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Police Response to Mental Health Calls for Service

Kayla G. Jachimowski

POLICE RESPONSE TO MENTAL HEALTH CALLS FOR SERVICE

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Kayla G. Jachimowski

Indiana University of Pennsylvania

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Indiana University of Pennsylvania
School of Graduate Studies and Research
Department of Criminology and Criminal Justice

We hereby approve the dissertation of

Kayla G. Jachimowski

Candidate for the degree of Doctor of Philosophy

_____ _____
Jonathon A. Cooper, Ph.D.
Associate Professor of Criminology and Criminal Justice, Chair

_____ _____
Erika Frenzel, Ph.D.
Professor of Criminology and Criminal Justice

_____ _____
John A. Lewis, Ph.D.
Professor of Criminology and Criminal Justice

_____ _____
Jennifer J. Roberts, Ph.D.
Professor of Criminology and Criminal Justice

ACCEPTED

_____ _____
Randy L. Martin, Ph.D.
Dean
School of Graduate Studies and Research

Title: Police Response to Mental Health Calls for Service

Author: Kayla G. Jachimowski

Dissertation Chair: Dr. Jonathon A. Cooper

Dissertation Committee Members: Dr. Erika Frenzel
Dr. John A. Lewis
Dr. Jennifer J. Roberts

Police and public relations are at the forefront of most new stories and can be seen circulating multiple social media platforms; some to include individuals who have mental illnesses. To better understand the interaction between police officers and individuals with mental health diagnoses, this dissertation focuses on closing the gap in literature surrounding police responses to mental health calls for service, with an emphasis on training and relationships with mental health agencies. Through the use of factorial surveys, police departments in different locations across the United States and the inclusion of police departments with Crisis Intervention Training (CIT) were surveyed. Using vignettes and demographic information, linear mixed modeling was used to analyze the results in light of the research questions. Overall, the majority of the hypotheses tested were unsupported by the data. However, the key independent variables had significant effects on the goodness of fit while building models from the bottom up. Indirectly, the results speak to the importance of police training about mental health disorders, and the likelihood of diverting individuals with mental illness from the criminal justice system.

DEDICATION

First, I dedicate this dissertation to my mother, Sandra Jachimowski, who pushed me at every stage in life and never lost sight of helping me achieve my dreams. Secondly, I want to dedicate this dissertation to my patient and loving wife, Nicole, who spent countless hours reading through these pages to check for extra commas. Without you, completing this dissertation would not have been possible. Finally, I want to dedicate this study to Isabel McEllen Jachimowski, I cannot wait to meet you and watch you grow.

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CHAPTER ONE

INTRODUCTION

There is a lack of cohesive agreement among researchers regarding the state of mental illness in the country evidenced by the varying opinions about something as simple as, whether there is such a thing as a mental illness (Bergner & Bunford, 2017; Varelius, 2009). Varelius (2009) wistfully describes a situation in the mental health care community, where individuals agree with physiological deficits but believe mental illnesses are fictitious conditions. At the other extreme, individuals feel any violation of societal norms is a mental illness. In the same respect, policing scholars report varying degrees of effectiveness of policing strategies regarding mental health disorders, policing perceptions, and the most appropriate response to interactions between the police and mentally disordered individuals (Lord & Bjerregaard, 2014; Taheri, 2014; Watson, Morabito, Draine, & Orttati, 2008).

According to Lord and Bjerregaard (2014) three sources cite that the estimated rate of police interactions with mentally disorder individuals (MDI) is approximately 7% - 10% largely due to the fact that officers typically are first responders. This seems like a relatively small number of interactions when compared to the 90% of interactions which do not involve MDI. More so, mental health research indicates dramatic spikes in the number of individuals in the community following deinstitutionalization (Harcourt, 2011; Kim, 2014; Lord & Bjerregaard, 2014), which hardly seems so dramatic given the infrequent occurrences of interactions between officers and MDI. However, to put this in perspective, according to the Bureau of Justice Statistics (2016) there are approximately 18,000 federal, state, and local policing agencies in the United States. These departments can range anywhere from a single officer, to departments which are responsible for employing more than 30,000 officers. Given the innumerable number

of interactions which occur every day between these two groups of people, the 7% to 10% of interactions become an alarmingly high number.

Deinstitutionalization refers to the emptying of state mental hospitals and facilities due to overcrowding, deterioration of the hospitals, and new medications that helped patients function without needing to be institutionalized (Torrey et al., 2010). Many of these changes were the result of political ideology independent of sound clinical practice. The reintegration of these patients into the community was fully never executed, insofar as individuals with mental illness often are subjected to arrest and prosecution in the criminal justice system for minor offenses due in part *to* their mental illness (Perez, Leifman, & Estrada, 2003). Criminal punishment for minor offenses more likely to be caused by MDI, is referred to as the criminalization of mental illness. Consequently, the rate at which the mentally ill are arrested, jailed, and enter the criminal justice system has labeled many such individuals as criminal, subsequently becoming part of the so-called "revolving door of justice".

Deinstitutionalization and the criminalization of the mentally ill have had direct ramifications for the police. Because the police often are called on to deal with not only crime but disorder, they interact disproportionately with the mentally ill. Police officers therefore act as gatekeepers for individuals with mental health problems and the criminal justice system (Jennings & Hudak, 2005; Lord & Bjerregaad, 2014). Some researchers provide catchier names, such as "street-corner psychiatrists," or "social workers." However, it remains true that as long as members of soceity place calls for service, MDIs lack appropriate resources to manage their disorders, and there is a disruption in agreements across the mental health and criminal justice systems, police officers will be the responsible party to act (Steadman, Deane, Borum, & Morrissey, 2000).

According to Akins et al. (2014), individuals with serious mental illness make up, at most, five percent of the population, but represent seven to ten percent of police contacts. This above-average contact between the police and the mentally ill is not one sided. Not only is there a disproportionate amount of contact between the police and mentally ill individuals, but mentally ill individuals generally have repeated contact with police (Akins et al., 2014). Nearly half of mentally ill individuals have had a repeat occurrence with police within 60 days of their initial interaction (Akins et al., 2014).

Often, however, police departments lack the training, policies, and procedures to adequately manage the responsibility of being a gatekeeper (Ruiz, & Miller, 2004). For example, police typically are wary of individuals with mental illness because they are perceived as being extra-dangerous and unpredictable (Ruiz, & Miller, 2004). This is reinforced, in part, by society's negative views of those with mental illnesses. Such perceptions force the police into one of two responses: recognizing the need for treatment or arresting a person to protect the community (Jennings, & Hudak, 2005). Such mixed sentiments about how to respond to MDIs can prevent an officer from seeing past safety concerns to mental health needs, and historically has led to violence (Morabito et al., 2012).

Even though officers and departments are requesting and receiving training in de-escalation strategies and being able to identify an MDI, the lack of resources in the mental health care field makes it exceedingly difficult for police (Lord & Bejerraard, 2014). Crisis intervention teams (CIT) were developed to decrease the number of violent encounters between individuals with mental illness and the police (Morabito et al., 2012) through specialized training (Taheri, 2014). However, to date, the research remains inconsistent on the effectiveness of CIT reducing the use of force against and reducing violent encounters with mentally ill individuals (Morabito

et al., 2012). Mobile crisis teams and community service officers also have been explored as possibilities to decrease the rate of MDI being placed in the criminal justice system. However, they are not as popular as CIT, and suffer from even fewer empirically and methodologically rigorous studies (Kiseley et al., 2010; Lee et al., 2015; Lord & Bjerregaard, 2014; Rosenbaum, 2010). Aside from police officer's responsibility pertaining to MDI, the mental health care field has yet to conclusively agree on definitions which are critical to the advancement of policies and strategies to divert individuals from the criminal justice system (Begner & Bunford, 2017).

Although this paper's purpose is not theory testing, there are three theoretical frameworks that will not only inform my analysis, but I will be able to comment on the utility of each theory when studying interactions between the police and the mentally ill. In addition, the results speak to the importance of police training on mental health, clearer procedures for mental health calls for service (MHCFS), and the likelihood of police diverting individuals with mental illness from the criminal justice system. *Peplau's Theory of Interpersonal Relations* examines the relationships between nurses and the clients seen in a clinical setting; however, for the purposes of this dissertation, the interpersonal relations concepts are related and discussed in light of police and MDI interactions (Peplau, 1997). *Structural Holes* and *Weak Ties* are compared and contrasted to highlight the importance of expanding a social network away from one centralized location, such as a police department, to include several mental health resources that can provide critical information to the officers (Burt, 1992; Granovetter, 1973). Finally, *Systems Theory* is used to examine the importance of changes in systematic behaviors, the effect that behavioral change has on another system, and the way in which this relates to the poor relationship between the mental health and criminal justice systems (Morgan, 1998; Stewart & Ayres, 2001).

Overall, the research about mental health calls for service (MHCFS) is not rich, but the studies which exist suggest that most MHCFS are handled informally by the police (Engel & Silver, 2001). Typically, officers have broad discretion over how they resolve calls involving mentally ill individuals, which often are minor in nature (Reuland, Schwarzfeld, & Draper, 2009). As Reuland and colleagues (2009) point out, such informality can be missed opportunities to refer individuals to effective treatment interventions. Understanding how and why police respond to MHCFS will therefore fill an important gap in the policing and mental health literature.

Lucy Jo Matthews' (2016) story is just one amongst thousands across different western civilizations where there is a clear breakdown between the mental health system and those who need treatment. Due to this breakdown between the mental health system and MDI, there has been an increase in these individuals being placed in the criminal justice system (Cotton & Coleman, 2010). It should be noted that mental health is not just a policing issue; instead it should be seen as a comprehensive problem that spans the criminal justice and mental health systems, to include medical and social service problems (Cordner, 2006). Unfortunately, due to a number of societal and political shifts during the mid-20th century, MDI have become a "policing problem." In addition, traditional policing tactics have been shown to be ineffective, and sometimes dangerous for MDI (Cordner, 2006). Thus, the focus becomes to find a solution to the influx of MDI in the criminal justice system. One such quote highlights the frustrations of patients receiving in- and out-patient treatment in a society which continues to cut funding and resources of MDI.

> In my early days in the late 90s/early 00's the service [provided by the Community Mental Health Team (CMHT)] was largely coordinated by a small number of

> administrative staff who knew your name and had the time to engage with you and support your visit to the team. When I returned [six years later] this had all changed - harassed and stressed staff (usually a different face each appointment) greeted you rudely while carrying out other tasks. (Matthews, 2016, p. 26)

To that end, my dissertation's primary focus is examining three research questions which pertain to the diversion of MDI away from the criminal justice system, and into more appropriate resources: 1) How does mental health training affect the way in which officers respond to mental health calls for service; 2) Does the officer's response to the call for service change based on professional, or personal relationships held by the officers; and 3) Does police response change based on the number and type of mental health resources in the immediate area? For the purpose of this dissertation, mental health calls for service refers to a call for service in which the police primarily are dealing with a mentally ill individual, where the person is engaging in a crime or citable offense.

A sample of sworn law enforcement officers, whose primary job is patrolling communities and responding to calls for service was pulled from varying states around the USA and Pennsylvania Act 120 cadets. To combat against a low response rate from police officers, I attempted to over sample officers to ensure an appropriate number of responses were collected, as determined by *a priori* power analysis, for all anticipated statistical models. Due to the fact that the statistical power and the sample size needed for the analysis were different because of the differences in questioning (i.e., vignettes which need their own power and the overall necessary sample size for the number of variables), the higher sample size of 315 was chosen as the presumed *N*. Additionally, after a completion of an expert review, I provided officers and departments with a choice between in-person surveys, which will be collected during shift-

change briefings, and through an online survey. While in-person surveys yield a much higher response rate when compared to online surveys (Dillman, Smyth, & Christian, 2014), due to police departments which do not have a formal roll-call period, it was suggested the surveys be placed online through Qualtrics by multiple expert reviewers.

The survey instrument consisted of five vignettes (Brenner, 2013), which contain four dimensions, each with either two or three levels. In addition to the vignettes, there will be single item survey questions used to gauge professional training, perceptions, and demographics, as well as a final section for demographic information. Each vignette will have four possible outcome choices: arrest and transportation to a holding facility, detainment with transportation for involuntary commitment, informal resolutions at the scene (conflict resolution, or warning), and no action. Officers and cadets were given a percentage-based response system to report the likelihood, out of 100, of completing each one of the actions; this is my dependent variable. My independent variables include, *inter alia*, demographic information, diagnoses of the individual, and level of immediate threat to the community. These, too, were included in each vignette. Most importantly, my key independent variables came from single survey items, such as whether the officer has had mental health training, if they have relationships with individuals who can be sources of information regarding mental health, and the number and type of mental health resources in the area.

To answer each of my research questions - and after exploring the behavior and nature of my data with descriptive and bivariate statistics - I employed a mixed models approach. Given that the response is continuous, and has multiple outcomes, mixed models is the most appropriate analysis to get an overall picture of the data. Additionally, mixed models allows me to control for

interactions between the vignettes, and assess the data and the models at two levels (Maas & Hox, 2005).

This dissertation proceeds in the following manner: the next two chapters will provide an overview of the literature and methodological strategies which were used to answer the research questions. Chapter II speaks to the broader topic of the deinstitutionalization and criminalization of the mentally ill and its ramifications for police behavior. Specifically, in the last 30 years, criminal justice policy changes have continued to exacerbate the relationship between those with mental illness and the criminal justice system. Crackdowns on crimes that target quality-of-life concerns and substance use/abuse have created more opportunities for police interactions with the mentally ill (Thompson, Reuland, & Souweine, 2003). Moreover, Schulenberg (2015) argues that police decision-making practices have complicated this relationship and added to the criminalization of mental illness. Additionally, Chapter II discusses police interactions with MDI, and a comprehensive analysis of the three theoretical frameworks mentioned above.

Chapter III lays out each of the research questions and their respective hypotheses, provides a description of the sample size and population, discusses factorial surveys and why it is the most appropriate method of answering my research questions, and provides an overview of the survey design. Finally, Chapter III concludes with detailed explanations and theoretical support for each of the independent variables, as well as the dependent variables response categories, and the analytic plan. The last two chapters primarily focus on the results at the descriptive, bivariate, and mixed modeling levels. Chapter IV is presented in way which walks through how the models were built, the relevance of the independent variables, and assessing the research questions. The last chapter, Chapter V, provides a discussion on the significant findings, a review of what it all means, and ideas for future research.

CHAPTER TWO

LITERATURE REVIEW

Mental Health

Before defining mental illness, it is essential to first consider the history of defining mental illness to understand the complexities faced by historical advocates, those in the mental health care and psychological field, and society which still are prominent today. Dorothea Dix was vital to reforming mental health during the mid to late 1800s, after witnessing the treatment of mentally disordered individuals in the prison and jail populations. Ms. Dix has been cited reporting that "[i]nsane persons confined within this [Massachusetts] Commonwealth, in cages, stalls, pens! Chained, naked beaten with rods, and lashed into obedience (Tiffany, 1890, p. 76). Upon returning for England, Ms. Dix started a campaign which eventually succeeded to establish state directed funds for asylums to house individuals with serious mental illness in the United States (Schutt & Goldfinger, 2011).

Thus, during the latter part of the 1800s, the United States began seeing and introduction of State Care Acts, for example *The New York State Care Act of 1890*, which standardized and centralized the financial responsibility of caring for individuals with mental illness to the state systems (Goldman & Grob, 2006). While Goldman and Grob (2006) suggest that after the shift in financial responsibility the rate of elderly patients placed in state mental hospitals rose, McNally (2011) reports that in comparison relatively few individuals (in the early 1900s) would have been as clinically depressed or anxious then as they are today. This is an important comparison as those opposed to the state funding argued that it was creating more MDI. At the peak of population (in the 1950s), state mental health facilities began seeing societal, economic, and political shifts in the interest and demand for adequate care for individuals with a mental

health diagnosis (Harcourt, 2011). During this time, although disputed, the concept of the deinstitutionalization has been attributed to the changing in policies, such as The Joint Commission on Mental Illness and Health created in 1955, The National Institute of Mental Health's (NIMH) programs, and the Community Mental Health Centers Act of 1963 (Goldman & Grob, 2006; Harcourt, 2011; Kim, 2014). The deinstitutionalization and criminalization of mental illness is discussed in more detail in the next section of this dissertation.

Defining Mental Illness

Defining mental illness is a complicated task for researchers and practitioners alike because the definition shifts based on cultural, political, economic, and scientific factors (Goldman & Grob, 2006; Granello & Granello, 2000; McNally, 2011). More so, the scientific field is responsible for making biological and psychological advances in defining what *is* and *is not* a mental illness (McNally, 2011). Depending on the scope of the politician, researcher, public, or mentally disordered individual, the definition may be narrow, such as serious mental illness (SMI), or more board to include non-serious mental illness (nSMI) (Goldman & Grob, 2006).

The predominant state of the mental health field (to include practitioners and researchers) is one where the field has been unable to agree on a singular definition and that words, such as *psychopathology, mental illness, abnormality, mental disorder*, all are used synonymously (Bergner & Bunford, 2017). One such explanation argued by Bergner and Bunford (2017) is the fact that "... [research has] attempted to settle this question of the meaning of the concept 'mental disorder,' not on the basis of empirical evidence, but from our armchairs (p.26)." Granello and Granello (2000) highlight the lack of comprehensive definitions for mental illness, stating that even the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*, a widely used and the

most comprehensive collection of mental health diagnoses, fails to offer full definitions of psychiatric disorders (Wakefield, 1992).

