLS regression was utilized for dependent variables measured as counts (ratio level of measurement).

Results

Bivariate Correlation Analysis

Table 2 shows the results of the bivariate correlation analysis. This analysis measured the strength and direction of the relationships between the variables (O'Sullivan, Rassel, Berner, & Taliaferro, 2017). Both OLS and logistic regression models require little to no multicollinearity between the independent variables (Menard, 2010; Warner, 2013). All correlation coefficients between the variables were below $r = .90$ indicating the model met the required assumptions (Menard, 2010; Warner, 2013).

Almost all of the primary police-mental health intervention variables did not have statistically significant relationships with any of the dependent variables. Only the correlation

coefficient between the standard police service and future arrests showed a statistically significant, but weak positive relationship ($r = .14$, p < .01). Age, diagnosed mental illness, prior MHCs, and prior EHPs were statistically significant relationship with future MHCs. Additionally, the variables of gender, transient status, prior MHCs, prior arrests, prior EHPs, and whether a subject was suicidal at the initial incident had a statistically significant relationship with future arrests. Lastly, future EHPs had statistically significant relationships with diagnosed MI, prior MHCs, and prior EHPs.

Table 2.

Bivariate Correlation Analysis (n = 464)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
01. Std. Pol. Service	--																				
02. MHLO Service	-.50**	--																			
03. MHU Service	-.49**	-.49**	--																		
04. Age	.02	-.05	.02	--																	
05. Gender	.07	-.01	-.06	-.06	--																
06. Non-White	-.01	-.05	.06	-.17	-.01	--															
07. Non-Hispanic	-.01	.09*	-.08	.05	.01	-.28**	--														
08. Transient	.13	-.20*	.07	.07	.10*	.04	-01	--													
09. Diagnosed MI	-.17**	-.05	.22**	.10*	-.09	-.03	-.05	-.05	--												
10. Prior MHCs	.00	-.07	.07	.07	-.04	.09	.03	.10*	.08	--											
11. Prior Arrests	.16	-.10*	-.06	.01	.18*	.08	.04	.23**	-.06	.23**	--										
12. Prior EHPs	.11	-.06	-.06	.05	.02	.09	.08	.13**	.05	.69**	.31**	--									
13. Violent	-.13**	.16**	-.03	-.14**	.15**	.03	-.07	-.03	.01	-.02	.04	-.02	--								
14. Substance Use	.03	.04	-.07	-.20	.13**	-.07	.01	.16	-.16	.02	.15	.06	.05	--							
15. Suicidal	.08	-.02	-.06	-.10*	-.05	-.14**	-.02	-.16	.08	-.13	-.13	-.06	-.18	-.12	--						
16. No Violation	.05	-.16*	.12*	.05	-.11*	-.01	-.02	-.11*	.07	.01	-.14*	-.02	-.34*	-.17*	.21**	--					
17. Misdemeanor	-.02	.12**	-.10*	-.05	.09	.03	.03	.09	-.05	.01	.13**	.03	.28**	.17*	-.19*	-.86*	--				
18. Felony	-.11*	.10*	.02	-.05	.07	.06	.01	.03	-.03	-.06	-.03	.04	.20**	-.03	-.05	-.33*	.00	--			
19. No. Post MHC	-.01	.02	-.01	.01*	.03	-.03	.05	.01	.15*	.04*	-06	.36*	-.06	-.01	-.01	.04	-.03	-.05	--		
20. No. Post Arrests	.14**	-.08	-.06	-.03	.18**	.05	.04	.26**	-.07	.23**	.49**	.28*	.05	.09	-.15*	-.15*	.09*	.09	.20*	--	
21. No. Post EHPs	.05	.01	-.06	.07	.03	.01	.06	.03	.14*	.29**	.08	.37*	-.07	.04	.01	.02	-.01	-.05	.87*	.23*	--

* p < .05   ** p < .01   ***p < .001

Multivariate Analyses for Hypotheses 1

Hypothesis 1 predicts a decrease in the likelihood that PICs will have a future mental health call after receiving outreach services from either the MHLO or MHU compared to the standard police service. To test hypothesis 1, logistic and OLS regression analyses were conducted.

Logistic Regression for Hypothesis 1

First, a binary logistic regression analysis was conducted to investigate RQ1 if certain police-mental health interventions, subject demographics, subject's history and incident characteristics were factors that predict future mental health calls – see Table 3 for details. The outcome of interest was future mental health calls six months after the initial incident date. The possible predictor variables in the models were police-mental health interventions (std. police service, MHLO service , MHU service), subject demographics (age, gender, race, ethnicity,

Table 3.