Even more deficient is the uniformity of defining mental illness among researchers (Varelius, 2009). Varelius (2009) discusses a multitude of different definitions used through the literature, for example, K. W. M. Fulford (1989, as cited in Varelius, 2009) defines mental disorder as an individual's incapacity to engage in their environment without a breakdown. More still, Gert and Culver (2004) define a mental disorder as a clinically significant behavioral or psychological pattern or display of symptoms which occur in an individual simultaneous to distress and disability which the potential of leading to death, pain, or the loss of freedom (as cited in Varelius, 2009). Finally, although certainly not a comprehensive overview all of mental health definitions used in research, Wakefield (1992) argues that there is a lack of conclusiveness on the definition of mental illness because there are varying definitions of the individual term, e.g., *mental, illness,* and *disorder*. Similarly, Varelius (2009) argues the words within the definitions of mental disorder are difficult to define, e.g., *significant,* or *naturally selected function.*

More cited however, is the DSM and the 1999 mental health report from the U.S. Surgeon General. The DSM recently has been revised (2015) and offers the following definition of mental illness:

> A mental disorder is a syndrome characterize by clinically significant disturbance in an individual’s cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Mental disorders are usually associated with significant distress or disability in social, occupational, or other important activities. An expectable or

> culturally approved response to a common stressor or lass, such as the death of a loved one, is not a mental disorder. Socially deviant behavior (e.g., political, religious, or sexual) and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual, as described above. (DSM-5, 2015, p. 20)

However, the U.S. Surgeon provides the following definition of *mental health* and *mental illness:*

> Mental health is a state of successful performance of mental function, resulting in productive activities, fulling relationship with other people, and an ability to adapt to change and to cope with adversity. ...Mental illness is the term that refers collectively to all diagnosable mental disorders. Mental disorders are health conditions that are characterized by alterations in thinking, mood, or behavior (or some combination thereof) associated with distress and/or impaired functioning. (p. 4-5, as cited in Goldman & Grob, 2006)

The Deinstitutionalization of Mental Illness

Over 61 years ago, the number of inpatients in psychiatric state hospitals peaked around 559,000 in 1955; however, in 2003 there were 47,000 inpatients (Davis, Fulginiti, Kriegel & Brekke, 2012). This dramatic decrease in patients residing in state hospitals can be attributed to multiple and somewhat simultaneous changes that occurred during the latter half of the 20th century. A review of deinstitutionalization is critical to understanding mental illness and crime, as this was a turning point for individuals with mental illnesses and the resources available to them. This section will provide a historical overview of the growth of state psychiatric hospitals (Davis et al., 2012; Novella, 2010) deinstitutionalization and its relationship to crime (Jones,

2015; Mechanic & Rochefort, 1990; Torrey et al., 2010), and the criminalization of mental illness that continues to occur more than half of a century later.

Psychiatric deinstitutionalization refers to the emptying and closing of state mental hospitals and the philosophy and the process of shifting mental health care to community-based facilities (Kim, 2014; Torrey et al., 2010). Prior to 1948, almost half of the United States relied on in-patient treatment facilities. Shifting philosophies helped establish outpatient facilities, where individuals could get treatment without having to be admitted into the hospital. By 1954 there were approximately 1,200, and by 1959 there were more than 1,400 outpatient facilities (Accordino, Porter, & Morse, 2001). A substantial contributing factor to the societal shift towards community based treatment for individuals with mental illness and, subsequently, deinstitutionalization was the *Community Mental Health Centers (CMHC) Act of 1963* (Mechanic & Rochefort, 1990). Formed from the basis of the *Mental Health Study Act of 1955*, the CMHC Act of 1963 was federal legislation that mandated state and local mental health facilities to increase the rate of treatment in community facilities (Lynum & Hill, 2015). During President John F. Kennedy's message to Congress, he outlined the shift to community health care and set a quantitative target to decrease the number of patients in state hospitals and asylums by 50% within 20 years (Davis et al., 2012; Harcourt, 2011; Mechanic & Rochefort, 1990).

Not only did the CMHC Act succeed in reducing the amount of in-patient psychiatric individuals, psychiatric deinstitutionalization occurred so quickly that 12 years after the enactment of the CMHC, the inpatient population had decreased by 59.3% in 1963 and further decreased to 62% in 1975 (Harcourt, 2011; Mechanic & Rochefort, 1990). In total, 25 years after the first major mental health act, the number of inpatients in state hospitals and asylums decreased by 75% (Harcourt, 2011). This push to decrease the need and reliance on state run

mental hospitals and asylums, decreased the rate of inpatients by more than 90% (Davis et al., 2012).

In addition to the passing of the CMHC, multiple societal forces began to emerge during the post-WWII era (Accordino et al., 2001; Harcourt, 2011; Kim, 2014; Davis et al., 2012; Mechanic & Rochefort, 1990; Rochefort, 1984). The second world war played a large role in bringing mental health issues to the public forefront as soldiers were discharged for failing to pass psychiatric tests (Rochefort, 1985; Davis et al., 2012). Researchers refer to servicemen who were diagnosed with neuropsychiatric disorders as "psychiatric casualties," which accounted for more than 2,000,000 men who were discharged from the Army during WWII (Rochefort, 1985). The war took the concept of "mental health" from an issue that rarely was discussed to one that quickly was realized as a previously unrecognized epidemic in the United States. To aid in the sudden rise of individuals diagnosed with a mental health disorder, states began training more mental health professionals to manage the large number of men who were suffering from a neuropsychiatric disorder (Davis et al., 2012).

As the number of military personnel who were discharged due to neuropsychiatric disorders and the recognition of the need for community-based treatments increased, mental health personnel began looking for alternatives to institutionalization (Davis et al., 2012; Rochefort, 1990). The second main contributing factor to the deinstitutionalization of mental health facilities was the priority given to drug and community treatment alternatives to hospitalization or institutionalization, especially for serious mental illness (SMI) (Davis et al., 2012; Kim, 2014; Mechanic & Rochefort, 1990; Rochefort, 1984). Prior to the development of psychiatric drug treatments, the most common treatment for individuals with mental health diagnoses was electroshock therapy and lobotomy (Harcourt, 2011).

Antipsychotic drugs, such as chlorpromazine, quickly became readily available during the mid-1950s (Kim, 2014). Not only were these drugs used as a community-based alternative to institutionalization, but research suggested that antipsychotic drugs were capable of curing a multitude of disparate diagnoses, such as depression and anxiety disorders (Kim, 2014; Rochefort, 1984). By 1956, over two million patients had been prescribed chlorpromazine, and the majority of states were prescribing some type of antipsychotic drug to their patients (Harcourt, 2011). Through the use of antipsychotic drugs, the need for physical restraints decreased and the use of tranquilizing drugs began creating an overall image of reform for the mental health field, mental institutions, and individuals with mental illness (Davis et al., 2012; Rochefort, 1984).

In addition to drug therapy, the military began experimenting with different therapeutic treatments leading to major advancements in therapeutic psychology (Rochefort, 1990). The study of psychiatric patterns, effects, and causes, otherwise known as psychiatric epidemiology, was a key factor in the groundbreaking research being conducted on mental illness (Rochefort, 1990; Davis et al., 2012). The focus of psychiatric epidemiology was the treatment of individuals with mental illness and their socioeconomic and demographic factors (Rochefort, 1984). The emphasis and focus of psychological epidemiology combined with the increase in professionally trained mental health personnel lead to alternatives to hospitalization and an increase use of diversion from these institutions that were more cost effective and humane. Concomitantly, these factors began changing the public's opinion about mental health, both in terms of treatment and those diagnosed with mental health problems.

Additionally, the passing of Medicaid and Medicare in 1965 reinforced the growing popularity of political awareness and need for mental health care reform and the conclusion that

moving away from state mental hospitals was ideal (Davis et al., 2012; Harcourt, 2011). Medicaid and Medicare offered individuals who did not have familial support to be cared for in nursing homes by dividing the cost between the state and federal government (Gronfein, 1985). State institutions were in favor of Medicaid and Medicare because of the shifting costs to nursing homes and the federal government; in fact, states would pay no more than 50% of the cost to house an individual with mental illness in a nursing home (Mechanic & Rochefort, 1990). While nursing homes quickly expanded, other social welfare programs, like Social Security Income (SSI) and Social Security Disability Income (SSDI), made it easier for individuals with mental illness to integrate back into the community (Davis et al., 2012; Gronfein, 1985; Kim, 2012).

Allegations of poor conditions fueled by the public's growing interest in mental health care facilities resulted in civil liberty advocates demanding change (Davis et al., 2012; Harcourt, 2011; Kim, 2014 Rochefort, 1984). Advocates for better treatment of individuals with mental health needs challenged with two legal policies: procedural due process and minimum standards of care (Davis et al., 2012; Harcourt, 2011). Procedural due process focused mostly on the concept of involuntary commitment, or when an individual was committed to a mental institution against their will. After civil liberty advocates succeeded in changing the process of involuntary commitment, it had a dramatic effect on institutionalization as this was the most common way to be committed to a state hospital (Harcourt, 2011). This was due, in large part, to the view that committing an individual without consent was not to protect them but was instead a violation of their civil liberty and autonomy.

Two influential court opinions that were crucial to reforming mental health institutions were *Wyatt v. Stickney* (1972) and *O'Connor v. Donaldson* (1975): both spoke to the challenged legal policies from civil liberty advocates. *Wyatt v. Stickney* (1972) was used in the *O'Connor v.*

Donaldson (1972) to highlight the ruling that individuals had the right to be treated and treated with a minimum standard care. Additionally, it set forth definitions for the minimum standard of care that an individual has the right to receive (Prigmore & Davis, 1973; *Wyatt v. Stickney*, 1972). The ruling mandated hospitals in the state of Alabama treating individuals with mental illness to have a qualified mental health professional, teach patients appropriate life skills to help them cope with their illness(es) beyond the hospital walls, and the right for the patients to have privacy, to name only a few (Prigmore & Davis, 1973; *Wyatt v. Stickney*, 1972). *O'Connor v. Donaldson* (1975) stated that Kenneth Donaldson unconstitutionally was held in a state hospital for 15 years and subsequently ruled that an individual could not be involuntarily commitment if they were not a danger to themselves or others (Davis et al., 2012; Fields, 1976; Harcourt, 2011*O'Connor v. Donaldson*, 1975).

With an increase in public and pressure from advocates, and the Supreme Court's decision in Wyatt v. Stickney (1972) and *O'Connor v. Donaldson* (1975), the groundwork for further rulings surrounding the treatment and commitment of individuals with mental health diagnoses changed the institutionalization of state mental hospitals (Davis et al., 2012; *O'Connor v. Donaldson*, 1975). To decrease the inadequate treatment of individual with mental health needs, advocates also sought to change how individuals were treated while they were in mental health institutions. *Wyatt v. Stickney* (1972) was a Fifth District Court opinion in the state of Alabama that mandated that these individuals had a right to be treated and receive adequate treatment (Davis et al., 2012; Harcourt, 2011; *Wyatt v. Stickney*, 1972). Due to the fact that most of the state run hospitals were unable to meet this mandated standard of care, the institutions were forced to close.

With the help of antipsychotics, new therapeutic techniques, and political support through acts like the CMHC and Medicaid, the public's perception of individuals with a mental health disorder and mental health care providers began to change. With support from the public and the government, individuals who were incapacitated for mental illness were able to reintegrate themselves into society. Unfortunately, some families were unprepared emotionally and financially, or unwilling to provide support and treatment to individuals who were released from state institutions, leaving these individuals to fend for themselves. Community facilities were unable to accommodate the influx of individuals with mental health problems. Often, individuals who did not have anywhere to go, be it family or other facilities, became homeless (Jones, 2015; Lamb, 1984; Mechanic & Rochefort, 1990).

Deinstitutionalization created a society that demanded community-based treatments for individuals with mental illness without the means to adequately provide resources for all of these people (Lamb, 1984). Thus, individuals who were without treatment, support, and basic human resources found themselves on the streets and encountering the police. The criminalization of mental illness has become an unforeseen consequence of deinstitutionalization (Ringhoff, Rapp & Robst, 2012).

Mental Illness and the Criminal Justice System

Generally, individuals with mental illness are more likely to be disproportionately represented during all stages of the criminal justice system (Vogel, Stephens, & Siebels, 2014). This dissertation focuses on the training of police officers when responding to calls for service which involve individuals with mental illness; however, it is critical to understand how the other two aspects of the criminal justice system (courts and corrections) affect and are affected by mentally disordered individuals (MDI) given the intertwined nature of the police, the courts, and the correctional systems.

These trends have created two disjointed systems (mental health systems and the criminal justice system), where there are less individuals diverted to mental health institutes than there are individuals who are incarcerated (Torrey et al., 2010; Vogel, Stephens, & Siebels, 2014). In many cases, the decision to divert individuals to a mental health facility and placing them in the correctional system is rarely one that is decided by a clinical representative; more frequently, this decision is made by the police, prosecutors, and judges (Montross, 2016).

Mental Health Courts

Mental health courts (MHCs) have been shown as an effective way to divert individuals suffering from mental illness from the criminal justice system or helping to match those persons with appropriate community resources upon reentry (Vogel, Stephens, & Siebels, 2014). MCHs are considered a problem-solving court, or a specialty court, where there are requirements that need to be meant in order to be processed through a specialty court and not traditional criminal courts (Castellano, & Anderson, 2013). While the most frequent specialty court found in the United States are drug and alcohol courts, MHCs followed shortly thereafter. The first MHC was established in 1997, in 2009 there were more than 250 mental health court, and many more in the planning phases (Almquist & Dodd, 2009; Castellano & Anderson, 2013).

There are three primary goals of MHCs, (a) improve specific clinical outcomes that will help reduce recidivism, (b) decriminalize mental illness and (c) restructure the legal process to create a more therapeutic environment (Almquist & Dodd, 2009; Castellano & Anderson, 2013). There are different standards that individuals must meet in order to be diverted to a mental health court; unfortunately, the criteria vary between different courts (Almquist & Dodd, 2009). However, all courts use a case management process, which include judges, social workers, treatment service professionals, and probation officers to develop an appropriate course of treatment (Ray, 2014). During this process, the defendant is closely monitored to determine if the

individual is making progress in their treatment plan. Treatment plans can include meeting with mental health professionals, or participating in drug screening (Almquist & Dodd, 2009; Ray, 2014). Additionally, MHCs have separate dockets for individuals with mental illness(es), designated judges, and a collaborative team system (Almquist & Dodd, 2009; Castellano & Anderson, 2013; Hiday & Ray, 2010; McNeil & Binder, 2007; Ray, 2014).

Despite the empirical support for MHCs, there are varying opinions on the effectiveness of MHCs to reduce recidivism for individuals who participate in the specialty court process (Almquist & Dodd, 2009; Castellano & Anderson, 2013; Vogel, Stephens, & Siebels, 2014). According to Ray (2014), the majority of research about MHCs have found that individuals have lower rates of recidivism after completing the treatment plan developed by the mental health courts than recidivism before entering the MHC. However, studies also report no change in recidivism when individuals went through a traditional court system, in comparison MHCs (Ray, 2014; Hiday & Ray, 2010).

Finally, the empirical research about the effectiveness of MHCs in reducing recidivism have limitations. Some studies supporting the reduction in recidivism do not contain a control group, are cross-sectional with few follow-ups, and/or do not re-evaluate the effectiveness longitudinally (Hiday & Ray, 2010). In addition to the mixed results on MHCs and recidivism, there are criticisms that MHCs are not inclusive enough, there is a lack of standardization across MHCs, and there is a need for more specific empirical research (Vogel, Stephens, & Siebels, 2013).

Mentally Ill Individuals in Prison

Disparity of people with mental illness, and contact with the justice system, is not unique to law enforcement. In 2005, more than half of inmates in jails and prisons had a mental health problem and 16% had a serious mental illness (James & Glaze, 2006; Torrey, Kennard, Eslinger,

Lamb, & Pavle, 2010). Prisons were not designed to house and rehabilitate mentally ill individuals and one of the biggest problem facing mentally ill inmates is the scarcity of resources and programmatic options (Adams, & Ferrandino, 2008). Research suggests there is a lack of suitable and effective treatment options for mentally ill offenders and inmates, regardless of having a large population of individuals who suffer from one or more mental disorders. Correctional facilities have become pseudo-mental health facilities, despite not being designed as such, contributing to the lack of resources for mentally ill inmates (Adams & Ferrandino, 2008; Benton & Masciadrelli, 2013).

A lack of training among correctional staff increases the risk of victimization for these inmates. For example, mentally ill offenders are more likely to commit a prison infraction, like disobeying a rule when compared to inmates without a mental health diagnosis. Ignorance, on the part of the correctional staff, leads to inappropriately handling the inmate (physically or verbally,) creating a hostile environment for everyone involved (Adams, & Ferrandino, 2008). Mental illness can diminish the rational thinking process of inmates causing them to exhibit inappropriate behaviors (Benton, & Masciadrelli, 2013; Geiman, 2007). These behaviors include forms of unintentional aggression, opposition to general instruction, the inability to follow the rules, and violence.

Unfortunately, inmates who are unable to conform to the norms of prison, and are offered few treatment alternatives, often find themselves locked in solitary confinement (Anonymous, 2008; Adams, & Ferrandino, 2008; Benton, & Masciadrelli, 2013; Pfeiffer, 2007). The likelihood of solitary confinement significantly increases when the staff predicts that the inmate is likely to engage in violence towards themselves or others. However, treatment should be the immediate reaction for mentally ill inmates, and this does not always occur. According to Gater (2007),

many inmates are unable to receive the treatment they need for their illness while in the criminal justice system.

White, Chafez, Collins-Bride, & Nickens (2006) state that arrests and victimization of mentally ill inmates are linked. Those with severe mental illness have high rates of interaction with law enforcement officers, arrests, and incarceration. This involvement with the justice system can exacerbate mental illness. Similarly, violent victimization has shown to be associated with mental illness and violence and causes a disruption in the individuals already chaotic life (Silver, Felson, & Vaneseltine, 2008; White et al., 2006). Young offenders who had experienced, and had a history of victimization, were more likely to "assaultive violence" than other offenses (Silver et al., 2008, p.417). Silver et al (2008), define assaultive violence as homicide and physical assault that typically results from some type of dispute.

In addition to being more likely to experience victimization in the community, mentally ill offenders also are more likely to be victimized once they are incarcerated. This victimization often stems from other inmates who engage in violence with the inmate because they do not understand their disorder. Blitz, Wolff, and Shi (2008) report 283 occurrences of staff-on-inmate physical victimization per 10,000 when the inmate had a mental illness, in comparison to 235 staff-on-inmate physical victimization when the inmate did not have a mental illness. Similarly, there were 292 occurrences of inmate-on-inmate physical victimization when one inmate had a mental disorder, in comparison to 180 incidences when neither inmate had a mental health problem.

Aside from the relationship among mental illness and prior victimization being associated with violent offending, mental illness and violence have many common risk factors. These include age, race, socioeconomic status, physical and sexual abuse, substance abuse, gender, and

stressful life events (Felson, Silver, & Remster, 2012). While there are mixed results, Felson, Silver, and Remster (2012) report that some mental disorders were associated with violent offending. More so, they claim that mental illness has the potential to lead to aggression and violence when it is coupled with delusional thinking. Other studies report that even though it is unlikely, individuals with mental disorders are more likely to engage in violent offending than those without a mental disorder (Flynn, Rodway, Appleby, & Shaw, 2014; Silver, 2006).

The Criminalization of Mental Illness

The criminalization of mental illness refers to individual behaviors that can be managed by transporting an individual to a psychiatric hospital but, due to lack of recourses are managed by placing the individual into the criminal justice system through arrests (Fisher, Silver, & Wolff, 2006). The criminalization of mental illness in conjunction to the increasing number of individuals with mental health disorders in correctional facilities became a societal issue during the early 1970s when the United States saw an increase in individuals with mental illness who were incarcerated (Chaimowitz, 2011; Ringhoff, Rapp, & Robst, 2012). Deinstitutionalization promised to shift government funds from state psychiatric hospitals to the community to increase community-based treatment programs for individuals with mental illness (Chaimowitz, 2011). Unfortunately, this is not what in fact happened; far less money was invested in the community, resulting in numerous individuals with mental health disorders ending up in the criminal justice system instead of being diverted to psychiatric hospitals. Thus, mental illness became *de facto* criminalized.

In 1972, March Abramson was the first person to coin the phrase, *criminalization of mental illness*. Individuals with mental illness often are subjected to arrest and prosecution in the criminal justice system for minor offenses (Perez, Leifman, & Estrada, 2003). During the initial interactions between individuals with mental disorders and the criminal justice system, there is

usually a lack of diversion strategies, such as community support systems and rigorous criteria for civil commitment (Perez et al., 2003). Mentally ill offenders typically are labeled as criminal before being released back onto the streets, becoming part of the prison's revolving door. For individuals with mental illness who are not arrested and incarcerated, there are a multitude of different locations where they may end up. Thus, rather than receiving needed services, mentally ill offenders are placed behind bars where they merely can be "controlled."

Substance Use and Mental Illness

According to Kessler et al. (2005) estimates that approximately 30% of individuals in the U.S adult population meet the requirement for a mental health diagnosis: almost two times the amount reported by Carey and Correria (1998) seven years earlier. In the same report, Carey and Correria (1998) report individuals with severe mental illness are more likely to have co-occurring substance use than individuals with non-serious mental illnesses (Gonzalez, Bradizza, Vincent, Stasiewicz, & Paas, 2007). While this remains true in current literature, the rate of co-occurring substance use and mental illness has increased both in respect to alcohol and drug use, since the late 1990s (Carey & Correria, 1998; Slate, Bluffington-Vollum, & Johnson, 2013).

One reason for the increase in drug and alcohol use by individuals with a mental health diagnosis is the idea of self-medicating (Robinson, Sareen, Cox, & Bolton, 2009; Slate, Buffington-Vollum, & Johnson, 2013; Thornton et al., 2012). When community health care facilities lost funding, the ease of getting medications became more difficult and people with mental health disorders sought other ways to medicate themselves (Moore & Elkavich, 2008; Slate et al., 2013). Another reason is individuals with co-occurring mental illness and substance abuse disorders report that, unlike psychiatric medications, the use of drugs gives the individual a pleasurable experience, allowing them to enjoy life instead of simply being "normal" (Slate et al., 2013; Thornton et al., 2012). Finally, there is an argument in the literature that suggests that

individuals with SMI are more likely to have negative consequences, such as violent crimes, when their diagnosis includes a substance abuse disorder (Gonzalez et al., 2007; Slate et al., 2013; Swartz et al., 1998). However, the research varies in findings, making it difficult to say conclusively the reason(s) for high comorbidity between mental illness and substance abuse (Compton et al., 2007; Gonzalez et al., 2007; Thorton et al., 2012). While research conflicts with the prevalence of comorbidity between mental health and substance abuse, it is clear that there is a relationship between the two (Compton, Thomas, Stinson, & Grant, 2007; Lurigo, 2013; Mechanic, 2007; Reiger et al., 1990).

Homelessness and Mental Illness

During the 1970s, society saw a large increase in the number of individuals with mental health problems entering private nursing homes that would be able to care for these individuals (Davis et al., 2012). However, for individuals who did not have a facility or family to go to, they found themselves on the streets, homeless, or incarcerated: This pattern remains true today. On any given night, there are approximately 636,017 individuals who are homeless; of that, 25% - 33% are suffering from a serious mental health issue (SMI) (Davis et al., 2012). Despite an argument that homelessness is not a direct consequence of mental illness, researchers agree that there is a relationship between deinstitutionalization and homelessness (Lamb, 1984). Before deinstitutionalization, individuals with mental health disorders had a place to live: state sponsored mental health institutions (Lamb, 1984). Arguably, without the rapid removing of individuals from state run hospitals to other locations, homelessness of individuals with mental illness would not have occurred in such staggering numbers (Lamb, 1984).

Homelessness is considered an intermediate factor when discussing the pathway to incarceration (White, Chafetz, Collins-Bride, & Nickens, 2006). According to Perez, Leifman, and Estrada (2003), when individuals with mental illness do not receive adequate treatment, and

are left without appropriate resources, they eventually will enter the criminal justice system. In a study conducted by White et al. (2006), the majority of individuals diagnosed with a mental health disorder had been arrested prior to the survey. Additionally, 86 percent of individuals who reported being homeless in the past six months were arrested. Gur (2010) and Perez et al. (2003) argues that even though criminologists minimize the effect mental health has on being arrested, research shows police are more likely to arrest individuals with a mental illness for minor offenses than individuals without a mental diagnosis. Although in recent years, individuals who have a mental health diagnosis who have been arrested could be moved to a mental health court; it is likely they will be sent to a correctional facility where they are likely to be victimized and disproportionately punished.

Police Disparity Because of the Criminalization of Metal Illness

Shortly after deinstitutionalization, and the increasing rate of individuals with mental illness who found themselves homeless, the government began decreasing the funding given to community mental health centers in the 1980s. The flow of money went into combating against the prevalence of substance abuse (Humphreys & Rappaport, 1993). During this time, politicians used their platforms to increase the public's fear of drug use and the necessity of getting tougher on drug crime (Moore & Elkavich, 2008).

Research suggests homelessness, substance abuse, and drug enforcement policies fueled by the war on drugs has contributed to the increased amount of arrests, and disproportionate arrest rates, of individuals with mental illness (Lurigo, 2013). While it is difficult to examine the criminalization of mental illness overall due to the variance in crimes committed by individuals who can be suffering with any number of diagnoses, research clearly shows those who suffer from one or more mental disorders are convicted more frequently for crimes than the general public (Skeem et al., 2011; Vinkers, de Beurs, Barendregt, Rinne, & Hook, 2011).

Police and Individuals with Mental Illness

Disparity in Police Contact

Police officers act as a gatekeeper for individuals with mental health problems and the criminal justice system (Jennings & Hudak, 2005). More often than not, police departments lack the training, policies, and procedures to adequately manage the responsibility of being a gatekeeper in this capacity (Ruiz & Miller, 2004). In recent years, the amount of disproportionate arrests and incarceration sentences of individuals with mental illness has become a growing concern of policymakers, researchers, and police departments (Akins, Burkhardt, & Lanfear, 2014). According to Akins et al. (2014), at most, individuals with mental illness make up 5% of the population but are 7% - 10% of police contacts. While there is a disagreement among researchers as to the percent of police/mental health interactions, there is agreement on the disproportionality of contact (Akins, et al., 2014).

Not only is there a disproportionate amount of contact between the police and mentally ill individuals, but there are mentally ill individuals who have repeated contact with police (Akins et al., 2014). Nearly half of the individuals had a repeat occurrence with police within 60 days of the initial interaction. Police have a difficult task of protecting individuals with mental illness, while protecting the community. These two common-law doctrines clash during calls for service or interactions between police and individuals with mental illness (Jennings & Hudack, 2005).

Police perceptions and interactions when responding to MHCFS

During interactions between police officers and the general public, the level of confidence that an officer has in their actions relies on the policies that currently are in existence in their departments (Ruiz & Miller, 2004). This concept transcends the general population and includes individuals with a MHD. According to Bittner (1967), while police officers recognize that interacting with MDIs is a part of their job, they are not confident in making decisions

regarding placement, and more importantly, they do not feel that it is their job to make these decisions.

Traditionally, the defined role of police officers in these situations is unclear and extends beyond the literal enforcement of the law (Sellers, Sullivan, Veysey, & Shane, 2005). While police are charged most frequently with protecting the public, more recently, police have been considered "community problem-solvers" (Sellers et al., 2005). In the context of MHCFS this newer mandate focuses officers on assisting individuals to gain access to the mental health system (Sellers et al., 2005). However, in cases where there is little to no guidelines surrounding the handling of MDI, police officers default to a public safety perspective, opposed to that of a peacekeeper (Ruiz & Miller, 2004). In addition, the police officer's role is further complicated when there is more than an issue of social disorder in question – that is, when MDI has committed a felonious offense, or minor misdemeanor, for example.

According to Ruiz and Miller (2004) there are five catalysts that exist which fosters physical confrontation and can escalate interactions between police officers and MDI. These catalysts include: fear on the part of the MDI because they are placed with unfamiliar people and transported to an unknown place; a lack of cooperation by the MDI; fear due to the officers' overpowering attitude; a lack of training or empathy on the part of the officer; and finally, fear on the part of the police officer. It seems that the frequency in which officers are interacting with MDI is increasing, and often the officers are "alarmed by their [MDI] unpredictability (Sellers et at., 2005). To that end, Sellers, Sullivan, Veysey, and Shane (2005) argue that a lack of training leads an officer to make improper decisions when it comes to responding and handling MDI (Sellers et al., 2005; Ruiz & Miller, 2004).

Police Use of Force Against Individuals with Mental Illness

The use of force in police-public encounters is exceedingly rare. In fact, use of force occurs in less than 1% of the interactions between the police and the public (Morabito, Kerr, Watson, Draine, Ottati, & Angell, 2012). Despite the overall percent of encounters that occur without any use of force, there are still a tremendous number of cases where force is used (Taheri, 2014). More so, situations can quickly escalate depending on the demeanor, hostility, and impairment of the civilian; and are the key factors in whether officers engage in some type of force (Morabito et al., 2012).

Use of force is most frequently used in cases where an individual resists arrest, acts disrespectful toward officers, attack or threaten police, are in possession of a weapon, tries to run-away and escape, or is a threat to the public (Morabito & Socia, 2015). Despite the more recent criminological focus on police encounters with individuals with mental illness, the literature paints a conflicting picture regarding the dangerousness and violent behaviors of those individuals (Morabito & Socia, 2015). Johnson (2011) found that individuals with a mental health diagnosis (especially psychotic and personality disorders) are more likely to act out and engage in violent behavior toward police officers, in comparison to individuals without a mental health diagnosis. Contradictorily, Kesic, Thomas, and Ogloff (2010) found people who had been diagnosed with a mental illness were less likely to act violently toward police officers, than their non-diagnosed peers. Conflicting research makes it difficult to know which policies and strategies to implement to ensure the safety of officers and MDI, alike.

Taheri (2014) suggests that if an officer is trained in de-escalation techniques, the likelihood of a non-violent encounter during a crisis increases and the probability of the officer using force decreases. The lack and opposing nature of current mental health and police

literature, in combination with the limited evaluations on police use of force and individuals with mental illness creates a deficit that needs to be filled.

Diversion Strategies

In a 1998 study conducted by Borum, Deane, Steadman and Morrissey, the researchers reported that police agencies began re-evaluating their role in the community and the increase in service calls. Furthermore, they report the three response programs that were being integrated into police departments for the turn of the century. These programs include: *police-based specialized police response*, which includes officers who have mental health training (i.e., Crisis Intervention Teams); *police-based specialized mental health response*, which include mental health professionals who are not sworn-officers but are employed by the police departments; and *mental-health-based specialized mental health response*, which includes a team response between mental health providers and police officers (Mobile Crisis Teams) (Borum, Deane, Steadman, & Morrissey, 1998).

Crisis intervention teams (CIT) were developed as a police-based program to decrease the number of violent encounters between individuals with mental illness and the police (Compton, Broussard, Reed, Crisafio & Watson, 2015; Morabito et al., 2012). Individuals are trained to act as a liaison between the first person to respond to calls for service and the mental health system (Compton et al., 2015). Training for these teams include information about mental health, local resources, and the law (Taheri, 2014). There often are four factors that are associated with fatal police shootings, among those are the use of drugs and alcohol, commissioning of a serious offense, acting in a way which is easily misinterpreted (like carrying a toy gun), and the presence of a mental illness (Bower & Pettit, 2001). In fact, these factors often are highly associated with offenders with mental illness. With that, this section of the paper describes the existing program evaluations on CIT.

The Albuquerque Police Department (APD) modeled their CIT after the creation of the Memphis CIT. In 1999, more than five out-of-state police departments graduated from the Albuquerque program, and at the time the CIT made-up one-fourth of the field patrol (Bowers & Pettit, 2001). Despite the age of the evaluation and the increased use of CIT in the modern police department, it is important to review one of the first CIT evaluations.

Overall Bower and Pettit (2001) report that there were impressive results after gathering three years' worth of data regarding the effectiveness of the Albuquerque program. In that time, the CIT responded to more than 3,200 calls and transported individuals with a mental health issue to a mental health facility in just under half of those calls. Additionally, just over one percent of the calls resulted in an injury to the civilian (Bower & Pettit, 2001).

Officers were specifically selected to be a part of the APD CIT after showing that they possessed superior communication, problem solving, and tactical skills. More so, after being selected, these officers underwent intensive screening and evaluations to determine eligibility to the next phase of enrollment (Bower & Pettit, 2011). The forty-hour training consisted of instructions on handling special populations, substance abuse, and case management while in the field. To decrease the turnover rate, CIT officers received an additional $50 incentive pay with their weekly salary. The researchers and department suggest that the success of the program stems from the dedication and the replication of other successful models and not to mention selection bias (Bower & Pettit, 2001).

A six-year longitudinal study was conducted between 1998 and 2004 in the Akron Police Department. During this time, there were more than 1.5 million calls for service, 10,000 of which were calls for service that was related to mental disturbances (Teller, Munetz, Gil, & Ritter, 2006). There were seven actions which an officer was likely to respond: transport to psychiatric

services; transports to other treatment facilities; arrest and transport to jail; formal interaction where transport to jail was unnecessary; transportation to another location; no police interaction; and actions which were taken but are unknown (Teller et al., 2006).

After the implementation of the CIT, the rate in which citizens were arrested and taken to jail decreased slightly and officers who were on the CIT were more likely than non-CIT officers to have taken individuals with a mental illness to jail (Teller et al., 2006). However, during mental health calls for service, CIT officers were more likely than non-CIT officers to transport an individual with a mental health disorder to an emergency psychiatric facility but were less likely to transport them to another location (including other treatment facilities or a residence) (Teller et al., 2006).

Ritter, Teller, Marcussen, Munetz, & Teasdale (2011) conducted a study based on the characteristics of the officer dispatch team in Seattle, Washington (the Seattle Police Department,) to determine if there was a relationship between the dispatchers and the action officers would take once they arrived on scene. To this end, researchers gathered official records on the interactions between police officers once arriving on the scene, the coding process of the call, and the interaction between dispatch and the officers (Ritter et al., 2011). Ritter et al. (2011) analyzed 2,174 officer reports when the officer described responding to a call for service and interacted with a person perceived to have a mental illness. Foregoing the level of training the responding officer possessed, the models' (likelihood of transportation) were different depending on whether the call was specific about a mental illness (more likely to be transported to a treatment facility) or the way in which the call was dispatched (Ritter et al., 2011). Their results indicate that there are unknown results when examining whether an individual assessment from a

CIT (on-scene) is related to the dispatch code; and, consequently, whether the person was transported to jail or a treatment facility.

There also has been a more recent study on whether crisis intervention teams increase the linkage between police departments and mental health resources, and if CIT decreases the use of force between police and citizens (Watson et al., 2010). Unlike the other studies examined in this paper, Watson sampled districts and personnel for comparison between the systems. In total, there were 333 officers invited to participate in the study. The results of Watson's (2010) study suggest that while controlling for district, training, and personal officer characteristics, individuals on the CIT were 18 percent more likely to direct citizens to some type of service than those without the training. However, being a CIT officer did not have a significant direct effect on referral to services. Instead, it largely depended on how the citizen interacted with the CIT officers, and whether the officer had a positive outlook on the available mental health resources (Watson et al., 2010). With regards to the use of force variable, there were no significant results for a decrease in use of force, regardless of the officers' training, but there was a difference among districts. Watson (2010) speculates that because of the increased levels of mental health resources and CIT in those two districts, the saturation of potential exposure to CIT training could be high and explain the difference between districts.

Consistently there are patterns that emerge in the evaluations of crisis intervention team research. These patterns include the evaluation of training more than the practical and situational aspects of CIT. Other patterns include the measure of effectiveness being based on the potential of transporting an individual from the call for service location (Bower & Pettit, 2001; Ritter et al., 2011; Teller et al., 2006). Finally, all the evaluations reported a difficulty in measuring the variables and controlling for all spurious relationships; specifically, how to accurately measure

what was happening in the field without direct observation (Bower & Pettit, 2001; Ritter et al., 2011; Teller et al., 2006). These are common challenges to policing research; to this end, researchers should focus their conclusions on the preponderance of agreement between the studies.

Despite the overwhelming positive results (Bower & Pettit, 2001; Helfgott, Hickman & Labossiere, 2016; Ritter et al., 2011; Teller et al., 2006) that CITs have received, in terms of effectiveness, it still is difficult to say whether they "work" definitively. One reason this is so difficult is because of the lack of empirical evidence that looks specifically at the effectiveness of multiple outcomes (Watson, Morabito, Draine, & Orttati, 2008). More so, most studies have been conducted looking at the training or police perceptions of CIT, with few studies looking at a change in arrest (Watson et al., 2008).

Mobile Crisis Team Approach

Although CIT is the oldest and most widely used diversion strategy, the difficulty in determining its effectiveness has created a need for other diversion strategies (Rosenbaum, 2010; Watson et al., 2008). One such approach is the use of *mobile crisis teams (*MCT) or *mobile crisis units* (MCU) (Cornelius, Simpson, Ting, Wiggins, & Lipford, 2003; Currier, Fisher, & Caine, 2009; Kisley et al., 2010; Lee et al., 2015; Lord & Bjerregaard, 2014; Murphy, 2012; Rosenbaum, 2010). For the purpose of this dissertation, *mobile crisis teams* (Currier, Fisher, & Caine, 2009; Murphy, 2012), *mobile crisis units* (Lord & Bjerregaard, 2014), *mobile crisis partnerships* (Kisely et al., 2010), *crisis outreach* (Cornelius et al., 2003) *mobile response unit* (Lee et al., 2015) all will be referred to as *mobile crisis teams* (MCT).

In some cases of CIT, there is a dual partnership between CIT officers and mobile crisis dispatch programs (Murphy, 2012). While the calls for service into a law enforcement dispatcher usually are different from calls into a mobile crisis dispatcher, by using the mobile crisis

dispatcher, officers are able to have an on-call clinician who is responsible for immediately meeting the officer and the person in crisis for a face-to-face assessment (Murphy, 2012). Overall, the evaluations MCT have shown to be preferred by officers, and individuals experiencing the crisis (Kisley et al., 2010).

Most MCT consisted of police officers and clinicians, although the make-up of personnel was contingent on whether the program design allowed the clinician to respond with the officer (Lee et al., 2015), or if the clinician arrived after the officer requested an assessment (Murphy, 2012). In an Australian study of MCT, police officers reported being largely in favor of approaching the mental health calls for service with a clinician (Lee et al., 2015). Over the six-month pilot study of the MCT integration, MCT reported 296 contacts through the A-PACER (a variation of the original Police and Clinical Early Response). Out of those 296 contacts, 33% of individuals threatened suicide, 22% had welfare concerns (MCT needed to respond to issues with housing, welfare, substance treatment or primary care services), and 18% were due to psychotic episodes. After the initial contact, 49% of individuals needed transportation from the original site, of which police officers were the most likely to transport the individual (58%) (Lee et al., 2015).