Logistic Regression Predicting Mental Health Calls Six Months After Incident (n = 464)

	b	SE	Odds Ratio
Type of Intervention			
MHLO Service	.301	.304	1.351
MHU Service	-.082	.310	.921
Subject Demographics			
Age	.007	.009	1.007
Gender	.307	.250	1.360
Non-white	-.206	.262	.814
Non-Hispanic	-.084	.493	.919
Transient Status	.242	.295	1.274
Diagnosed MI	.655**	.255	1.925
Subject History			
Prior MHCs	.379**	.128	1.460
Prior Arrests	.039	.080	1.039
Prior EHPs	.369**	.194	1.446
Incident Characteristics			
Displayed Violence	-.061	.305	.941
Substance Use	.086	.262	1.090
Suicidal	.244	.259	1.276
Misdemeanor	-.290	.412	.749
Felony	-.583	.760	.558
Intercept	-1.166***	.109	.312
Model Chi-Square (D.F.)	59.874***		
2 Log Likelihoods	448.721		
Nagelkerke R^2	.181		

* p < .05   ** p < .01   ***p < .001

transient status, diagnosed MI), subject's history (prior MHCs, prior arrests, prior EHPs), and incident characteristics (type of offense, violent behavior, suicidal, substance use). The Hosmer-Lemeshow goodness-of-fit test was not statistically significant, indicating the model was correctly specified. Additionally, the -2 log Likelihood = 448.721 and the amount of variance explained by the predictors in the model was 18.1%. Diagnosed MI, prior MHCs and prior EHPs were the only statistically significant predictor variables (p < .01).

Controlling for all other variables in the model, diagnosed MI was found to contribute to the model (b = .655, p < .01). The estimated odds ratio *Exp(B)* = 1.925 reported a 92.5% increase of a future MHC if a person had a known diagnosed mental illness. A subject's history of prior MHCs was also found to contribute to the model (b = .379, p < .01). For every additional prior MHCs, the odds that subject would have a future MHC increased by 46% (*Exp(B)* = 1.460). Prior EHPs also contributed to the model (b = .369, p < .01) when controlling for all other factors. Similarly, the odds ratio (*Exp(B)* = 1.446) estimated a 44.6% increase of a future MHC for every prior EHPs in the 12 months before the initial incident.

OLS Regression for Hypothesis 1

Next, an ordinary least squares regression analysis was conducted to predict the number of future mental health calls – see Table 4 for details. Consistent with the logistic regression, the results of the multiple regression analysis also revealed diagnosed MI, prior MHCs, and prior EHPs were significant predictors of the outcome variable. Nearly 20% of the variation in the dependent variable could be explained by the variables in this model (R^2 = .199, p < .001).

When controlling for all other factors, the regression coefficient (β = .121, p < .01) associated with a diagnosed MI suggested that when a person was known to have a diagnosed MI, the number of future MHCs increased by 0.228 calls. Similar results were also found for

prior EHPs and prior MHCs. Prior EHPs were associated with an increase in the number of

future MHCs by 0.213 with each additional prior EHP (β= .182, p < .01).

Table 4.

OLS Regression Predicting Number of Mental Health Calls Six Months After the Incident (n

= 464)

	b	SE	β
Type of Intervention			
MHLO Service	.086	.103	.046
MHU Service	-.035	.103	-.017
Subject Demographic			
Age	.003	.003	.051
Gender	.133	.084	.070
Non-white	-.071	.087	-.038
Non-Hispanic	.044	.162	.012
Transient Status	-.043	.102	-.019
Diagnosed MI	.228**	.085	.121
Subject History			
Prior MHCs	.213***	.047	.271
Prior Arrests	-.031	.029	-.050
Prior EHPs	.213**	.71	.182
Incident Characteristics			
Displayed Violence	-.115	.103	-.052
Substance Use	.000	.089	.000
Suicidal	.044	.087	.023
Misdemeanor	-.043	.133	-.015
Felony	-.101	.207	-.021
Intercept	-.104	.248	
R^2	.199***		

* p < .05   ** p < .01   ***p < .001

The regression coefficient (β = .271, p < .001) associated with the number of prior MHCs also

suggested that with each prior MHC, there was a 0.213 increase in the number of future MHCs.

Among all three factors, prior MHCs was the strongest predictor of future MHCs within the

model based on the regression coefficients.

Results of Analyses for Hypothesis 1

PMHC outreach services had no statistically significant effect on future MHCs in the regression models. Statistical analysis generated results that fail to reject the null hypothesis that predicted no difference in the likelihood that PICs will have a future mental health call after receiving outreach services from a PMHC team compared to the standard police service.

Multivariate Analyses for Hypothesis 2

Hypothesis 2 predicts a decrease in the likelihood that PICs will have a future arrest after receiving outreach services from either the MHLO or MHU compared to the standard police service. To test hypothesis 2, a logistic and OLS regression analysis were conducted.

Logistic Regression for Hypothesis 2

A binary logistic regression analysis was conducted to investigate RQ2 if police-mental health interventions, subject demographics, subject history and incident characteristics were factors that predict if a person would have a future arrest – see Table 5 for details. The outcome of interest was future arrests six months after the initial incident date. The Hosmer-Lemeshow goodness-of-fit test was not significant (p > .05), indicating the model is correctly specified. Additionally, the -2 log Likelihood = 405.428 and the amount of variance explained by the predictors in the model was 29.2%. Age, transient status, and prior arrests were the only statistically significant predictor variables computed by the model.

When controlling for all other factors in the logistic regression, *Age* was found to contribute to the model (b = -.022, p < .01). The estimated odds ratio favored a negative relationship with approximately a 2% decrease (*Exp(B)* = .978) for every year increase in *age*. While *age* had a statistically significant association with future arrests, transient status and prior arrests were the strongest predictors between mental illness and future arrests within the model.