Kisely et al. (2010) focused their study on a pre- and post-evaluation of a MCT between policing services and a mental health team in Nova Scotia, Canada. The argument was that, at the time of publication, limited formal evaluations had been completed, and there was a need for a control group in a comparable area which did not have a MCT. Overall, during the 3-year period of time during the study, the MCT saw an increase of approximately four times the number of calls for service in which the MCT responded between year 1 and year 3 (464 responses in year 1 and 1666 responses in year 3). During this time, officers and clinicians were

able to respond more quickly to calls for service, and the amount of time needed on the scene (Kisely et al., 2010).

Finally, specific to the United States, Lord and Bjerregaard (2014) found that officers who participated in a MCT were more likely to divert individuals from their original location to another location if they were male, intoxicated, and more likely to draw the attention of officers. Additionally, Lord and Bjerregaard (2014) report that without immediate intervention from mental health resources, officers may resort to physical restraint and arrest. Although the studies that have been done evaluating the effectiveness of MCT seem to be positive, it is difficult currently to discern the level of effectiveness because the current studies vary on the aspects being evaluated and the limited number of studies (Lord & Bjerregaard, 2014). Lee and colleagues (2015) report at the time of publication, only six studies had been completed across multiple countries since 1992; of those evaluations, only three had been completed more recently in 2010 or sooner.

Research has suggested police officers who are a part of a MCT are less likely to arrest MDI (Steadman, Deane, Borum, & Morrissey, 2000). Oppositely, Steadman, Cocozza, and Veysey (1999) found there were relatively few differences in officers who were a part of a MCT and the rate of arrest (or re-arrest). Scott (2000) reported similar results to the Steadman and colleagues (1999) study, where there was not a statistically significant relationship between arrests of those in MCT and interventions by officers who were not a part of a MCT. The idea that there is a lack of formal evaluation is held constant among researchers of MTC (Lord & Bjerregaard, 2014; Lee et al., 2015; Kiseley et al., 2010). However, more research should be done to evaluate the effectiveness of MCT on policing, mental health services, and financial outcomes of employing this strategy.

Community Service Officers

The final police strategy created in response to the increased number of police interactions with individuals who have a mental illness is *community service officers.* This strategy is severely lacking in methodological rigorous examination, and peer-reviewed coverage, thus only one article is reviewed in this section. The *Crisis Outreach and Support Team* (COAST) was developed in Albuquerque, New Mexico in 2005 and "... expanded the basic scope of a sworn CIT program and involved civilians acting as crisis outreach personnel (Rosenbaum, 2010, p. 176)." There are five "crisis specialists" in the civilian unit, they are employed by the Albuquerque Police Department (APD) and are supervised by an APD police sergeant. This team is responsible for providing crisis intervention, for individuals with a MHD, this includes but is not limited to: suicide intervention and stabilization, referrals, housing needs, and substance abuse (Rosenbaum, 2010). Overall, COAST was developed to decrease the rate of instances where officers were dispatched to a location to respond to these types of situations, thus freeing up the police. However, members of COAST were unable to provide services of psychiatric medicine, or give long term care. COAST now employees an out-reach psychiatrist to aid the COAST members as well as the police. While Rosenbaum (2010) reports that the "COAST plus psychiatrist model" is successful at "diverting nonviolent, noncriminal cases away from front-line officers," this article did not include any methodological evidence to support this claim (p. 180).

Theoretical Framework

While the foci of this dissertation are not in theoretical testing, a discussion of a theoretical framework is vital to consider. In this section, three theories, *Peplau's Theory of Interpersonal Relations*, *Structural Holes* and *Weak Ties*, and *Systems Theory*, will be presented considering all three research questions, respectively. The first theoretical concept, Peplau's

theory of interpersonal relations, relates the core values of creating interpersonal relationships between CIT and individuals with mental illness (Beeber, 2000; Courey, Martsolf, Draucker, & Strickland, 2008; Ellis, 2012; Peplau, 1992; Peplau, 1997; Peplau, 1999; Thelander, 1997). The second theoretical concept, structural holes and weak ties, is used to understand the importance of social connections between officers, those with a mental illness, and those in the mental health care field (Bittner, 1967; Burt, 1992; Cohen, Brissette, Skoner, & Doyle, 2000; Cornwell & Waite, 2009; Wells, 2011;Friedkin, 1982; Granovetter, 1973; Granovetter, 1983; Hansen, 1999; Levin & Cross, 2004). The final theoretical concept, systems theory, highlights the importance of system organization, the interaction between systems, and the repercussions of a changing environment (Amagoh, 2008; Coleman & Cotton, 2010; Cotton & Coleman, 2010; Dietz & Mink, 2005; Morgan, 1998; Stewart & Ayres, 2001; Vaughan, 2011).

Peplau's Theory of Interpersonal Relations

Peplau's theory of interpersonal relations offer concepts which have since shaped the strategies nurses use to deliver treatment to patients who are facing a varying range of dilemmas (Peplau, 1997). The was introduced during the late 1940s and early 1950s, focusing on the interpersonal relationships developed between nursing staff and their clients (Courey et al., 2008; Ellis, 2012; Peplau, 1997; Thelander, 1997). The term *nursing* extends further than the profession and the original intentions of the theory. Beeber (2000) defines nursing as the human responses to imperatives, or the "demands that require energy, activity, and changes in self and relations (p. 50)." Simply, the term *nursing* means helping individuals achieve optimal health during a given event. Peplau (1952) defined *health* "...as forward movement of the personality and other ongoing human processes in the direction of creative, constructive, personal, and community living (p. 12, as cited in Beeber, 2000, p. 50). With the fluidity of Beeber's (2000) definition of *nursing* and Peplau's (1952) ambiguous definition of *health*, this concept can be

applied to officers who respond to calls for service in which an individual is in, or perceived to be in, a crisis.

Peplau (1992) suggests that while her theory of interpersonal relations is useful among general nurse practitioners, the theory is the most effective in psychiatric nursing because MDI typically have a difficult time with communication and relatedness with other people (Thelander, 1997). Thelander (1997) describes his success using Peplau's theory of interpersonal relations in a psychiatric hospital across a multitude of diagnoses, including schizophrenia, major depression, and borderline personality disorders. These diagnoses usually are referred to as serious mental illnesses (SMI). While these individual's make-up a relatively small percentage of the general population, individuals with SMI make-up 25% to 33% of homeless individuals (Davis et al., 2012) and 16% of the jail and prison population (James & Glaze, 2006; Torrey et al., 2010). In other words, the very MDI that police are most likely to come into contact.

Due to the success of using Peplau's theory of interpersonal relations in a clinic setting, I submit the focal aspects of the theory can be applied by police officers during mental health calls for service. Participant observation, as opposed to spectator observation, includes collecting information on the observer's behavior, the behavior of the observed, and noting the interaction which happens between the two individuals; this is one of the most important aspect of interpersonal relations (Peplau, 1997; 1992). Peplau (1992) goes on to explain the importance of taking in the person's verbal and nonverbal language and taking the time to collect as much information as possible. Following the initial observation, officers, using interpersonal relations, should be deliberate in their wording, as this step of the invention process is critical (Beeber, 2010). CIT officers specifically are chosen because of their superior communications skills

(Bower and Pettit, 2011), in which using the verbal inputs, deliberate wording of Peplau's theory of interpersonal relations can be incorporated during their interactions with a MDI.

Another important aspect of interpersonal relations is focusing on "[taking] an investigative approach that does not avoid exploring stressful situations but rather focuses upon the problems the person is experiencing…" (Thelander, 1997, p. 26). Similar to communication skills, officer who are chosen for CIT training also are extremely skilled in problem solving techniques (Bower & Pettit, 2011). For example, Peplau (1992) uses Sullivan's "modes of experiencing" to describe individuals who, in a given moment, is unable to recognize or recall anything other than what is happening at the time, for example, those in panic (p. 15). Officers who can identify individuals who are in a crisis can begin using verbal language, like an introduction of who the officer is, and nonverbal language, such as approaching in a non-aggressive manner, to build trust (Courey et al., 2008). Additionally, by using verbal inputs, the officer can help the individual begin to describe what has happened, what is happening, and recognize what could happen in the future (Peplau, 1999).

Finally, it should be noted that the main implementation of this theory is in laboratory, hospital, or clinical settings because of the length of time needed to breach some of these concepts of the theory (Thelander, 1997; Courey et al., 2008). However, in the original theory, Peplau (1997) describes that the nurse-client relationship is relatively short, and the orientation phase, in which the nurse and client meet, lays a lot of ground work in a short period of time. While it would be difficult for officers to establish the change in the behavior patterns discussed in the theory, it is plausible that officers can use components of the theory to enhance CIT training, and decrease misunderstood situations, which have been shown to be more harmful than multiple positive interactions (Courey et al., 2008). More importantly, the theory's overarching

components are the facilitation of problem-solving skills, therapeutic interactions, and investing time and energy into the relationship (Peplau, 1997; Thelander, 1997; Dinga & Karvinen, 2008). These components directly overlap with the goals, and approaches used by officers with CIT training (Bower & Pettit, 2001). Despite the datedness of Peplau's theory, the main components not only remain relevant but critical in the interpersonal relations literature (Dinga & Karvinen, 2008).

Structural Holes and Weak Ties

When organizations create an environment where individuals share knowledge with each other, they are likely to be effective, efficient, and innovative. More importantly to this dissertation, this section will focus on structural holes (Burt, 1992), weak ties (Granovetter, 1983) and the functioning of both theories as social networks (Scott & Carrington, 2011). Adopting the theoretical underpinnings of these theories will set officers apart from other officers, and departments apart from other departments to increase the preparedness of responding to mental health calls for service.

Structural holes theory originally was developed by Ronald Burt (1992) to explain the advantages developed out of "holes," or the "nonequivalence's between players in the competitive arena" (Burt, 1992, p. 2). He states there are three important types of player capital that individuals bring into the competition: financial capital, human capital, and social capital. Financial capital is the amount of money, lines of credit, and monetary reserve that an individual possess. Human capital are personal characteristics such as intelligence level, charisma, and health. Finally, social capital are the relationships one creates through friends, and other general contacts whom one has the chance to use the financial and human capital acquired (Burt, 1992).

Weak ties theory is similar to structural holes, originally published by Mark Granovetter (1973) aimed to explain the strength in creating and maintaining multiple weak ties. The theory

suggests that individuals who develop and preserve a tie from one domain to the other (a weak tie) will have an advantage over those who maintain multiple strong ties and few weak ties (Cohen et al., 2000; Granovetter, 1973; Wells, 2011). This disparity in garnering information focuses on the possibility of redundant information from strong ties, and the ability to gather new information across domains (Granovetter, 1973, 1983). In addition to creating and maintaining weak ties, it becomes increasingly important for those individuals to share that knowledge with others within the social network to maximize the new information (Friedkin, 1982; Levin & Cross, 2004; Scott & Carrington, 2011).

However, Levin and Cross (2004) point out that information given across a weak tie (Granovetter, 1983) or from different pools (Burt, 1992) may be inconsistent or inaccurate. Despite the potential for misinformation, Granovetter (1983) contends that those with weaker ties will gather more *new* information than those with more strong ties since those which limit themselves to maintaining strong ties, (and fewer weak ties), only will receive redundant information.

Organizational structures such as police departments, can use their financial capital, such as government funding, to expand their department, pay for training, and provide incentives for officers who take the CIT training. Additionally, police departments can use their human capital, the employees of the police agency, to expand the structural holes between the criminal justice and mental health systems. On a more individual level, police officers which occupy the bridge positions, the link which loosely connects two networks (or domains), are in the unique position to distribute information across the two domains (Cohen, Brissette, Skoner, & Doyle, 2000; Cornwell & Waite, 2009).

In context of this paper, it is important for officers to maintain both strong and weak ties to gather and share information. Officers who are in contact with mental health care providers, such as a mental health liaison, or have a relationship with an individual(s) with mental illness will be able to exchange information across all domains regardless of the strength of the tie.

According to Burt (1992), the main difference between the two theories is the arguments that structural holes can explain causal factors, and be tested empirically (Burt, 1992). Granvotter (1973, 1983) argues that a tie's strength is the determining factor whether or not it will serve as a bridge between two pools with emphasis on the strength of the tie (distal cause); Burt (1992) prefers to use a proximal cause (emphasizing the bridging of the ties) (Scott & Carrington, 2011). Despite the arguments that one theory is better than the other, Scott and Carrington (2011) assert that the biggest difference between the two theories is the language. Both theories, in summation, agree that by being connected to multiple pools place the individual in a position to constantly receive new information, as opposed to receiving repeated information from people who all have the same connections (Burt, 1992, Granovetter, 1973, 1983; Scott & Carrington, 2011). However, there has been little empirical evidence on structural holes and weak ties in relation to social science related disciplines. Thus, the minimal and often contradictory empirical evidence which has been conducted on the two theories, makes it difficult to determine the efficiency on ties, and knowledge sharing within police departments (Wells, 2011).

Systems Theory

Morgan (1998) suggests that in the organizational environment collaboration among individuals and organizations is extremely common, and the relationship formed between systems make the environment more manageable. The systems theory approach assumes that systems are open to the environment in which it resides and must maintain an appropriate relationship to survive within the environment (Coleman & Cotton, 2010). Due to the delicate

balance between each individual system and the relationship between each system, any small changes that occur within the environment will consequently alter the other systems (Coleman & Cotton, 2010). Amagoh (2008) defines a set as two or more elements in which each element can affect the behavior of the other elements; There is an interdependent relationship between the behaviors of the elements and the effect overall, and the rule that none of the individual elements have an independent effect on the whole.

These are important distinctions when referencing the system theory approach and the police. While the responsibility of protecting the public falls largely on the police, in cases where police are interacting with individuals with mental health disorders (MHD), officers may feel under-equipped to deal with crisis situations (Bittner, 1967; Engel & Silver, 2001). Ideally, to offset the balance between police and mentally disordered individuals (MDI), police departments would work with the mental health systems to create an efficient and effective environment of dealing with these individuals (Vaughan, 2011). When this assumption begins to breakdown, it makes bridging the gap between the criminal justice system and the mental health system difficult for MDI. The relationships between these two systems are similar to the precepts of the systems theory approach both in structure and theoretical analysis (Vaughan, 2011). As the system theory contends, when one system changes, the other systems will be altered (Cotton & Coleman, 2010). More so, if the changes are unexpected and the other systems are unable to alter their system in time, the systems begin to breakdown (Stewart & Ayres, 2001).

A clear example of a failure between systems is the increase between MDI in the criminal justice system because of deinstitutionalization and the criminalization of mental illness (Cotton & Coleman, 2010; Vaughan, 2011). According to the system theory, once the mental health system began closing state mental health facilities without providing an alternative for treatment,

it disturbed the equilibrium between the systems. Since the criminal justice system was not prepared for the sudden influx of MDI, both systems are unable to effectively manage individuals with a mental health diagnosis (Cotton & Coleman, 2010). Stewart and Ayres (2010) also argue that systems can begin rebuilding the whole but often lack the resources, or political actors fail to bring players from different systems together in productive ways. It is imperative that these two systems begin working together to reduce the effects of deinstitutionalization, increase mental health legislation, and support the social and mental well-being of MDI (Vaughan, 2011).

CHAPTER THREE

METHODOLOGY

Introduction

Cooper, McLearen, and Zapf (2004) employ factorial surveys to judge the dispositional decisions officers make regarding individuals with mental illness. Their study is one of few studies which employ this technique and focuses solely on the police perceptions and characteristics in responding to the situations. Additionally, the vignette scenarios did not change across different surveys apart from a race variable (Cooper et al., 2004). More so, although not as important, this specific study was done in 2004 with a sample size of 94 officers. More information is needed specific to how levels of training, relationships, and resource affect the officers' dispositional discretion in calls for service regarding individuals with a mental health diagnosis (MHD). I assert, given the current literature about mental health calls for service, more studies in this topic area need to be addressed with methodological rigor, a larger and more diversified sample, and by using a mix of survey approaches. In this section of the dissertation, I propose a several but coherent methodological strategies to create, collect, and evaluate how the data for this study answer the research questions.

Critical aspects of this study's methodology include components such as: frequency and duration of mental health training, relationships among an individual officer (or cadets) and a professional, personal, or community individual(s), and the number and type of mental health resources available to the officers (and subsequently their police departments). Additionally, aspects associated with police response will include perceptions of individuals with a MHD, and experience gained as an officer. While each vignette will be a hypothetical situation the purpose

is to be similar to real-life examples to get a better understanding of the functionality of training, relationships, and resource on an officer's response.

Data for this study will be collected across multiple police departments in different states which vary based on size, demographics, and training responsibilities. Additionally, Act 120 cadets in Western Pennsylvania locations will be surveyed to ascertain whether the level of perceptions can be controlled based on the desire to become an officer without holding any experience. A cross-section research design will be employed along with a survey containing single-item questions and vignettes to reduce social desirability bias in the police officer's responses. Finally, there is a discussion of preliminary tests which will be run for each of the models to determine a goodness of fit at the bivariate level and then full models using a mixed model approach.

Research Questions

There are three research questions, each focusing on a different factor which could affect police response to mental health calls for service. Additionally, there are several hypotheses for each of these research questions. Each of these factors and hypotheses as follows:

1. Research Question 1 - How does Crisis Intervention Training (CIT) affect the way in which officers respond to mental health calls for service? This RQ follows with three hypotheses which are directly, and indirectly, affected by CIT, whether the person is a cadet or officer, and if they volunteered for the training CIT.

To explore the relationship between receiving mental health training, and to include CIT training, the following hypotheses are proposed:

RQ1.H.1 Considering cadets have limited, if any, field experience responding to mental health calls for service, the first hypothesis is that there is a difference Given the prevalence of mental health diagnoses in the United states, I hypothesize that police are

more likely to divert individuals from the criminal justice system if they know someone personally who has a serious mental illness.

RQ1.H.2 Bittner (1967) contends that police officers must feel prepared to interact, and have confidence in their actions, to make appropriate decisions regarding individuals with mental health. Therefore, the second hypothesis is, if the officer volunteers for the CIT the more likely they will be to divert an individual away from the CJS.[1]

RQ1.H.3 While the other two hypotheses focus on an individual officer approach, studies suggest that officers with CIT will respond differently to mental health calls for service when compared to officers who do not have any CIT (Watson et al., 2010).