Table 5.

Logistic Regression Predicting Arrest Six Months After the Incident (n = 464)

	b	SE	Odds Ratio
Type of Intervention			
MHLO Service	-.051	.330	.950
MHU Service	-.010	.319	.991
Subject Demographics			
Age	-.022**	.011	.978
Gender	.337	.272	1.401
Non-white	.141	.271	1.151
Non-Hispanic	.040	.489	1.041
Transient Status	.694**	.293	2.003
Diagnosed MI	.018	.265	1.019
Subject History			
Prior MHCs	.110	.138	1.116
Prior Arrests	.577***	.099	1.781
Prior EHPs	.150	.212	1.162
Incident Characteristics			
Displayed Violence	-.116	.320	.891
Substance Use	.104	.273	1.110
Suicidal	-.263	.273	.768
Misdemeanor	.092	.402	1.096
Felony	.712	.541	2.038
Intercept	1.178***	.110	.244
Model Chi-Square (D.F.)	99.932***		
-2 Log Likelihoods	405.428		
Nagelkerke R^2	.292		

* p < .05   ** p < .01   ***p < .001

A subject's prior arrest history contributed significantly to the model (b = .577, p < .001). The odds of a subject's future arrest increase nearly 80% with each prior arrest (*Exp(B)* = 1.781).

Transient status also contribute to the model (b = .694, p < .01). Similar to prior arrests, just over a 100% increase in the odds of a future arrest (*Exp(B)* = 2.006) was observed for subjects who were homeless.

OLS Regression for Hypothesis 2

An ordinary least squares regression analysis was also conducted to predict the number of future arrests – see Table 6 for details. The results of the multiple regression analysis revealed prior arrests and transient status were the only significant predictors of the outcome variable. Over 30% of the variation in the dependent variable could be explained by the variables in this model (R^2 = .307, p < .001). *Age* was no longer a significant predictor in this regression model.

Table 6.

OLS Regression Predicting Number of Arrests Six Months After the Incident (n = 464)

	b	SE	β
Type of Intervention			
MHLO Service	-.087	.096	-.044
MHU Service	-.122	.096	-.061
Subject Demographic			
Age	-.003	.003	-.046
Gender	.149	.078	.078
Non-white	-.029	.081	-.015
Non-Hispanic	.024	.151	.007
Transient Status	.286**	.095	.128
Diagnosed MI	-.054	.079	-.028
Subject History			
Prior MHCs	.055	.044	.069
Prior. Arrests	.236***	.027	.386
Prior EHPs	.113	.066	.097
Incident Characteristics			
Displayed Violence	.009	.096	.004
Substance Use	-.050	.083	-.025
Suicidal	-.136	.081	-.072
Misdemeanor	.016	.124	.005
Felony	.351	.193	.074
Intercept	.295	.231	
R^2	.307***		

* p < .05   ** p < .01   ***p < .001

When controlling for all other factors, the regression coefficient (β = .386, p < .001) associated with prior arrests suggest that the number of a future arrests increased by 0.236 with

each additional prior arrest. Similar to the results of the logistic regression, the transient status of a subject also contributed to the model (β = .128, p < .01). When a subject was considered to be homeless there was a 0.286 increase in the number of arrests.

Results of Analyses for Hypothesis 2

PMHC outreach services had no effect on future arrests. The statistical analyses failed to reject the null hypothesis, which stated there is no difference in the likelihood that PICs will have a future arrest after receiving outreach services from a PMHC team compared to the standard police service. Prior arrests and transient status were the only significant predictors in the models.

Multivariate Analyses for Hypothesis 3

Hypothesis 3 predicts a decrease in the likelihood that PICs will have a future emergency hospitalizations after receiving outreach services from either the MHLO or MHU compared to the standard police service. To test hypothesis 3, a logistic and OLS regression analysis were conducted.

Logistic Regression for Hypothesis 3

The final binary logistic regression analysis was conducted to investigate RQ3 if police-mental health interventions, subject demographics, subject history and incident characteristics were factors that predict if a person would have a future EHP – see Table 7 for details. The outcome of interest was future EHPs six months after the initial incident date. The Hosmer-Lemeshow goodness-of-fit test was not significant (p > .05), indicating the model was correctly specified. Additionally, the -2 log Likelihood = 346.644 and nearly 22% of the variance was explained by the predictors in the model. Diagnosed MI and prior EHPs were the only statistically significant predictor variables (p < .001).

Table 7.

Logistic Regression Predicting Emergency Hospitalization Six Months After the Incident (n = 464)

	b	SE	Odds Ratio
Type of Intervention			
MHLO Service	-.086	.346	.918
MHU Service	-.659	.366	.517
Subject Demographics			
Age	.008	.011	1.008
Gender	.153	.291	1.165
Non-white	-.087	.305	.917
Non-Hispanic	.368	.662	1.445
Transient Status	.410	.339	1.507
Diagnosed MI	1.002***	.304	2.724
Subject History			
Prior MHCs	.150	.144	1.161
Prior Arrests	-.020	.095	.980
Prior EHPs	.680***	.212	1.974
Incident Characteristics			
Displayed Violence	-.220	.378	.803
Substance Use	.477	.302	1.612
Suicidal	.379	.306	1.462
Misdemeanor	-.354	.497	.702
Felony	-.587	1.043	.556
Intercept	-3.480	.961	.031
Model Chi-Square (D.F.)	63.527***		
-2 Log Likelihoods	346.644		
Nagelkerke R^2	.218		

* $p < .05$ ** $p < .01$ ***$p < .001$

When controlling for all other factors, diagnosed MI was found to contribute to the model (b = 1.002, p < .001). The estimated odds ratio favored a positive relationship with over a two and half fold increase (*Exp(B)* = 2.724) in the odds of a future emergency hospitalization when a person had known diagnosed mental illness. Also, subjects who had prior EHPs within the previous 12 months were more likely to have a future EHP (b = .680, p < .001). Each prior EHP was associated with a 97% increase (*Exp(B)* = 1.974) in the odds of a future EHP.

OLS Regression for Hypothesis 3

Lastly, an ordinary least squares regression analysis was conducted to predict the number of future emergency hospitalizations – see Table 8. The results of the multiple regression analysis were again similar to the logistic regression, which revealed that diagnosed MI and prior EHPs were significant predictors of the outcome variable. Just over 17% of the variation in the dependent variable could be explained by the variables in this model (R^2 = .173, p < .001).

Table 8.

OLS Regression Predicting the Number of Emergency Hospitalizations Six Months After the Incident (n = 464)

	b	SE	β
Type of Intervention			
MHLO Service	-.001	.076	-.001
MHU Service	-.104	.076	-.071
Subject Demographic			
Age	.002	.002	.035
Gender	.066	.062	.045
Non-white	-.017	.065	-.012
Non-Hispanic	.082	.120	.031
Transient Status	-.016	.075	-.010
Diagnosed MI	.199**	.062	.144
Subject History			
Prior MHCs	.049	.035	.085
Prior Arrests	-.017	.021	-.039
Prior EHPs	.261***	.053	.308
Incident Characteristics			
Displayed Violence	-.083	.076	-.052
Substance Use	.077	.066	.054
Suicidal	.050	.064	.036
Misdemeanor	-.011	.098	-.005
Felony	-.060	.153	-.017
Intercept	-.120	.183	
R^2	.173***		

* p < .05   ** p < .01   ***p < .001

When controlling for all other factors, the regression coefficient (β = .144, p < .01) associated with diagnosed MI suggested a 0.199 increase in the number of future EHPs. Therefore, persons who were known at the time of the initial incident to have a diagnosed MI had a greater number of emergency hospitalizations in the following 6 months. Furthermore, a subject's previous history of emergency hospitalizations within the past year was the strongest predictor based on the standardized regression coefficient (β = .308, p < .001). The number of a future EHPs increased by 0.261 for each additional prior EHP.

Results of Analyses for Hypothesis 3

These results aligned with the other regression models which indicated that a subject's prior incidents were strong predictors of future occurrences. In this case, the PMHC outreach services, which were the primary variables, also had no effect on future EHPs. The statistical analyses that were performed failed to reject the null hypothesis, which stated there is no difference in the likelihood that PICs will have a future EHP after receiving outreach services from the PMHC teams compared to the standard police service. However, it was determined when a person had a diagnosed MI and prior EHPs they were more likely to have future EHPs within 6 months after the initial mental health call.

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Summary

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This study focused on analyzing one main research question which included three subsequent questions. The research questions sought to understand the ability of PMHC teams to reduce repeated MHCs, arrests, and EHPs for PIC. The logistic and OLS regression analyses did not find any statistically significant relationships between the different police-mental health interventions and the likelihood of future MHCs, arrests, and EHPs. While findings showed the primary interventions had no significance, the analyses did find statistically significant

relationships between several demographic and subject history variables and the likelihood of

future MHCs, arrests, and EHPs. Chapter 5 contains the interpretation of the study's findings,

limitations, recommendations for future research, and the implications for positive social change.

Chapter 5: Discussion, Conclusions, & Recommendations

The development of PMHC programs has helped bridge the gaps in service within community mental health systems. Prior to the development of the SPPD mental health programs, other public service agencies were unaware of the significant increase in the amount mental health crisis calls that were being handled by police officers (Sipes, 2018). Local mental health resources would previously only receive requests from SPPD for follow-up services in the most severe circumstances. Typically, by the time a service request came from the police department, an individual's mental health had decompensated to a level where it was more difficult to stabilize them without emergency hospitalization. The lack of coordination between the police department, county crisis teams, and local hospitals created barriers to service and treatment. While each agency attempted to achieve admirable goals, they unknowingly competed against one another by creating new problems in other parts of the public service system.

Mental health issues increasingly became a criminal justice problem after the deinstitutionalization of psychiatric hospitals in the 1960s. Deinstitutionalization was a noble cause that unintentionally thrust law enforcement into the role of routinely providing care for persons experiencing symptoms of a mental health crisis. Despite best efforts, law enforcement agencies cannot address the mental health crisis alone. The problem has overburden emergency services and led PICs to increasingly have negative interactions with the criminal justice system.