2. Research Question 2 - Does the officer's response to the call for service change based on professional, or personal relationships held by the officers? This question focuses on the professional, and personal relationships the officer maintains when responding to a call for service. Therefore, the following three hypotheses focus on understanding the difference in response to the calls for service based on a professional, or personal relationship:

RQ2.H.1 Police are more likely to divert individuals from the criminal justice system if they have a professional relationship with a mental health liaison, or individual, who works in the mental health field. This includes working directly with a mental health crisis unit or having an in-house mental health professional employed by the agency.

RQ2.H.2 Given the prevalence of mental health diagnoses in the United States, I hypothesize that police are more likely to divert individuals from the criminal justice system if they know someone personally who has a serious mental illness.

[1] Due to changes made with the original survey questions regarding the hours of training, this hypothesis was changed to include the importance of if a respondent had volunteered for the CIT training.

RQ2.H.3 Finally, given the difference between professional and personal relationships in society, the final hypothesis for the second research questions is: police who know someone with a mental illness are more likely to divert an individual away from the CJS than police who report only knowing a mental health care professional.

3. Research Question 3 - Do police responses change based on the number and type of mental health resources in the immediate area? Each of the following hypotheses for the third research question is based largely on the idea that without resources, police are unable to do much short of arresting an individual or letting them go (Engel & Silver, 2001) More specifically, Engel and Silver (2001) highlight the importance of available and accessible mental health resources for officers and individuals when responding to a mental health call for service. Thus, the final three hypotheses focus on the resources that are available to officers and the likelihood of diverting the individual from the criminal justice system.

RQ3H.1 The more mental health resources (MHR) available in each geographical location will increase the rate of diversion from the criminal justice system.

RQ3H.2 The type of the MHR will be more important for diversion from the criminal justice system than the number of MHRs in a geographical location.

RQ3H.3 Officers who have had a negative experience when involuntarily committing an individual, will be less likely than officers who have had a positive or no experience involuntarily committing an individual, to arrest the individual and try to have them involuntarily committed.

Research Design

This dissertation will employ a cross-sectional, quasi-experimental design with one survey distribution period. Quasi-experimental designs can sometimes be used for

generalizability despite the fact that it is not a "true experiment." According to Bachman and Schutt (2010), when true experiments are conducted in a laboratory setting, it is unlikely that the sample population can describe the same predicted outcomes in the true population. Quasi-experimental designs can be more cost effective, more feasible, present significant findings and are best suited for looking at issues that occur outside an absolutely controlled setting (Bachman, & Schutt, 2010; Muijs, 2011). In a true experiment the setup is artificial, while controlling for all variables in a laboratory setting, all variables cannot be controlled in real life; this is where the control becomes an advantage for a true experiment design and a disadvantage for quasi-experimental designs (Muijs, 2011).

A cross-sectional design is the most appropriate for the purpose of this study for multiple reasons. To start, a longitudinal design is too lengthy for the scope of this dissertation and can be deemed unnecessary due to the variables that will be used to control for any spuriousness among the rank, experience, and length of time serving in the police department (or attending one of the Criminal Justice Training Centers (CJTC). Additionally, due to the nature of the research questions, a pre-/post-test is not needed as the current study focuses on response when controlling for all other variables, and neither a treatment, nor a program, is being implemented during this study.

This study also will be using a convenience sample during the sample procedure. Although simple random sampling is not being used, the homogenous nature of officers offers support that the convenience sample can provide a representative sample (Cooper, 2012). More importantly, to help increase the level of internal validity and strengthen the conditions for causality, control variables will be used to decrease the chance of spuriousness, appropriate statistical tests will be run to ascertain the relationship between response and the key independent

variables, and because the vignettes are being given at one point in time, there are no concerns with temporal ordering because officers will have had the training, or not; have a relationship, or not; and the mental health resource data will be collected at the same time as the survey.

Criterion-related validity is difficult to establish unless there is a universally used measure to compare the self-reported surveys used in this proposal. When there is a well-known measure of comparison, multiple tests for comparison should be completed. There is no gold standard measurement for police response to mental health calls for service, as many researchers use their own response methods, scales, and questions related to officers responding to MHCFS. Since there is no gold standard measurement for this topic, I am unable to compare this survey to a universal standard which is needed for establishing criterion related validity.

Similarly, I cannot establish content validity because there is not a universal acceptance of an entire domain that encompasses a set of guidelines about the relating to police response to MHCFS. There are no defined criteria that provides a definition for all the domains, which is needed for content validity. For this dissertation, the study examines several key independent variables for each respective research questions that is used based on previous research. However, because there is no universal standard, and in fact, literature differs on critical aspects of the mental health and policing literature, it is presumptuous to think that all definitions, concepts, and measurements are used in this study. The survey will not measure all aspects of delinquency that fall under delinquent acts, per the OJJDP website. This proposal will not be able to accurately establish content validity with the lack of measurements for police response. Therefore, this study will attempt to establish construct validity.

"Construct validity must be investigated whenever no criterion or universe of content is accepted…" (Cronbach & Meehl, as cited in Carmines, & Zeller, 1979, p.22). To determine

construct validity, the self-reported survey will be measured against the theoretical concepts derived from the literature that if officers have had mental health training, they are less likely to arrest an individual with a MHD; if they have a relationship with a mental health liaison, personal relationship, or a community tie, they will be less likely to arrest an individual with a MHD; and locations which have accessible and available mental health resources for officers to make referrals or use their discretion to involuntarily commit an individual will be less likely to arrest an individual with a MHD. During the analysis, the researcher will test the correlation between the self-report survey and the selection of response (following a MHCFS) to determine if there is a relationship between the measurement and the concept (Carmines, & Zeller, 1979).

To increase the validity of the study, the researcher will use expert review and pretesting. An expert review is when an expert in the field, such as a police officer, provides feedback on the questions and wording of the survey items. This is useful because an expert will be more familiar with the material, concepts, and situational based vignettes. By focusing on wording and pre-testing it to a similar audience, the researcher can make sure the wording is standardized across different police departments, the concepts are not too ambiguous for the purpose of the study, and the questions accurately reflect real-life situations police may encounter when responding to a mental health call for service. For example, by sending the survey to multiple police officers or experts in policing, the feedback provided will highlight the strengths and weaknesses of the vignettes that are being presented to measure officer response.

Sample and Population

Sample Size

Although often overlooked in criminological research, the importance of using a statistical power analysis is critical to statistical decisions (Cohen, 1992; Faul, Erdfelder, Lang, & Buchner, 2007). Faul et al. (2007), define the power of a statistical test as the probability the

researcher(s) can reject the null hypothesis (H_0) based on the fact that it is false. Using a statistical analysis provides the researcher(s) the opportunity to exploit the relationships among the variables used for statistical inference (Cohen, 1992). With any given statistical model, the function of three of the relationships can determine the fourth variable (Cooper & Garson, 2016). These variables of statistical inference are: the sample size (N), the significance level (α), the population effect size (λ), and the statistical power of the model (β) (Cohen, 1992).

Using G*power, a statistical software which can perform multiple statistical power analyses, I used an *a priori* analysis to determine the N as a function of the power level $1 - \beta$, significance criterion α, and a to-be-determined population effect size (Cohen, 1992; Faul, et al., 2007; Faul, Erdfelder, Buchner, & Lang, 2009; Cooper & Garson, 2016). It is important to make sure, before starting the study, the researcher is aware of the appropriate N needed for the study to correctly run statistical tests and to make statistical decisions about the models.

A Type II error is the probability the researcher accepts the H_0 (no relationship) when there is a relationship. For this study, the power level $1 - \beta$ was set at 0.80, as this is the set power level of most researchers, where there is only a 20% chance of making a Type II error (Cooper & Garson, 2016). Oppositely, a Type I error is the probability that the researcher rejects the H_0 when there is no relationship. To determine the needed N, as with social science convention, the significance criterion α was set to 0.05 where there is a 5% of making a Type I error (Cooper & Garson, 2016). Finally, by setting our *partial* R^2, the amount of explanatory power the model has in the variance of sums of squares within, at 0.30 (meaning the model can explain 30% of the variance) the population effect size (λ) can be determined. Given the *partial* R^2, the λ for this study was calculated and set at 0.43. By setting three of the four parameters for

statistical inference, G*power determined that an *N* of 62 is needed to perform a global *F-test* for a linear regression model.

Due to the nature of vignettes, and the creation of the vignette universe (discussed in the next section), in order to achieve statistical power each block of vignettes need an equal representation (Atzmuller & Steiner, 2010; Auspurg & Hinz, 2016). Therefore, with a vignette universe of 24, and the exposure of five vignettes per survey, there are six vignette sets, each which need an *N* of 63 to reach statistical power for each set. According to the *a priori* power analysis, given the total number of potential covariates and vignettes, and assuming an alpha level of 0.05 and a moderate effect size of $R^2 = 0.30$, my sample would need no less than 315 participants to reach statistical significance. Concerning Type II error, I note the following. First, I am working off a conventional power of 0.80; that is, I am accepting a 20 percent probability that my models will not be able to detect an effect size of R^2=0.30 given all the other parameters. Second, while I expect that my sampling strategy successfully will net the appropriate sample size, if it does not, I will run a post-hoc power analysis per Cooper & Garland (2016). If I am unable to achieve this *N*, ultimately this implies that my model will risk making a Type II error, but in doing so will be understood as a very conservative model.

Aside from statistical power, it is important to consider the most appropriate statistical analysis, and the sample needed to run such an analysis. For the purpose of these research questions, it is suggested that the use of mix models, or multilevel modeling, is the most appropriate analysis for factorial surveys (Atzmuller & Steiner, 2010; Maas & Hox, 2005). Increasingly, mixed models are being used in social science research to examine nested or "hierarchically structured data" (Bell, Ferron, & Kromrey, 2008, p. 1122).

While there are many kinds of multilevel models, this dissertation uses two levels of nested data. *Level One* contains dimensions (variables) used within the vignettes (sex, diagnosis, compliance, and crime), and *level two* which contains variables from the professional and personal survey questions. Bell et al. (2008) suggest having 15 to 50 respondents for each variable across both levels of data. Therefore, using a similar approach as other criminological research using mixed models and vignettes, 20 respondents are needed for each variable (Maas & Hox, 2005). Given that there are four variables in the vignettes (*Level One)*, and 14 variables in the single item survey questions (*level two*), a sample size of 310 is needed to use a mixed model approach. Given that there is a difference in needed sample size for the analysis, and statistical power, the researcher will aim to get 315 respondents to account for the *N* needed for statistical power and a mixed model approach with 18 variables.

Sampling Strategy

This dissertation will use a convenience sample of police officers and cadets whom the researcher has a direct and indirect professional relationship. While some researchers highlight the limitations, and drawbacks of using a convenience sample (Farrokhi & Mahmoudi-Hamidabad, 2012), I assert that not only is convenience sample the most appropriate strategy for sampling participants for this dissertation given the rationale, but that this convenience sample does not violate Ferber's (1977) needed criteria for analytic research.

According to Ferber (1977), research should meet three basic criteria, regardless of sampling strategy: 1) relevance of the sample (the target population); 2) the sample size must be adequate for the analytical method; and 3) the subjects should represent the population which is being studied (p. 57). The first criterion is the relevance of the sample. Police officers are directly responsible for responding to calls for service, and are considered the gatekeepers to the criminal justice system (Jennings & Hudak, 2005 Ruiz & Miller, 2004). Therefore, it is critical to

survey officers who will be responsible for patrolling and responding to calls for service. Furthermore, CITs were designed specifically to aid police officers during calls for service, and decrease the level of force needed (Morabito et al., 2012). To that end, the first criteria is satisfied by the intended survey population. The second criterion is satisfied by the a priori power analysis, which indicated a need for 372 respondents, and the determination of a needed sample size of 340 to run a mixed model analysis.

The last criterion is the use of a representative sample. The population that has been chosen to be sampled is considered representative because of the homogenous nature of police officers across the United States. This standardized and similar nature of police officers can be explained by the isomorphic pressures placed on officers and departments, and federal funding regulations. According to Cooper (2012), a policing organization is largely dictated by professional organizations, political players, and individual officers within an organization. Therefore, police departments, and individual officers, are homogenous in structure and behavior.

Finally, CIT training, and encounters with mentally disordered individuals (MDI) is a growing concern for policymakers, researchers, and actors in the criminal justice system (Akins, et al., 2014). This makes the study, and sample, critical to the understanding of the role mental health training, and police interactions with MDI. A convenience sample will be used because of the difficulty gaining access to a sample, such as police officers, especially in light of a growing tension between officers and the public. Additionally, it is difficult to randomly sample police officers given the sheer number of departments, and the lack of a comprehensive list of departments (BJS, 2016; Raganella & White, 2004). Departments who have been selected are ones in which the researcher has access to through personal and professional avenues.

Population Characteristics

The *N* of 315 will consist of both sworn police officers across several states and Act 120 police cadets in Pennsylvania. Sworn officers are defined as any officer whose primary responsibility on the police force is responding to calls for service; these individuals carry a badge, a firearm, have full arrest powers, and are paid from government funding (Banks, Hendrix, Hickman, & Kyckelhahn, 2016). Act 120 police cadets are defined as individuals who are enrolled in an Act 120 program offered through the Criminal Justice Training Center (CJTC).

Police departments who participate in this study will be separated by counties and states for some of the analyses. While overall models will be run to exclude specific counties, a separation of counties is necessary to analyze the third research question. Additionally, officers will be separated further, into whether their patrolling area is predominately, urban, suburban, or rural.

In addition to the county location, police will be sampled from a varying range of police department size. While it is difficult to get an accurate count of the numbers of officers and agencies in the United States because of the fragmented and decentralized nature of law enforcement, the Bureau Justice Statistics (BJS) uses three data sources to predict this information (2016). Based on the *Uniform Crime Report* (UCR), *Annual Survey of Public Employment and Payroll* (ASPEP), and *Census of State and Local Law Enforcement Agencies* (CSLLEA), the BJS (2016) separates police agencies into three categories based on police per 1,000 citizens: small agencies oversee a population of 9,999 citizens or less, medium agencies oversee a population of 10,000 to 99,999 citizens, and large agencies are responsible for policing populations over 100,000.

Survey Methodology

The use of a survey is the most appropriate methodology to use for this dissertation because it allows for a quantitative avenue of collecting data needed to answer the research questions. Additionally, it is cost effective; multiple copies can be sent quickly to each of the police departments and CJTCs in the study after confirmation that each location is willing to participate in the study. Additionally, after consulting with expert reviews, the researcher felt the best approach would be to use two ways to distribute the surveys, and use a tailored-design. By using a tailored-design, the researcher can access more officers and cadets than by using a singular method. A tailored design refers to customizing a survey and the survey process to the specific need for that study (Dillman et al., 2014). More importantly, by using a tailored design survey method, the sources of survey error can be reduced. Another benefit of using a tailored design is the ability to customize the survey to take into consideration the different people, the survey content and the variations within the survey (Dillman, et al., 2014). For example, questions that are specifically related to sworn officers do not need to be included in the survey that will be given to police cadets.

Additionally, to follow a logical progression between questions, the survey items have been grouped together, and separated by sections. According to Dillman and colleagues (2014), the first question on the survey should be interesting, non-invasive, and keep the respondent engaged. Dillman and colleagues (2014) also suggest saving demographic information for the end of the survey. To that end, the survey starts with the vignettes and then moves into single-item questions which are more personal questions.

Survey Items

Factorial vignettes. Factorial surveys (FS') allow the researcher to introduce specific stimuli to respondents which resemble real-life scenarios and forces participants to make decisions between the different dimensions with which they are presented (Auspurg & Hinz, 2016). Additionally, the manner in which the stimuli is presented to participants reduce the social desirability bias that can be present in single item survey questions. Finally, factorial surveys allow researchers to make more in-depth insights into the respondent's judgements based on the greater standardization of a detailed description of the stimuli (Auspurg & Hinz, 2016).

More specifically, a FS (in addition to single item questions) is the more appropriate survey method for this study because of the multi-complexity of the variance between stimuli (Auspurg & Hinz, 2016), and the ability to reduce social desirability bias during a societal time which police often are seen in a negative way. Auspurg and Hinz (2016) refer to the *dimensions* in a factorial survey as the "hypothetical situations, objects, or persons with various attributes (p. 2)." For example, this study has six dimensions (age, sex, diagnosis, caller, responsiveness, crime) which is within the suggested number of dimensions needed to have variation, retain the respondent's attention, and maintain consistent responses across each vignette (Auspurg & Hinz, 2016).

Further, Auspurg and Hinz (2016) defines *level* as "the values of the dimensions [which] are varied across the vignettes so that the impact of these levels on respondents' judgement can be estimated (p.2)." Based on the suggested number of levels, each of the dimensions for this dissertation contains at least two levels. To put it simply, the multifactorial experiment for this study can be abbreviated as $4^3 2^3$, meaning I have three dimensions which contain four levels and three dimensions which contain two levels. Overall the vignette universe (N_u) contains 72

vignettes, which will be distributed as equally as possible, given that each respondent will be exposed to 5 randomly selected vignettes from the N_u.

The external validity FS is largely disputed as FS are conducted in a multitude of respondent samples; i.e., large-scale population samples, students, and specialty population such as practitioners in that field of study (Auspurg & Hinz, 2016). The researcher must make a decision on the importance of external validity on their study. For example, while having a heterogenous sample provides more in-sight over a stratum of differing individuals, it reduces the statistical power within the model. To increase the external validity of factorial surveys, the researcher must be able to control for respondent variables, meaning homogenous samples will provide a stronger statistical power because these variables can be controlled. However, Auspurg and Hinz (2016) suggest that internal validity should take priority over flaws in external validity. To that end, it is important to make sure that the vignettes are allocated randomly to each respondent (Auspurg & Hinz, 2016). Finally, although the sample is a convenience sample and not a random sample, the lack of randomization in the *N* is not as necessary in factorial surveys as the randomization comes from the random exposure to the vignettes (Auspurg & Hinz, 2016).

To standardize the vignettes and reduce human error in regard to wording changes and mistakes, the researcher used a "mail-merge" application. The researcher first created a table in Microsoft Excel, which included the vignette dimensions and levels (see Figure 8). Then, using the base vignette, the researcher used the mail-merge application in Microsoft Word which automated the process of creating the vignettes. Following the completion of the mail-merge, the researcher created the vignette universe (see Appendix I). The vignette universe was used to maintain an overall list of the possible scenarios. For an example of one of the vignettes see Figure 1.

1. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and threatening suicide. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely Certain

Likelihood of arresting the person and transporting them to your holding facility: ____

Likelihood of detaining the person and seeking to have them involuntarily committed:____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): ____

Likelihood of doing nothing and leaving the scene: ____

Figure 1. Example vignette question.