Too often public service agencies operate within in their own silos without ever knowing how their actions impact other parts of the system. The PMHC teams were designed to blend the knowledge and skills of both law enforcement and mental health practitioners to resolve complex community mental health issues. The sequential intercept model along with the theories of social network and social support provide the theoretical framework as to why these collaborative

efforts can help to solve this shared community problem. While versions of these programs have been in practice since the 1990s, they have recently become more popular. However, a review of the previous literature has shown a limited amount research on their overall effectiveness to reduce future mental health crises. With the rapid expansion and public funding costs associated with PMHC programs, it is important to understand if they are achieving their intended objectives. These programs utilize several different types of specialized police responses to PICs including the CIT, co-responder, collaborative case-management, and hybrid models. This study focused on a hybrid PMHC team developed by the SPPD in 2017.

The purpose of this study was to evaluate the effectiveness of PMHC programs in decreasing the likelihood that PICs will have future contacts with law enforcement. This study focused on the outcomes of future mental health calls, arrests, and emergency hospitalizations. The main research question, "Is there a difference in the likelihood that PICs will have a future mental health call, arrest, or emergency hospitalization after receiving outreach services provided by the PMHC team compared to the standard police service?" was divided into three subsequent questions that were used to guide this study.

1. Is there a difference in the likelihood that PICs will have a *future mental health call* after receiving outreach services provided by the PMHC team compared to the standard police service?

2. Is there a difference in the likelihood that PICs will have a *future arrest* after receiving outreach services provided by the PMHC team compared to the standard police service?

3. Is there a difference in the likelihood that PICs will have a *future emergency hospitalization* after receiving outreach services provided by the PMHC team compared to the standard police service?

The non-equivalent comparison design used archival data from the St. Paul Police
Department record management system and the Minnesota online public court records to answer
the research questions. No statistically significant relationships were found between the different
types of police mental health interventions and future mental health calls, arrests or emergency
hospitalizations. However, statistical significance was achieved between future mental health call
outcomes and several subject characteristics that have important implications on practice. While
Chapter 4 provides a detailed overview of the data, this chapter focuses on the interpretation of
those findings.

Interpretation of the Findings

Effects on Future Mental Health Calls

The logistic and OLS regression models failed to find a statistically significant
relationship between the different police-mental health interventions and the frequency or
likelihood that person would be the subject of an additional mental health call six months after
the initial incident. While other studies have found a decrease in future mental health calls when
PHMC team provide services, those studies lacked comparison groups and used posttest only
designs (Huppert & Griffiths, 2015).

In this study nearly 77% of the subjects whose case was either reviewed, referred for
services, or received outreach services by the PHMC team did not have an additional MHC. The
analysis initially showed very promising results until the data provided by the comparison group
was included in the analysis. In this case, 76% of subjects who only received the standard police
service also did not have any additional MHCs six months after the response. Therefore, the
majority of PICs in the analysis did not have any additional MHCs regardless of which
intervention they received.

The findings do not necessarily indicate that the PMHC programs were ineffective in reducing repeated contacts in all instances, but several other factors had greater influence on the outcomes. In general, SPPD patrol officers were competent in identifying people who were in need of emergency psychiatric services and determining the most appropriate solution based on available resources. Therefore, the number of PICs who had repeated contacts was already fairly low (under 25%). The primary purpose of PMHC programs was to provide people with better access to services to prevent future crises. However, when mental health resources are unable to engage with the PIC, it may increase the likelihood of a future MHC. The lack of engagement with mental health services can happen for numerous reasons from limited availability or a person's refusal to accept help. Despite increased service referrals by the PMHC teams, the outcomes may be significantly influenced by the inherent limitations of mental health resources. Similar results were discovered by Helfgott et al. (2016) in their Seattle study where the PHMC teams were able to divert high utilizers to more appropriate community resources and avoided arrest, but did not reduce repeated calls for service from the same individuals (Helfgott et al., 2016).

Within this study, several key factors were identified that were associated with a subject's increased likelihood that they would have another mental health emergency that required a police response. Subjects who had prior MHCs, prior EHPs, and were known to have a diagnosed MI had an increased likelihood of having a future mental health call. Future research should focus on discovering the underlying risk factors in those select cases involving high utilizers so practitioners can make adjustments in outreach efforts to better meet the needs of people who are most likely to have repeated contacts with law enforcement. The first step in the sequential intercept model is designed to divert individuals away from the criminal justice system upon

their initial contact with law enforcement. However, PMHC initiatives, which focus on programming for high utilizers, should not rely on immediate criminal justice diversion as the primary strategy because it may not reduce repeated contacts. Further involvement in the criminal justice system may be required to mandate participation in treatment programs for these groups of chronic consumers of emergency services.

Effects on Future Arrests

When analyzing the likelihood of future arrest, neither the logistic nor OLS regression found statistically significant relationships between the different police-mental health intervention and future arrests. There was no difference in the frequency or likelihood of a future arrests if the subject had received services from the MHLO or MHU compared to the standard police service. The results are also consistent with the most recent literature which also found that mental illness alone was not a contributing factor to an increased rate of arrest (Franz & Borum, 2011; Morabito et al., 2012; Watson, & Fulambarker, 2013). Several earlier studies did find a reduction in arrests of persons with mental illness after their programs were implemented. However, those initial studies lacked comparison groups, pretest measures and were not peer reviewed (Blevins et al., 2014; Brown-Cross et al., 2014). The studies were also conducted in the 1980-1990s when police officers had less access to 24 hour emergency psychiatric services as compared to today. Therefore, prior to the program's implementation, officers at that time were more likely to utilize arrest due to the lack of alternative resources.

Again, the initial results of this study appear very positive when not accounting for data from the comparison group of PICs who only received the standard police service. Approximately 76% of the subjects serviced by the MHLO and 81% of the subjects serviced by the MHU did not have an additional arrests 6 months after their initial incident. It would first

appear that the MHLO or MHU had a significant impact on future arrests. However, when results of the standard police response were added to the analysis it had a similar impact on arrests. Comparatively, 71% of the subjects who only received the standard police service also did not have an additional arrest six months after the initial incident. While there is nearly a 10% increase in arrests by those who only received the standard police service, when all of the other factors were included in the analysis, the influence of the police-mental health intervention disappeared. The majority of all subjects that were contacted by the police did not have an additional arrest regardless of the intervention they received. SPPD officers rarely utilized arrest to resolve an incident after they determined a person's mental health was the primary cause.

During the analysis, several additional key factors were identified that were associated with subjects who had a higher likelihood of a future arrest. Significance was found in the regression models that showed age, transient status and having prior criminal arrests were significant indicators of future arrests. While age was considered a predictor associated with mental illness and arrest, its influence was minimal and was only significant in the OLS model. However, a more influencing factor between mental illness and arrest was homelessness. If a subject was homeless or living in a temporary shelter they had just over a 100% increase in the odds of being arrested in the six months after the initial mental health incident. With a combination of severe persistent mental illness, co-occurring substance, minimal support networks, and a lifestyle that can perpetuate trauma, this sub-population of high utilizers creates substantial challenges for public services.

These findings support the theories of social network and social support. People who experience chronic homelessness often have limited social support or networks that cannot prevent them from reaching the stage of crisis. The stress and instability of being homeless alone

can contribute to factors that lead to anxiety, depression, and other mental health issues (Noe, 2013). Additionally, mental illness and homelessness are tied to an increase in criminal victimization. Just over 50% of transient women in this study had reported being a victim of a sexual assault; which according to the Center for Disease Control is well above the reported U.S. national average of 20% (CDC, 2018). This vulnerable population will require specially tailored services to reduce the effects of past trauma and prevent future crises.

Effects on Future Emergency Hospitalizations

Lastly, the analysis on the likelihood that a subject would have an additional emergency hospitalization (EHP) based on the type of police-mental health intervention they received had a very similar conclusion as the analyses of MHCs and arrests. Neither regression model found a statistical relationship between the different police-mental health interventions and the frequency or likelihood of future emergency hospitalizations. Prior research has reported that police officers brought PICs to the hospital under the same circumstances as specially trained police officers and mental health professionals (Broussard et al., 2010; Strauss et al., 2005). Several research studies did find that some PMHC programs did show a reduced use of emergency hospitalization; however, they also did not utilize comparison groups and only used posttest designs (Aschbrenner et al., 2016; Taheri, 2016; Watson & Fulamarker, 2013).

While no statistically significant relationships were found between the PMHC interventions and future EHPs, there was a noticeable decrease in the number of future EHPs when the cases were handled by the MHLO and the MHU. For example, 84% of the subjects serviced by the MHLO and 87% of the subjects serviced by the MHU did not have any additional EHPs six months after the incident. In comparison, only 78% of the subjects who received the standard police service did not have an EHP. That is nearly a 10% decrease in the

number of subjects who had an additional EHP when the case was handled by the MHU. However, when other factors were included in the analysis the influence of the PMHC interventions did not make a statistically significant difference in the outcome.

Limitations of the Study

The definition of persons experiencing symptoms of a mental health crisis (PIC) captured a broad category of subjects and circumstances within this study. Not every person contacted by SPPD officers, the MHLO or the MHU was officially diagnosed with a mental illness. The previous literature used terms such as persons with mental illness (PMI) or persons with severe mental illness (PSMI). However, most of the prior research did not indicate how subjects were determined to have a mental illness (Fredrick, O'Connor, & Koziarski, 2018; Helfgott et al., 2016; Huppert & Griffiths, 2015). Additionally, certain types of mental illnesses can be difficult to accurately diagnose. Even mental health professionals within the same organization can have varying opinions on a subject's diagnosis. Therefore, the subjects in previous studies could have had severe mental illness, co-occurring substance use disorders, or experienced a one-time psychotic episode, which may or may not have been diagnosed by a mental health professional.