Single item questions. The remainder of the survey will consist of single item questions which pertain to the officers (or cadets) experience, training, perceptions, demographic information, career information, and relationship questions. These questions will be multiple choice in nature and will follow suggestions made by Dillman et al., 2014 for online, single survey questions. The first set of single item questions is in regard to the officers' professional and personal relationships and experiences as an officer. The final set of questions contain demographic information. Dillman et al. (2014) advise against putting demographic information first, this will be an online and in-person survey which allows for flexibility in the demographic location on the survey.

The researcher has also added a skip function the online survey and provided details for skipping questions on the hard-copy of the survey. This is to reduce frustration among respondents when they must answer questions which should be excluded based on previous responses (see Figure 2) (Dillman et al., 2014). Additionally, to further reduce frustration and

increase retention to finish the survey, the researcher has provided a *check all that apply* and a fill in the blank option for race and ethnicity identification (see Figure 3).

Have you ever received any type of *mental health* or *crisis intervention training?* If yes, go to the next question, if no, skip the next question.

- Yes
- No

Did you volunteer for the *mental health* or *crisis intervention training*?

- Yes
- No

Figure 2. Sample skip function.

Which of the following racial or ethnic group do you most closely identify? *Check all that apply.*

- African American
- Asian
- Caucasian
- Hispanic/Latino
- Other: _____ (please indicate)

Figure 3. Race/ethnicity question.

Data Collection

A mixed mode survey design can be defined by using multiple modes of contact between the researcher and the participants; this design provides the opportunity to balance the researcher's needs and the participant's concerns (Dillman, et al., 2014). As suggested by Dillman and colleagues (2014) this study will use a mixed method survey design which includes two different modes of collecting the data, Internet based and in-person survey options, and an email correspondence to the chief of police in each department to encourage participants to respond either online or in-person. This mixed method survey design, using one mode to increase cooperation with the other mode, has been shown to increase the overall rate of response, as opposed to single mode survey designs (Dillman et al., 2014).

As mentioned, there will be two modes of data collections, an online survey and an in-person survey. Originally, to increase the response rate among officers, the researcher was going to use "roll-call" to survey sworn officers across different police departments. However, after the expert-review process, and speaking with different high-ranking officers, it was suggested that the survey be offered online, and in-person, as some departments no longer have a "roll-call" procedure. Additionally, allowing the department heads to decide which survey they would like their officers to participate in, will increase the rate of participation as the survey will be tailored to the needs of the police departments.

A web-based survey method is used largely due to the fact that officers have a limited amount of time during situations when the researcher would be able to survey in-person, such as roll-call at the beginning of each shift. Additionally, in using mail-in surveys it would be difficult to ascertain how many officers would respond using a mail-in survey which is sent to the department as opposed to their home address. To that end, the researcher has decided to offer the survey as a web-based survey design while using other modes, such as a participation letter, to increase participation.

In addition to the convenience for officers, web-based surveys are cost-effective, quick, and easily accessible (Dillman et al., 2014). The computerization of surveys decreases the chance that respondents will make mistakes on skip patterns and ensure that interviewers do not introduce human error to the skip pattern; computers can be programmed to show the correct question after a skip (Dillman et al., 2014). A final note on the use of computerization for this survey is the ability for the computer to randomly select the factorial surveys that are being given to each of the respondents (Dillman et al., 2014). This will reduce researcher error by ensuring the most equal exposure to each of the survey vignettes.

Despite the majority of expert reviewers suggesting using online surveys, there were a few individuals who were hesitant to provide their officers with online surveys due to the lack of response officers may give to an online survey. To increase response rates for departments who have a "roll-call" or would prefer to complete the survey in-person, the researcher will provide in-person surveys during the three roll-call periods: day shift, evening shift, and swing shift to cover the expanse of the department. The in-person survey will follow the same format, and questions as the online survey. However, steps have been taken to organize both surveys to include the same interaction possibilities within the vignettes.

An online survey, as mentioned, provides the researcher with the unique opportunity to randomize the questions, and create an equal exposure to each of the vignettes. Unfortunately, this randomization is too difficult to control for with hard-copy surveys. Therefore, the researcher used a randomization tool in Microsoft Excel to randomize the vignettes into blocks of five vignettes, for a total of five blocks, with one vignette overlapping between two blocks. These questions will remain grouped together across the different survey methods to control for the interaction between scenarios (Atzuller & Steiner, 2010).

Finally, even though mixed-method survey designs have shown to increase response rates, allowing participants to choose the mode in which they respond has been shown to decrease the rate of response (Dillman et al., 2014). Despite this, due to the population which is being surveyed, and the support of using mixed-method survey designs, I assert, given the dissent feedback from multiple officers, allowing departments to choose the survey mode is the most appropriate, and efficient option for the researcher and the participants.

The online survey will be created in Qualtrics, a survey software provided by Indiana University of Pennsylvania. Following the suggestions of Dillman et al. (2014), the online survey

had one question per page, to limit the participant from becoming overwhelmed; provided a progress bar to show how quickly the participants are moving through the survey; and used a sliding bar to gauge the officer's likelihood of taking a specific action (Appendix H). Instructions about how to use the bar were provided as well as an example of how to use the slider bar. Finally, the survey, while designed to be taken on the computer, was formatted so respondents could take the survey on their phones. Instructions were provided if individuals were using cellphones as the standard (portrait) positioning of the phone was less user friendly. Thus, the researcher instructed respondents to take the survey in the flipped (landscape) position.

The online survey will be distributed through an anonymous link, which will allow chiefs of police to easily distribute the survey link to their sworn officers, without the officer needing to provide any identifying information to access the survey. This approach will also speed up the process for officers as they will not need a passcode to enter the survey and increase retention of completing the survey as it will be readily accessible with the link. Additionally, despite pre-testing the survey with expert reviewers, the researcher also pre-tested the survey among doctoral students. Dillman and colleagues (2014) suggest that more than one pre-test stage may be appropriate when the expert reviewers may not be aware of appropriate survey format, question ordering, and overall design. To control for any errors made in the creation of the survey design, doctoral students who have experience creating surveys will be pre-tested for design related problems.

Measures and Covariates

Dependent Variable

Police response to mental health calls for service is the dependent variable of which there are four categories of responses officers and cadet can choose from: arrest, involuntary commitment, informal resolution, and a no action. While there are many actions that an officer

can use when interacting with citizens, and that response depends on the individual situation, these responses have been cited in police and mental health research (Cooper, McLearen, & Zapf, 2004). The following responses have been created using a varying degree of definitions, and by using the expert review process to clarify wording. For overview of all responses, see Figure 4. Additionally, these responses have been used previously in other policing studies (Cooper et al., 2004)

Likelihood of arresting the person and transporting them to your holding facility: _____
Likelihood of holding the person and seeking to have them involuntarily committed:_____
Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____
Likelihood of doing nothing and leaving the scene: _____

Figure 4. Response categories.

For this study, arrest is defined as the initial formal contact that an individual has with the criminal justice system (specifically the police), where the person is taken into law enforcement custody because of the assumption the person has violated a local, state, or federal law (Payne, Oliver, & Marion, 2015). As discussed in Chapter 2, it is likely that individuals diagnosed with a mental health disorder who are committing minor offenses are more likely to be arrested than individuals who have not been diagnosed with a mental health disorder (Perez et al., 2003).

The definition of involuntary commitment varies depending on the state which the officer or the cadet resides; however, to simplify this response category and standardize it across all departments, the definition for this study is a culmination of recurring themes in each of the state's statutes. Therefore, involuntary commitment in the context of this dissertation is defined as an assisted treatment course of action where the officer attempts to commit an individual to an in-patient mental health resource and feels the person meets the following requirements for

hospitalization: the person has, or is suspected to have a mental illness, and represents a risk of harm to themselves or to others (Jaffe, 2011). Additionally, the wording of involuntary commitment has been changed over the course of the expert review process. In some states, arrest is a necessary component of involuntary commitment - in other states, arrests are not necessary, and therefore, individuals answered 0% likely simply because they did not have to arrest them first. To maintain consistency across all surveys, and control for misrepresentations of actions given the officers state, the researcher used the word "holding" as the foundation for detaining someone, regardless if it was official (i.e., arrest) or informal (i.e., detainment) and having them evaluated by a doctor.

An informal resolution is defined as a situation which the officer helps de-escalate the situation with conflict resolution (Cooper, McLearen, & Zapf, 2004). Finally, no action is considered a response in which the officer may arrive at the scene but does not do any of the previous actions. Some examples of no action would be an instance when the officer arrives but the officer does not feel there is anything they can do in the situation and leaves. It is expected that this will be a low response category, however, its purpose functions as a control category for the dependent variable.

Key Independent Variables

Each of the research questions have key independent variables pertaining to the specific research questions. The first research question, *how does mental health training affect the way in which officers respond to mental health calls for service,* focuses on training in which the officer is exposed to tactics and strategies to de-escalate situations, and respond to individuals with a MHD. As discussed in Chapter II, officers typically are first responders, otherwise called gate-keepers to the criminal justice system (Borum, 1998). More so, the support for proactive policing, such as CITs, overwhelmingly is positive, specifically when officers are dealing with

individuals with a MHD (Coleman & Cotton, 2010); this is especially true since, as Cordner (2006) points out, traditional police strategies are ineffective when interacting with a person who has a MHD. To that end, this key independent variable is measured dichotomously, where the officer has either had CIT training or has not had CIT training (see Figure 5).

Have you ever received any type of *mental health* or *crisis intervention training?* If yes, go to the next question. If no, skip the next question.

- Yes
- No

Figure 5. CIT measurements.

The second research question, *does police response change based on the professional, or personal relationships held by the officers*, has two variables, one for each relationship (see figure 6 and 7, respectively). Both measurements are dichotomous and are supported by the literature which suggests officers who have a relationship with professionals in the mental health system, or a personal relationship with members in the community, are more likely to divert MDI away from the criminal justice system. However, at the time of this proposal, and to the researcher's knowledge, there have not been studies which examine the rate of diversion given an officer's personal relationship with someone with a MHD.

Do you know someone professionally whom you can contact for questions on mental health, or if you need help during a call for service?

- Yes
- No

Figure 6. Professional relationship measurement.

Do you know someone with a serious mental illness, such as schizophrenia, bi-polar/manic, or major depressive disorder?

- Yes
- No

Figure 7. Personal relationship measurement.

Finally, while there are any number of mental health resources in a given area, expert reviews suggested that officers would be required to take individuals to a state hospital in order to be assessed for commitment. Therefore, there are two types of mental health resources that will be examined in this dissertation, state mental hospitals and hospitals which have a psychiatric wing and have the resources to involuntarily commit individuals. To examine the interaction between available resources and police discretion to divert individuals from the criminal justice system, state hospitals, or hospitals with psychiatric wings, which are within the departments county will be tallied and run against the dependent variable. The use of the department's jurisdictional area was not chosen as a geographical measurement because officers are known to travel more than an hour to attempt to have individuals involuntarily committed.

Control Variables

Sex
(1) Female
(2) Male
Diagnosis
(1) Threatening suicide
(2) Arguing with objects, they appear to be hallucinating
(3) Person is exhibiting signs of intoxication
Compliance
(1) Responsive
(2) Unresponsive
Crime
(1) Asking for money from pedestrians
(2) Acting strange

Figure 8. Vignette dimensions and levels.

With regards to the sex of the individual within the vignette, Crocker, Hartford, and Heslop (2009) suggest that males and females are treated differently within the criminal justice system, regardless of mental illness. While research used in Crocker and colleagues' (2009) report suggests that there is a difference in police contact when controlling for gender, their study showed that men and women showed no differences in the rates of arrest for offenses other than

violent crimes and gender differences in police contact significantly was smaller than anticipated. Finally, gender was used as a dimension in the vignettes to control for fear officers may feel based on the differences in sex.

The second dimension within the vignettes is the diagnosis of the individual. With respect to the reactivity which may be present in the officers' responses if the vignettes varied based on a clinical diagnosis, the vignettes use specific symptoms to control for diagnosis. Based on symptoms presented in the DSM-5, threatening suicide is used to control for major depressive disorder. The second diagnosis is arguing with objects and appearing to hallucinate to control for schizophrenia. To control for individuals who may be on some type of illegal substance, and do not have a mental illness, the final level is the person showing signs of intoxication. Research has indicated that police respond differently to individuals that have a serious mental illness (SMI) as opposed to a non-serious mental illness (nSMI) (Davis et al., 2012; Goldman & Grob, 2006; James & Glaze, 2006; Torrey, et al., 2010).

These diagnoses were chosen for two reasons, one, threatening suicide and imagined threats are two of the most common scenarios of police and mentally disordered individual interactions (Cordner, 2006). Two, these diagnoses, which usually have overt symptoms, are two of the most researched diagnoses in mental health literature (Crocker, Hartford, & Heslop, 2009; Davis et al., 2012; Goldman & Grob, 2006; James & Davis, 2006; Lurigio, 2013; Thelander, 1997). Finally, it should be noted that there are limitations with the measure of substance abuse as the controlling variable in the vignettes. For one it may be difficult in circumstances for officers to determine if an individual has a mental illness or is intoxicated. Secondly, due to the high rate of comorbidity between mental illness and substance abuse, it could be likely that an individual has signs of both mental illness and intoxication (Gonzalez et al., 2007).

The third dimension, compliance, has two levels which are used to control for interactions when the individual does, or does not, comply with officer commands. While there is very little research about the relationship between level of compliance with officer demands and outcomes, research suggests that the higher the level of compliance, the less likely the situation would escalate (Crawford & Burns, 2008; Hedberg, Katz, & Choate, 2017). This is related to the use of force used on individuals who have a mental health disorder, as the level of fear increases between the individual and the person with mental illness increases, the likelihood of an increased use of force is expected (Morabito et al., 2012; Taheri, 2014). Therefore, to try and control for cases in which officers do not divert individuals from the criminal justice system due to a lack of compliance, this variable was included in the vignettes.

The last dimension also is dichotomous, in which the individual is behaving in one of two ways, either the individual appears homeless and is panhandling, or the individual is simply "acting strange." Due to the large number of incidences between officers and individuals in social control situations (Bittner, 1969; Bonovitz & Bonovitz, 1981; Engel & Silver, 2001), this variable has a criminal violation component, homelessness, and a control component where the individual is not breaking any rules or regulations. Homelessness was chosen due to the overt signs of homelessness, and to keep the vignettes from becoming convoluted with other "minor offenses," such as drunk in public. Lastly, as mentioned, citizens call officers for social control situations, including scenarios where individuals are making the citizen uncomfortable, as with incidences where an individual is hallucinating or talking aloud to nothing (Engel & Silver, 2001).

Data Analysis Plan

Once the data have been collected from online and in-person surveys, the researcher will aggregate the data into one file. Following data management, the researcher will run correlations

and bivariate results to determine the relationship between the dependent variable and the key independent variables. A multivariate analysis will be completed after a review and analysis of the interaction effects between variables at the bivariate level. As mentioned, due to the nature of the data, a multilevel or mixed model approach is the most appropriate multivariate analysis for factorial surveys and this dissertation.

Seltman (2014) defines a mixed model approach as the use of random and fixed effects within the same analysis. For the purpose of this study, the fixed effects are the variables used within the vignettes, and the random effects are the responses to the single-item survey questions regarding professional and personal concepts (refer to Chapter III for the discussion on Level One and level two variables). Due to the separate levels of data being collected (Level One and level two), a multilevel approach allows the researcher to examine the interaction between groups and produce results which are observed across levels (Maas & Hox, 2005). More so, by using a singular approach, such as multiple regression, the convoluted relationship between contextual variables is severely restricted due to the emphasis on controlling the environment and decrease the likelihood of understanding the data from a "big picture" point-of-view (Luke, 2004).

In addition to multilevel models being more appropriate to analysis, the research hypotheses of this dissertation, it should be noted that OLS multiple regression and ANOVA or ANCOVA are inappropriate. Multilevel models are used when the assumptions of multiple regression will be violated (Luke, 2004). These assumptions include the fact that observations should be made independently from each other (Maas & Hox, 2005) and that there are unrelated error terms. More so, multiple regression and analysis of variance tests are unable to handle the explicit structure needed to examine nested data (Seltman, 2014).

Human Participation Protections

The three main aspects of the Belmont Report are autonomy (or respect for persons), beneficence, and justice (as cited in, Bryn Mawr College, n.d.). Autonomy relates to the person having the right to participate and requires explicit consent (or assent) of the participant before the study begins. Beneficence refers to the concept that the research and the study must benefit society and/or the participants. That is, the benefits must outweigh the risks. Justice is the idea that the researcher should not take, without giving back to the person. Furthermore, justice suggests all participants are treated fair and equal (Bryn Mawr, n.d.).

For this study, special considerations must be made because of the delicate balance between the general public's current relationship law enforcement, and given the societal pressures on officers, it is imperative to keep officers protected. Additionally, by failing to maintain fair and equal treatment of the participants, i.e., keeping data confidential, the researcher would be in direct violation of the Belmont Report. While accurate answers are crucial to successfully collecting, and analyzing data, the research questions can be answered without needing specific or identifying information from the officers.

To protect the officers' and cadet's confidentiality, the surveys will only ask for demographic information and geographical location in which the officer is being surveyed. More so, the researcher has excluded the use of Qualtrics programming software which tracks information, like the IP address, to corresponding survey responses. Finally, for in-person surveys, all surveys will be placed together, thus reducing the likelihood of the researcher knowing from which department the survey was received. These surveys will be locked in a filing cabinet for no more than three years, following that three-year period, the surveys will be destroyed.

To avoid coercion or forced participation, the researcher will address issues of confidentiality, and career advancement for officers in the consent form [Appendix B & Appendix C]. For the police cadets, the issue of success at the Criminal Justice Training Centers also will be discussed [Appendix C]. Autonomy is addressed in the consent form. Officers and cadets, have the right to not participate; thus, the researcher will provide enough information about the study for them to make an informed decision and provide options if they choose to opt out of the study. The aim of the study, understanding the relationship of CIT and mental health training, and diversion from the criminal justice system, will be discussed during the time of consent to show beneficence. If the officer is taking the survey online, the aim of the study has been provided in the informed consent in the absence of a formal, in-person explanation.

CHAPTER FOUR

RESULTS

Introduction

Through the use of the previously discussed analysis plan, Chapter IV presents the results of the current study. To begin, there is a brief discussion of *data management* which provides an overview of how the data was cleaned, collapsed, and recorded before analysis began. Then, following the data management, Chapter IV presents frequency and summary statistics, and bivariate correlations. The chapter concludes with a discussion of the results based on the research questions and hypotheses, to include bivariate and multiple mixed model results.

Data Management

The purpose of this section is to briefly review data management strategies which could not have been discussed at the proposal stage because the data was not collected during this time. Firstly, multiple dummy variables were created for the area, department size, and age control variables, and the vignette diagnosis variable. Following the creation of dummy variables, a correlation of the variables based on group, for example the dummy variables for area, urban, suburban, and rural, were run to determine if there would be multicollinearity among the newly created variables. For the age variable, there were statistically significant correlations among the ages; however, the strength of these correlations did not warrant collapsing any of the separated age variables, which also was true for the department size variable.

The area variables, and the vignette variable diagnosis had high levels of correlation among some of the dummy variables. The correlation between urban and suburban was -.755 and was statistically significant at the .000 level; indicating a high level of correlation (Mukaka, 2012). Despite the urban and suburban variables being highly correlated, they are not *very* highly

correlated (Mukaka, 2012). In fact, these variables are correlated towards the lower end of the highly correlated threshold. After running a preliminary VIF analysis against all of the dependent variables (in separate models), the urban and suburban variables do not show signs of multicollinearity (VIF = 2.33). Additionally, according to the Gauss-Markov Theorem when all underlying linear regression assumptions are met, OLS (ordinary least squares) coefficients have minimum variance among the unbiased predictors (Vatcheva, Lee, McCormick and Rahbar, 2016). This concept is maintained in linear models where there are highly correlated variables, assuming the highly correlated variables are relevant to the model (Vatcheva et al., 2016). Finally, theoretically there is an argument to keep these variables separated, given the likelihood of an officer acting informally when he/she is familiar with the area, and the people (Bonovitz & Bonovitz, 1981). With this, the researcher decided not to collapse these variables', instead the variables were run as dummy variables throughout the linear mixed models.

The correlation between depression and schizophrenia was 1.00 and was statistically significant at the .001 level; indicating 100% correlation. To avoid any multicollinearity and given that the correlation indicates both variables are measuring the same thing, the researcher collapsed the two variables into the same measurement. Thus, the diagnosis variable used in the vignette was coded 0 for vignettes where the person appeared intoxicated, and 1 for individuals who exhibited signs of depression or schizophrenia.

Survey Statistics

In total there were 141 surveys completed, this includes online (76%) and in-person surveys (24%). Using the *US Census map* (2013), the majority of respondents were from the Northeast (71.6%), while the other respondents were from the South (16.3%) and the West (9.2%); the remaining respondents did not provide a location (2.8%). More specifically, 32.6%

of respondents were from the New England division, 39% from the Middle Atlantic division, 23% from the South Atlantic division, and 9.2% from the Mountain division. Again, 2.8% of respondents did not provide a geographical location for analysis.

Due to the nature of the recruitment strategy, it is impossible to calculate an accurate response rate for the survey. However, for police departments which were directly contacted based on a professional relationship between the researcher and department personnel, 12 (70.6%) departments and Act 120 programs participated in the survey; while 5 (29.4%) declined to participate or did not respond to the request. Finally, there were 114 officers (80.9%) and 27 cadets (19.1%) who participated in the survey (see Table 2). In total, the current study was able to recruit 44.8% (141) participants out of the overall goal of 315.

Frequency and Descriptive Statistics

This section of Chapter IV will present the frequency and descriptive statistics for all of the variables. Each measure is examined individually to gauge representativeness before being added into more complex models. This section begins with the frequencies and descriptive statistics of the control variables (including the vignette characteristics) followed by the independent variables. Finally, the frequencies and descriptive statistics are presented for the dependent variable.

Control Variables

Demographic Variables. The controls variables have been separated into two tables, for aesthetic and grouping purposes. Table 1 shows the frequencies of the demographic variables. The variable *sex* was separated into two categories female and male, where female was coded as 0 and male was coded as 1. There were 13 females (9.4%) and 125 males (90.4%) in the sample. The variable *race* had five original responses: African American (5.71%, *n*=8), Asian (1.42%,

n=2), Caucasian (92.14%, *n*=129), Latino (5%, *n*=7), and Other[2] (4.29%, *n*=6). Due to the low representation of different races and ethnicities, the *race* variable was ultimately combined into one variable, *racecombined*, where 0 = White (88.57%, *n*=124) and 1 = Non-white (11.43%, *n*=16). It should be noted, in the *race* variable, the n is greater than 141 because respondents were given the options to choose all races and ethnicities with which they identified. Additionally, when the *racecombined* variable was created, individuals who identified as Caucasian and another race or ethnicity (3.5%, *n*=5) were grouped into the Non-white category.

Finally, as discussed in Chapter III, age was surveyed as a categorical variable to help ensure anonymity and confidentiality. The age ranged from group one 18-24 to group six 65-74, where each group was ten years, excluding group one which was only seven years. There were 13 participants (9.3%) who reported being the 18-24 group, 32 (23%) in the 25-34 group, 39 people in the 35-44 and the 45-54 groups with valid percentages of 27.7% and 27.9% respectively, 16 (11.4%) in the 55-64 group, and 1 (0.7%) person in the 65-74 group. Additionally, there was one person who did not provide their age; this is not included in the valid percent. Although not shown in Table 1, the median age was group 3 (34-44), and the mode was group 4 (45-54).

[2] The "Other" category included ethnicities such as: Native American, Cape Verdean, Portuguese, avatar, and human.

Table 1

Frequencies for Demographic Variables

Variable	Valid n	Valid %
sex		
(0) =female	13	9.4
(1) = male	125	90.6
race		
(1) = African American	8	5.71
(2) = Asian	2	1.42
(3) = Caucasian	129	92.14
(4) = Latino	7	5
(5) = Other	6	4.29
racecombined		
(0) = White	124	88.57
(1) = Non-white	16	11.43
Age		
(1) = 18-24	13	9.3
(2) = 25-34	32	23
(3) = 35-44	39	27.7
(4) = 45-54	39	27.9
(5) = 55-64	16	11.4
(6) = 65-74	1	0.7

Policing variables. The second set of control variables relate to the cadet or officer's professional policing experience. Table 2 provides an overview of the frequencies and descriptive statistics for these policing variables. As mentioned in the start of Chapter IV, there

were 114 officers (80.9%) and 27 cadets (19.1%) who participated in the survey, which were measured as one variable where 0 = the respondent was a cadet and 1 = the respondent was a police officer. The variable *cadetweeks* measured the amount of time a cadet had been enrolled and attending one of the Act 120 programs. The mean number of weeks in an Act 120 program was 8.72, with a standard deviation of 2.91. Thus, the majority of cadets had been enrolled in the program for just under 9 weeks at the time they were given the survey. Officers were asked a similar question, pertaining to the number of years they had been a police officer, *years officer*. The mean number of years was 18.31 with a standard deviation of 10.04; indicating that the majority of officers have been sworn officers for just over 18 years at the conclusion of 2017.

The final two policing variables were answered only by the sworn officers, therefore there are fewer than 141 responses for these variables. The variable *patrol area*, was surveyed with three options, urban (55.3%, $n = 63$), suburban (31.6%, $n = 36$), and rural (13.1%, $n = 15$). The variable *department size* also was separated into three categories, small (23%, $n = 26$), medium (46.9%, $n = 53$), and large (30.1%, $n = 34$). One person did not provide a department size in their response; however, this missing data was not included in the valid percent. The majority of the respondents reported they patrolled urban areas, with rural areas being the least surveyed. Additionally, most officers (46.9%) reported being in a medium sized department which polices a population of 10,000 to 99,999 citizens.

Table 2

Frequencies and Percentages of Policing Variables

Variable	Valid n	Valid %
Role		
(0) = cadet	27	19.1
(1) = police officer	114	80.9
Patrol area		
(1) = Urban	63	55.3
(2) = Suburban	36	31.6
(3) = Rural	15	13.1
Department size		
(1) = Small	26	23
(2) = Medium	53	46.9
(3) = Large	34	30.1
	m	sd
Cadet weeks	8.72	2.91
Years officer	18.31	10.04

Vignette variables. Table 3 presents the frequencies of the vignette variables. As discussed in Chapter III, there were 24 vignettes in the vignette universe, in other words, 24 combinations of variables presented in Table 3. Although the descriptive statistics on the vignette combinations were not presented in a table, it is important to analyze the breakdown of how the vignettes were distributed to participants. Overall, there was a fairly even distribution of each of the vignette combinations. The most frequently seen vignette was vignette 8, seen 37 times (valid % = 5.2%). The least frequently seen vignettes were vignette 1, 5, and 6; each was reviewed 26 times (valid % = 3.7). Additionally, the majority of vignettes were seen 29 times, where the

mean = 29.375 and the standard deviation = 2.886. The variables of interest within the vignettes were crime and diagnosis; while the sex and compliance variables were used as controls.

To begin, the variable crime (also presented as *vig_crime*) was coded where 0 = whether the person was asking for money and appeared homeless, and 1 = the person was acting strangely. Overall, 52.1% (*n* = 367) of the vignette calls for service had the caller indicate the person was asking for money and 47.9% (*n* = 338) had the person acting strangely. For the diagnosis variable (also presented as *vig_diag*), it appears as there is a discrepancy where the variable measuring depression or schizophrenia (66.4%, *n* = 468), coded as 1, was shown to participants at an unequal rate when compared to the individual appearing intoxicated (33.6%, *n* = 237), coded as 0. However, as discussed in the beginning of Chapter IV, this variable originally had three levels which were collapsed due to perfect correlation. With this in mind, there is a fairly even split between the three levels, despite the appearance that it was presented unevenly.

The control variables, sex (also presented as *vig_sex*) and compliance (also presented as *vig_compliance*) also were equally presented to the different participants. Female, coded as 0, made up 50.1% (*n* = 353) of the vignettes, while males, coded as 1, accounted for the other 49.9% (*n* = 352) of the vignettes. The sex variable was the most evenly distributed vignette dimension across the vignette universe. Finally, the compliance variable also had two levels, where 0 = the person complied with commands, and 1 = the person was not complying with commands. As with the other dimensions, there was a fairly even split between the number of vignettes which contained people complying with directives (51.2%, *n* = 361) and individuals who did not comply with directives (48.8%, *n* = 344). These frequency statistics indicate that each of the levels within the respective dimension were randomly distributed in an equal manner;

and there were no problems with one level being over sampled, or over represented among the vignettes.

Table 3

Frequencies of Vignette Variables

Variable	Valid n	Valid %
Crime		
(0) = Asking for money	367	52.1
(1) = Acting strangely	338	47.9
Diagnosis		
(0) = Intoxication	237	33.6
(1) = Depression or Schizophrenia	468	66.4
Sex		
(0) = Female	353	50.1
(1) = Male	352	49.9
Compliance		
(0) = Responsive	361	51.2
(1) = Unresponsive	344	48.8

Independent Variables

The frequencies and descriptive results of the independent variables were presented according to research questions one, two, and three in tables four, five, and six respectively. Table 4 includes two variables, whether the officers or cadets had any CIT training (RQ1:H1), where 0 = has not had CIT training and 1 = they have had CIT training. And, whether they volunteered for that training (RQ1:H2) where 0 = did not volunteer and 1 = did volunteer. The majority of individuals (80.1%, *n* = 112) reported having some type of CIT training during their

time as an officer, or during their time in the Act 120 academy. Only 19.9% (*n* = 28) of individuals reported not having any CIT training at any time. One person left this question blank.

The *n* for individuals who responded to whether they had volunteered for this training was 111 (78.7% of the total sample). The volunteered variable was directly influenced by the CIT training question as respondents were not shown, or skipped, the volunteer question if they had never received any type of CIT training. The majority of individuals in the sample reported that they did not volunteer for the CIT training they had received at 52.3% (*n* = 58); whereas 47.7% (*n* = 53) reported they had volunteered for the CIT training. The frequency for RQ1:H3 was discussed in Table 2, with regards to whether the respondents were officers or cadets.

Table 4

Frequency Statistics of Independent Variables for RQ1

	Research Question 1	
Variable	Valid n	Valid %
CIT Training		
(0) = No	28	19.9
(1) = Yes	112	80.1
Volunteered		
(0) = No	58	52.3
(1) = Yes	53	47.7

Table 5 presents the frequency statistics for the independent variables which pertains to research question two; including the *professional* relationships (RQ2:H1) variable, and *family* relationships (RQ2:H2) variable. First, 108 (80.1%) respondents said they knew someone professionally whom they could call for assistance during a call for service, while 31 (22.3%)

respondents reported they did not know of someone they could contact. Secondly, when asked if the participant had a family member who had been diagnosed with a serious mental illness, such as schizophrenia, severe depression, or bi-polar manic disorder, 53.4% (*n* = 75) of respondents said yes (coded as 1) and 46.6% (*n* = 65) said no (coded as 0). In both cases, the majority of individuals responded that they have a professional relationship which could help during a call for service, and that these respondents know someone with a serious mental illness.

Table 5

Frequency Statistics of Independent Variables for RQ2

	Research Question 2	
Variable	Valid n	Valid %
Professional		
(0) = No	31	22.3
(1) = Yes	108	77.7
Family		
(0) = No	65	46.6
(1) = Yes	75	53.4

Lastly, Table 6 presents the frequency statistics for the independent variables for research question three. These variables include *resources* (RQ3:H1) which is the sum of all available resources in a given area, *resource types* (RQ3:H2), and the *negative experience* (RQ3:H3) variable measuring if the officer had a negative experience trying to involuntarily commit someone. To begin, there was a wide range of resources available in the different regions; however, every jurisdiction had at least one resource. The jurisdiction(s) with the least number of resources had one resource, and the jurisdiction(s) with the most number of resources had 50

resources. The mean number of resources was 12.52, with a standard deviation of 15.55. Thus, on average, there were approximately 13 mental health facilities.

Secondly, dummy variables were created for each of the available resources in a given jurisdiction. There were 24 Community Mental Health Centers (CMHC), 112 Multi-Setting Mental Health Facilities [Residential and Outpatient] (MSNH), 74 Outpatient Mental Health Facilities (OMH), 40 Other Residential Treatment Facilities (ORES), 92 Partial Hospitalization/Day Treatment (PH), 112 Psychiatric Hospital or Psychiatric Unit of a General Hospital (PSY), and 71 Residential Treatment Center for Adults (RTCA). Finally, officers were asked if they had a negative experience when trying to involuntarily commit someone, where 0 = never had a negative experience (n = 28, 25.2%) and 1 = did have a negative experience (n = 83, 74.8%). Excluding those who have never tried to involuntarily commit someone, the majority of officers reported having at least one negative experience while trying to involuntarily commit.

Table 6

Frequency and Descriptive Statistics of Independent Variables for RQ3

	Research Question 3	
Variable	Valid n	Valid %
Resource Type		
Type_CMHC	24	4.57
Type_MSNH	112	21.33
Type_OMH	74	14.10
Type_ORES	40	7.62
Type_PH	92	17.52
Type_PSY	112	21.33
Type_RTCA	71	13.53
Negative Experience		
(0) = No	28	25.2
(1) = Yes	83	74.8
	m	sd
Resources	12.52	15.55

Dependent Variables

Lastly, Table 7 presents the descriptive statistics for the dependent variables: *arrest, involuntary commitment, informal resolution, and doing nothing.* To begin, the first dependent variable examines was the percent likelihood that an officer or cadet would arrest the individual given the presented vignette. The mean likelihood of arrest was 20.39% with a standard deviation of 23.40. The highest mean likelihood was the percent in which officers or cadets would try to involuntarily commit an individual at 51.67% with a standard deviation of 31. The

second highest mean was the likelihood of an officer or cadet trying to do some type of informal resolution at the scene ($\bar{x}$ = 27.48, sd = 28.35). Finally, the majority of participants did not give a percentage to doing nothing which is evident in the low mean of 1.19 (sd = 4.96).

Table 7

Descriptive Statistics for Dependent Variables

Variable	Valid n	m	sd
% Arrest	705	20.39	23.40
% Involuntary Commit	705	51.67	31
% Informal Resolution	705	27.48	28.35
% Do Nothing	705	1.19	4.96

Bivariate Correlations

The next section of Chapter IV presents the bivariate correlations between the vignette characteristics (level 1), and each participant characteristics (level 2) which is separated based on research question. Table 8 reports the bivariate correlations between the level 1 variables and the level 2 variables. The strongest correlation is a negative correlation (-.667) between the likelihood of involuntarily committing an individual and the likelihood of engaging in an informal resolution which is statistically significant at the .001 level. However, because these two variables are underneath the threshold used to determine highly correlated variables this negative relationship poses no threats to multicollinearity (Berry, 1993; Mukaka, 2012). The vignette variable *diagnosis* had a low correlation with the likelihood of involuntary commitment, as did the likelihood of arrest. The remaining variables either had negligible correlations or did not reach statistical significance.

Table 8

Pearson's Correlation Matrix for Vignette Variables (Level 1) and DVs

Pearson's Correlation								
	Vig_Crime	Vig_Sex	Vig_Diagnosis	Vig_ Compliance	% Arrest	%Involuntary Commitment	% Informal Resolution	% Do Nothing
Vig_Crime	-	-.016	.010	-.005	-.004	-.011	.051	-.098**
Vig_Sex	-	-	-.016	-.016	.014	.007	-.013	-.045
Vig_Diagnosis	-	-	-	-.026	-.300**	.478**	-.250**	-.063
Vig_Compliance	-	-	-	-	.132**	.080*	-.206**	-.073
% Arrest	-	-	-	-	-	-.428**	-.286**	-.048
% Involuntary Commitment	-	-	-	-	-	-	-.667**	-.233**
% Informal Resolution	-	-	-	-	-	-	-	.116**
% Do Nothing	-	-	-	-	-	-	-	-

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 9

RQ1 Bivariate Results

Pearson's Correlation							
	CIT Training	Volunteered	Cadet/Officer	% Arrest	% Involuntary Commitment	% Informal Resolution	% Do Nothing
CIT Training	-	.091*	.361**	-.012	.023	-.069	.082*
Volunteered	-	-	.101*	-.046	.103*	-.055	-.112**
Cadet/Officer	-	-	-	-.176**	.086*	-.007	.034
% Arrest	-	-	-	-	-.428**	-.286**	-.048
% Involuntary Commitment	-	-	-	-	-	-.667**	-.233**
% Informal Resolution	-	-	-	-	-	-	.116**
% Do Nothing	-	-	-	-	-	-	-

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 9 presents the bivariate correlations for the first research question. There was no statistical significance between the *CIT* variable (RQ1.H1) and the likelihood of *arrest, involuntary commitment,* or *informal resolution.* There is a positive relationship between CIT training and the likelihood of doing nothing; however, this is a negligible correlation (.082). Analyzing the bivariate results for the *volunteered* (RQ1.H2) and *Cadet/Officer* (RQ1.H3) variables indicate negligible, or statistically insignificant correlations with the dependent variables.

Research question two analyzed the effect relationships have on the likelihood of *arrest, involuntary commitment, informal resolution,* or *doing nothing* at the bivariate level. The results did not yield moderately, or strongly correlated variables. The variable *professional* was statistically correlated with the *family* variables as well as the likelihood of arrest. However, both of these variables were negligible. Additionally, the *family* variable was not statistically related to any of the dependent variables. This indicates that there is an inconsequential relationship between the main RQ2 variables and the dependent variables. See table 10 for results.