Law enforcement officers routinely come into contact with persons who are in varying stages of crisis. Each time a police officer answers a call for service, the subject of the call is typically in some degree of a personal crisis. Depending on an individual's upbringing, culture and exposure to trauma, these personal emergencies can range from a seamlessly insignificant issue to a major life altering event. The subjects classified as PICs within this study had different severity levels of mental health illness, substance use disorders, and tendencies towards criminal behavior. Several sub-populations were identified that may require different services and treatment options. Future research should seek to more clearly define the different groups of

PICs that are encountered by the police. It may be more conducive to identify and define different sub-populations of PICs to get a better understanding on how police-mental health interventions affect outcomes for distinct groups. Greater clarity in this area will also require changes in how PMHC programs document and track mental health calls.

Additionally, the data collection process and the timing of when PMHC programs started created some potential limitations in the study. The full-time MHU with five officers and two mental clinicians started approximately ten months before the study began. The program's startup date limited the window of time for the post analysis. A longer post analysis may reveal more interesting insights into the potential long term effects of the PMHC interventions. Secondly, the research process involved searching and tracking variables over multiple databases. Information was retrieved from over 3,000 police reports that were read by the researcher to collect all of the necessary data points. Due to the difference in reporting styles by individual officers, the researcher was required in some instances to make professional judgments based on training and experience as to what occurred with the available information. All of the information was checked and rechecked for accuracy to limit potential human error that is likely with this type of research.

Recommendations

Future research should focus on different ways to measure the effectiveness of PMHC teams. In this study, the efficacy of PMHC teams was strongly tied to the effectiveness of current mental health services and treatment options, especially for high utilizers. The objective of PHMC teams is to divert persons away from the criminal justice system and quickly connect people with mental health services. However, if agencies solely evaluate the effectiveness of a PMHC team on their ability to reduce repeated contacts it may lead to a misunderstanding of

their capabilities. When doing so, the cases where individuals refuse service or the treatment fails would negatively impact PMHC program outcomes. Agencies may need to focus on different objectives to measure the effectiveness of PMHC teams. While the programs are creating better systems, they are still dealing with issues that require people to voluntarily accept help to some degree. These problems can be complicated and are typically not resolved quickly. It may require consistent outreach efforts over weeks, months, and even years to develop trusting relationships with people before they are finally willing to accept help.

Additionally, future research should also focus on the PMHC team's effort to divert PICs to less restrictive community resources opposed to hospitalization. Unfortunately, one unintended consequence of PMHC teams referring more people to mental health resources is the increased demand on emergency psychiatric services. Hospital emergency rooms are easily overwhelmed, the most expensive option, and not the best equipped to handle a person in a mental health crisis. When this occurs, PICs are quickly discharged without follow-up treatment plans in an attempt by hospital personnel to manage the high volume of incoming patients. Moving forward law enforcement agencies, social service entities, and medical providers should develop better methods to share information and identify critical resource needs.

Despite the rapid implementation of PMHC programs, it may take more time for local mental health resources to meet the increased demand for services. Significant increases in referrals to community resources may quickly overburden this already limited resource. For example, during the study's timeframe, the SPPD full-time MHU forwarded over 100 additional referrals for follow-up services to local mental health agencies. Mental health resources will need additional funding and staff to coincide with the rapid influx of new service requests created by the PMHC teams. A similar problem was also identified in previous research where mental

health services could not handle the additional volume of patients referred by PMHC teams (Huppert & Griffiths, 2015). It is vital for all stakeholders to understand this phenomenon in order to make necessary adjustments prior to the implementation of PMHC programs.

Implications for Social Change

Most of the previous literature on PMHC programs has focused on providing police officers with advanced mental health training to improve their interactions with persons affected by mental illness (Brown-Cross et al., 2014; Coleman & Cotton, 2010; Compton et al., 2008). While training is an important piece, the complex issues surrounding community mental health cannot be solved by training alone. Several PMHC programs including the SPPD's mental health model have begun to address the systemic issues that limit people's access to mental health resources. The issues can be wide ranging from poor inter-agency working relationships, limited information sharing, and a general misunderstanding of each agency's role.

As a result of this research, recommendations were made to the St. Paul Police Department on strategies to improve their PMHC programs. First, suggestions were made on more efficient ways to track mental health calls and their outcomes. SPPD had recently established an updated protocol for documenting mental health calls. However, they were given further guidance on how to collect specific data points to achieve a better understanding of the impact of their programs. Secondly, recommendations were made on how to modify the program's metrics of success to be more reflective of what the MHU was achieving. Several of the team's objectives such as decreasing mental health calls, decreasing the amount of officer's time spent on MHCs, and reducing repeated contacts may not be the best measures of success. While every police agency wants to reduce mental health calls for service, an increase in calls may actually be a measure of success. The implementation of a PMHC team may increase the

number of mental health calls simply because new resources are now available to the public. After a PMHC program is established and people feel comfortable with the service, they may start calling more often to request help. When individuals start calling for assistance before a crisis becomes unmanageable, that should be considered a significant success. As such, an additional rating scale would need to be developed to document the severity level of each mental health call to adequately measure this outcome.

This research study also identified several sub-population of high utilizers that were more challenging for emergency service providers. Traditional outreach efforts and treatment options may be less effective for this group of subjects due to chronic homelessness, co-occurring substance use, criminal thinking, and behavior. Some of these individuals that were identified had significant criminal histories and were considered career criminals. While other individuals primarily suffered from severe mental illness and routinely absorbed police resources for minor issues. Typically, these subjects lacked social support systems and would repeatedly make nuisance calls for noise complaints or suspicious activity that never actually occurred. A few subjects who suffered from severe delusions would even report fictitious crimes of violence including murders and sexual assaults. These groups of high utilizers will require special treatment plans; which may involve a combination of criminal justice sanctions, involuntary medical treatment, and intensive community support services.

Prior to the completion of this study, SPPD expanded their collaborative mental health initiatives. The MHU was renamed the Community Outreach and Stabilization Team (COAST). COAST is now comprised of 1 sergeant, 7 officers, and 4 mental health clinicians under the direction of the deputy chief in charge of their newly created Community Engagement Division. Several officers were assigned to focus specifically on helping persons suffering from chronic

homelessness and substance use disorders. Consistent with this study's findings, COAST

identified these two sub-populations of consumers who disproportionately overused emergency

services and required specialized outreach. This research will help support SPPD and community

stakeholders' decision to direct additional resources towards these initiatives. It will also help

inform other law enforcement agencies, mental health resources, and public policy-makers on

better ways to serve persons affected by mental illness living in their communities. PMHC have

developed new ways to address the unintended consequences caused by previous mental health

policy reform. This paradigm shift in mental health crisis response will benefit law enforcement,

mental health professionals, advocacy groups, persons affected by mental illness and their

families.

<p style="text-align:center">Summary</p>

The St. Paul Police Department developed comprehensive strategies to address

community mental health issues through enhanced collaboration and partnership with local

stakeholders. In general, it was rare that an incident involving a PIC resulted in a negative

outcome. When reviewing the data, there were numerous calls where SPPD officers de-escalated

dangerous situations involving armed/suicidal persons. In the majority of those calls, officers did

not use any force despite the increased level of personal risk. When officers determined that a

subject's mental health disorder was the primary cause of the incident, official enforcement

action was seldom taken. Both SPPD officers and their PMHC teams did direct PICs away from

the criminal justice system whenever feasible; however, the volume of mental health related calls

did not decrease. This study's findings did not support that PMHC teams were more effective in

reducing PICs repeated contacts with law enforcement compared to the standard police services.

The majority of PIC's that came into contact with SPPD officers or the PMHC team did not have an additional contact within the 6 month post evaluation period.

However, this research did identify several keys factors that influence the effectiveness of PMHC programs. First, the classification of persons experiencing symptoms of mental health crisis or PIC encompassed a broad group of people with different needs. This group consists of persons with severe mental illness, chronic substance use, criminological/antisocial personalities, and persons who had a one-time psychotic episode. Within this group of individuals, several sub-populations of high utilizers were identified that disproportionately absorb emergency services. The efficacy of PMHC teams ability to reduce repeated contacts was also linked to the ability of mental health services to effectively engage and stabilize people in crisis. It is difficult to effectively apply one intervention or service to such a diverse group of people with varying needs and expect similar results. These individuals may require a combination of criminal justice sanctions, mental health treatment and social services to maintain their stability in the community. Therefore, collaborative programming that specifically targets these groups of high utilizers needs to be further developed and evaluated.

PMHC programs are making significant progress in the effort to provide a higher quality of service for people who struggle with mental illness. They are not designed to rid communities of mental health crises, but to provide a broad network of a support services. These initiatives serve as a community safety net to catch people when their mental health decompensates to a dangerous level. Each program also has protocols in place to more effectively manage crises when they occur. The paradigm shift has helped break down ineffective bureaucratic traditions that were historical barriers to delivering quality service. The gaps in service were reduced through enhanced collaboration between the police, mental health resources, and social services.

The increased information sharing between agencies has also helped identify high utilizers who put the greatest strain on emergency services. PMHC programs represent an important step in the development of innovative solutions to more effectively address community mental health issues and enhance public safety.

Law enforcement agencies across the U.S. are facing similar challenges with the rising number of calls involving persons in a mental health crisis. The traditional policing approach to mental health related issues has provided short-term solutions to a chronic problem. Bureaucratic traditions have hindered the development of effective collaborative inter-agency strategies. The Sequential Intercept Model has provided law enforcement with a blueprint on how to improve the interactions between person affected by mental illness and the criminal justice system. However, community mental health issues are complex and will require developing a multi-facet approach that goes beyond simply diverting persons with mental illness away from the criminal justice system. This research will assist law enforcement and mental health professionals as well as policymakers in developing more effective community based crisis response programs.

Unfortunately, at times, it takes a significant tragedy to facilitate meaningful change. Without exigency, the standard operating procedures within the public service sector can unintentionally remain stagnant well beyond their usefulness. The infrequent, but highly publicized police shootings involving persons in crisis has brought to the forefront the substantial public safety concerns where mental health and the criminal justice system intersect. In the wake of such tragedies, new progressive and more inclusive community-first initiatives have emerged. Stakeholders have come together and acknowledged their shared responsibility in assisting individuals who cannot help themselves. By continually evaluating our practices, we can achieve positive social change for the betterment of society.

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