Table 10

RQ2 Bivariate Results

	Professional	Family	% Arrest	% Involuntary Commitment	% Informal Resolution	% Do Nothing
Professional	-	.085*	-.095*	.040	.052	-.005
Family	-	-	-.055	.018	-.002	.053
% Arrest	-	-	-	-.428**	-286**	-.048
% Involuntary Commitment	-	-	-	-	-.667**	-.233**
% Informal Resolution	-	-	-	-	-	.116
% Do Nothing	-	-	-	-	-	-

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

The final research question bivariate results are not presented via a table because the table is too large to format in this dissertation. However, there are some significant results which should be discussed. First, the number of resources in the area was highly correlated with the CMHC resources at .765, significant at the .001 level. Despite the high level of correlation these two variables are not highly correlated and are on the lower side of highly correlated (Mukaka, 2012). Each of these variables are run separately through the models going forward because there is no indication of multicollinearity. Additionally, each of these variables play an important role when analyzing the hypotheses and should theoretically be run separately.

When determining if there is a moderate or high level of correlation between the dependent variables and the main independent variables for research question three, there was no statistically significant correlations that met the moderate or highly correlated threshold (Mukaka, 2012). However, the OMH facilities had a moderately positive relationship with the

PH facilities. Finally, the number of resources in the area had positive, moderately strong correlations with the OMH and ORES facilities. The remaining variables had negligible relationships or did not meet statistical significance at the bivariate level.

Mixed modeling

As discussed in Chapter III, mixed models are the most appropriate statistical approach to understanding the effects the independent variables have on the dependent variables while controlling for the nested variables from the vignettes (Auspurg & Hinz, 2016; Luke, 2011; West, Welch & Galicki, 2007). This final section of Chapter IV, is broken into multiple subsections starting with the null models for each dependent variable. The second section presents statistically significant level 1 characteristics both at the model level, and the respective parameter estimates. Next, each dependent variable is presented in its entirety before moving on to the next DV and is separated based on research questions. Due to the large numbers of model which were created as the researcher built the models, the tables are presented in a reduced format.

Null Models

Before building, or analyzing mixed models, the first thing that needs to be done is an assessment to determine if mixed models is necessary (Luke, 2011). To that end, it is critical to first assess the null models across the dependent variables where the only fixed effect is the intercept, and there are no random intercepts (or slopes) presented in this model before adding more complicated measures (Auspurg & Hinz, 2016; Luke, 2011). Table 11 presents the null models for *arrest*, *involuntary commit*, *informal resolution*, and *doing nothing*. The intercept for *arrest* is 19.202 and is statistically significant at the .001 level. This means that the average value of likelihood of arrest is 19.202% across all subjects. Similar to the results in Table 7, the

average likelihood of an officer or cadet attempting to *involuntarily commit* an individual is 53.029% across all subjects. The average likelihood of an *informal resolution* is 25.283%; while the likelihood of *doing nothing* is 0.994%.

Table 11

Dependent Variable Null Models

	-2 Loglikelihood	df	F-ratio	Estimate	T-ratio
Arrest	6179.740	71	164.275**	19.202	12.817**
InvolCommit	6641.030	71	756.627**	53.029	27.507**
InformResolu	6427.984	71	199.479**	25.283	14.124**
Do Nothing	3791.380	71	10.522**	0.994	3.244**

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **

All of the null models are statistically significant at the .001 level which indicates there is variance in the model and supports the need for mixed modeling. Luke (2011) also says that if there is nested data, or there is a suspicion that data may be nested, it is appropriate to use mixed models; this is largely due to the violation of the OLS assumption that the error terms are unrelated. However, vignettes naturally have correlated error terms because of the multilevel structure of the survey (Auspurg & Hinz, 2016; Luke, 2011). Using a statistical approach, and a theoretical approach for the necessity of using mixed models, the rest of this section is dedicated to multilevel modeling and analyzing the research questions. A discussion of the increased statistical significance of the more complicated mixed models in relation to the null model is discussed during each respective research question section.

Level One Models

According to West, Welch, and Galecki (2007) there is no hard and fast rule when designing a mixed model, suggesting it can be done by building up, or building (removing) down

(Auspurg & Hinz, 2016; Luke, 2012). Luke (2012) suggests using a bottom-up method to examine model fit, parameter estimations, and if the researcher is exploratory in nature. Given that during the time of this publication, to the researcher's knowledge, there are no studies that utilize a factorial survey to judge police responses to calls for service, the bottom-up method was used; starting with Level One variables (vignette characteristics). It should be noted that due to the large quantity of interactions, only the statistically significant characteristics and interactions are presented below.

To begin, when examining Table 12, three Level One variables and one interaction that is statistically significant predictors of the likelihood of arrest. The biggest predictor of whether the participant was likely to arrest was the *diagnosis* dimension (F=102.097, p<.01). Two other vignette dimensions were significant in predicting likelihood of arrest, *crime* (F=4.251, p<.05), and *compliance* (F=20.126, p<.01). The dimension looking at *sex* was not statistically significant when predicting likelihood of arrest. The interaction between *crime* and *diagnosis* was also a predictor in likelihood and was significant at the 0.05 level (F=4.629). This interaction suggests that the participant interpreted the likelihood of arrest based on the crime they saw within the vignettes differently depended on which level of the diagnosis dimension to which they were exposed.

Table 12

Significant Vignette Characteristics (DV=Arrest)

Variable	F Ratio	Sig.
crime	4.251	.040
diagnosis	102.097	.000
compliance	20.126	.000
Interaction (variable*variable)		
crime*diagnosis	4.629	.032

After examining significant fixed model variables, parameter estimates were studied to determine if there were differences within the dimensions. Table 13 presents the significant vignette characteristics at the independent level (less the interaction variables), of which diagnosis (t=2.850, p<.05) and compliance (t=-2734, p<.05) remain statistically relevant when predicting the likelihood of arrest. In other words, as the variable moves from appearing intoxicated to exhibiting signs of depression or schizophrenia, there was an 11.497% increase in the likelihood of arrest. Oppositely, when the person within the vignette moved from complying with commands to being unresponsive to commands, the likelihood of arrest decreased by 8.919%. Finally, although the intercept was not always directly interpretable, in this scenario, when the person in the vignette appeared intoxicated and was a female, the likelihood of arrest was 20.775% (t=7.694, p<0.05). However, it should be noted that Nakagawa and Schielzeth (2013) caution against directly interpreting these coefficients. Instead, these parameter estimates provide general tendencies that can be inferred about the Level One variables.

Table 13

Parameter Estimates of Significant Vignette Characteristics (DV=Arrest)

Fixed Effects	Coefficient	SE	T Ratio
Between persons			
Intercept	20.775	2.700	7.694**
Within persons			
diagnosis	11.497	4.033	2.850*
compliance	-8.919	3.263	-2.734*

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **

Table 14 presents the statistically significant vignette dimensions and interactions. Again, the dimensions *crime* ($F=3.954$, $p<0.05$), *diagnosis* ($F=251.445$, $p<0.01$), and *compliance* ($F=11.870$, $p<0.01$) were statistically significant when predicting the dependent variable. The *diagnosis* variable was still the most predictive in terms of its F-ratio compared to the other dimensions. The *sex* variable dimension continued to be insignificant when trying to predict the likelihood of *involuntary commitment*. When examining the parameter effects for *involuntary commitment*, there was only one statistically significant within persons effect on *involuntary commitment* which was diagnosis ($t=-4.554$, $p<0.001$).

Table 14: Significant Vignette Characteristics (DV= Involuntarily Commit)

Table 14

Significant Vignette Characteristics (DV=Involuntarily Commit)

Variable	F Ratio	Sig.
crime	3.954	.047
diagnosis	251.445	.000
compliance	11.870	.001
Interaction (variable*variable)		
diagnosis*compliance	7.642	.006

Table 15

Parameter Estimates of Significant Vignette Characteristics (DV=IC)

Fixed Effects	Coefficient	SE	T Ratio
Between persons			
Intercept	63.261	3.453	18.322**
Within persons			
diagnosis	-24.425	5.363	-4.554**

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **

When examining the likelihood of *informal resolution* at the scene, *diagnosis* was the strongest predictor with an F-ratio of 74.251 ($p<0.001$). Compliance was the second biggest predictor with an F-ratio of 61.964 ($p<0.001$). The dimension *crime*, was not statistically significant this time when predicting the dependent variable, and the *sex* variable remained insignificant in the model, as well. There were also two interaction effects, crime*compliance ($F=4.367$), which indicates as participants perceived the likelihood of engaging in an *informal resolution* differently based on the level of compliance they were shown when interpreting the

crime dimension. Secondly, compliance played a role when respondents were considering informal resolution based on the diagnosis they were shown (F=6.692). Both interaction effects were statistically significant at the p<0.01 level.

Table 16

Significant Vignette Characteristics (DV= Informal Resolution)

Variable	F Ratio	Sig.
diagnosis	74.251	.000
compliance	61.964	.000
Interaction (variable*variable)		
crime*compliance	4.367	.037
diagnosis*compliance	6.692	.010

Delving further into the likelihood of *informal resolutions* at the scene, the intercept suggests that when a person appears intoxicated and is complying with commands, there is an increased likelihood of 16.529% (t=5.093, p<0.01). Indirectly, the model suggests if the person within the vignette is exhibiting signs of mental illness there is an increased likelihood of 12.209% (p<0.05) of an informal resolution. Additionally, when the person was noncompliant with commands when compared to compliant, the likelihood of an informal resolution increased by 15.478% (p<0.01). These results are similar to the results reported in the model effects by Table 16.

Table 17

Parameter Estimates of Significant Vignette Characteristics (DV=IR)

Fixed Effects	Coefficient	SE	T Ratio
Between persons			
Intercept	16.529	3.245	5.093**
Within persons			
diagnosis	12.209	4.825	2.530*
compliance	15.478	3.903	3.966**

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **

Finally, Table 18 presents the statistically significant vignette variables when attempting to predict the likelihood of *doing nothing*. Two of the vignette dimensions are statistically significant at the 0.05 level, *crime* (F=7.153) and *compliance* (F=4.112). When the parameter estimates were examined, there were no statistically significant vignette characteristics for this model, including the intercept. *Compliance* was the only Level One variable to consistently be a statistically significant predictor when looking at the likelihood of each respective dependent variable. However, as mentioned, the purpose of this was to examine Level One variables while building the model from the bottom-up (Luke, 2011). More so, these slopes are not directly interpretable, rather they provide a general idea of how the vignette dimension act as fixed effects in the model (Nakagawa & Schielzeth, 2013).

Table 18

Significant Vignette Characteristics (DV=Do Nothing)

Variable	F Ratio	Sig.
crime	7.153	.008
compliance	4.112	.043

Research Question 1

To reduce the need to move back and forth between sections, the remaining models will be separated based on research question and then dependent variable. Thus, the researcher presents the model building results consecutively based on dependent variable, instead of presenting the models in a progressively more complicated manner. To begin, research question 1 (RQ1), asks *how does Crisis Intervention Training* (CIT) *training affect the way in which officers respond to mental health calls for service?* Specifically, there were three hypotheses for this research question focusing on cadets vs. officers, whether the respondent volunteered for the training, and the effect CIT has on the response.

The analysis starts with a model which only contains level two variables as the fixed effects. Again, due to the use of the bottom-up method, the next step was creating models that continue to increase the model fit for the dependent variable. To create the best model fit, the -2 Loglikelihood was used to calculate a χ^2 to determine if the addition of the variable(s) significantly improved the model. Similar to other aspects of mixed models, there is no hard and fast rule as to the best way to calculate the change in model fit (Auspurg & Hinz, 2016; Luke, 2011) Researchers suggest using the Akaike Information Criterion (AIC) and Schwarz's Bayesian Information Criterion to avoid error in model deviance due to the number of parameters in the model (Auspurg & Hinz, 2016; Luke, 2011). However, the AIC and BIC tests

do not allow the researcher to determine if it is a statistically better model (Fields, 2017). Due to the lack of theoretical implications which could help build the models for RQ1, the researcher used the -2 Loglikelihood in order to have a better grasp on the variables which are making a statistical difference in the models.

Finally, before building the models, certain concepts (variables) must be specified prior to running any mixed models. Mixed models use data in a long format, which means there are multiple entries for the same person, in this case five entries because each participant saw five vignettes (see Figure 9). The repeated nature of factorial surveys also indicates a need to define the subject and repeated measures before creating building the models. For the purpose of this study, the subjects were grouped based on the respondent's ID number (1-141) and the repeated measures included the vignette number, and each of the vignette dimensions. Toeplitz:Heterogeneous was the repeated co-variance type selected for all of the mixed models. The Toeplitz:Heterogeneous co-variance type was used when the data are structured in such a way that there are heterogeneous variances and heterogenous correlations between the different variables controlling for the homogenous adjacent elements (IBM, n.d.).

Long Format

	ID	vig_no	vig_crime	vig_diagnosis
1	1.00	15	1.00	1.00
2	1.00	6	1.00	1.00
3	1.00	8	.00	1.00
4	1.00	4	.00	1.00
5	1.00	19	1.00	1.00
6	2.00	14	.00	1.00
7	2.00	5	1.00	1.00
8	2.00	23	1.00	.00
9	2.00	7	1.00	1.00
10	2.00	21	1.00	.00
11	3.00	22	.00	.00
12	3.00	11	1.00	.00
13	3.00	9	1.00	.00
14	3.00	1	1.00	1.00

Wide Format

	ID	Q2.1_1	Q2.1_2	Q2.1_3	Q2.1_4
1	1.00	.	.	.	.
2	2.00	.	.	.	.
3	3.00	16.00	84.00	.00	.00
4	4.00	.	.	.	.
5	5.00	.	.	.	.
6	6.00	40.00	60.00	.00	.00
7	7.00	.	9.00	.	.
8	8.00	14.00	84.00	2.00	.00
9	9.00	.	.	.	.
10	10.00	.	.	.	.
11	11.00	.	.	.	.
12	12.00	.	.	.	.
13	13.00	.	.	.	.
14	14.00	7.00	77.00	16.00	.00

Figure 9. Visual representation of long vs. wide format data.

Dependent variable: arrest. Table 19 presents the Level Two models for the likelihood of arresting an individual without the inclusion of the random effects (vignette dimensions) (see Table 12 and 13 for Level One models). To start, the variables of interest were inputted one at a time using the new -2 Loglikelihood (-2LL) to determine if the inclusion of that variable made a statistically significant difference in the model. To do this, the researcher used the following equation:

χ^2_{change} = -2LL of less complicated model - -2LL of more complicated model
df = *df* of less complicated model - -2LL of more complicated model

For an example of the equation in context, see figure 10. After determining the χ^2_{change} and *df*, the researcher used the syntax in figure 10 to determine if there was a statistically significant change by adding the next term. The -2LL for the null model is
3 included for reference in each table. At this time, the researcher was not necessarily interested in variables which may have significant F-ratios or coefficients. Instead, the purpose was to create a good fitting model before assessing the variables at an individual level.

χ^2_{change} = -2LL CIT- -2LL of CITVol
df = *df* CIT - -2LL CITVol

χ^2_{change} = -6130.408 – 4796.674
df = 71 – 65

χ^2_{change} = 1333.734
df = 6

SPSS Syntax:
Sig.chisq(1333.734, 6)

Figure 10. Example of χ^2_{change} equation.

There are four variables that indicated they created better fitting models for the Level Two variables, *CIT* (-2LL=49.332, p<.0001), *CITVol* (-2LL=4796.674, p<0.001), *CAD/POL* (-2LL=4792.815, p<0.001), and *Yearpolice* (-2LL=4132.770, p<0.001). The χ^2 values continue to be statistically significant until adding demographic variables into the models. The column furthest to the right indicates if the variable was removed from the overall model before adding in the next term. In the case of the variable *sex*, because there was not a statistically significant difference between the model which contained *CIT, CITVol, CAD/POL*, and *yearpolice*, the *sex* variable was removed before adding in the race variable. The best model which was created with only Level Two variables when assessing the likelihood of arrest had a -2LL of 4132.700.

Table 19

RQ1.Arrest Model Building 1 - Level 2 Variables

Variable	-2 Loglikelihood	df	χ^2	removed from model
Null Model	6179.740	71	-	-
CIT	6130.408	71	49.332**	no
CITVol	4796.674	65	1333.734**	no
CAD/POL	4792.815	66	3.859*	no
Yearspolice	4132.770	62	660.045**	no
Sex	4132.050	63	0.72	yes
Race	4131.133	63	1.637	yes
Area_Dummy	4130.291	64	2.479	yes
Deptsize_Dummy	4131.681	64	1.089	yes
Age_Dummy	4127.756	66	5.014	yes

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Using the statistically significant variables from Table 19, the second set of models were run using the same process to determine whether the variables made a statistically significant difference when including random intercepts and slopes into the model (Luke, 2011). Table 20 shows the -2LL for each term entered into the models with Level One (random) and Level Two (fixed) effects. The largest χ^2_{change} was by including if the person volunteered for the CIT

training with a χ^2_{change} of 1268.786 which was statistically significant at the 0.001 level. Unlike the first model (See Table 19), when the Level One variables were included in the model, the *CAD/POL* variable did not yield a statistically significant -2LL. Similar to the first model, CIT and the number of years the participant was a police officer made statistically better models. The best model created with the random effects included had a -2LL of 4250.988.

Table 20

RQ1.Arrest Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Logliklihood	df	χ^2	removed from model
Null Model	6179.740	71	-	-
CIT	6144.255	88	35.485**	no
CITVol	4875.469	81	1268.786**	no
CAD/POL	4911.709	82	-36.24	yes
Yearspolice_mc	4250.988	78	624.481**	no

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Finally, Table 21 presents the statistically significant variables and interactions in the final model which was run with random intercepts, fixed effects, and the inclusion of the vignette dimensions as fixed effects. The final model was a statistically significant better model than model 2; however, this model was not as good as the model which only contained Level Two variables. The two statistically significant variables were vignette dimensions, *vig_diagnosis* and *vig_compliance*. The variable *vig_diagnosis* indicates that as the vignette moves from a person who is appearing intoxicated to showing signs of depression or schizophrenia, the likelihood of *arrest* increased by 9.044%. The second variable, *vig_compliance*, was also statistically significant indicating that when the vignette indicated there was an individual who was non-compliant towards the officer's commands the likelihood of *arrest* decreased by 9.292%.

When reviewing the interactions terms, there were three interactions with statistically significant slopes. The first interaction is between *vig_crime* and *vig_sex*, which means that the likelihood of arresting someone based on the crime that was provided in the vignette was affected by which sex was presented. The way in which the crime was interpreted was also affected by the *sex* and *diagnosis* presented in the vignette (interaction *vig_crime*vig_diagnosis*vig_sex*). The final interaction was between *vig_diagnosis*, *vig_sex*, and *vig_compliance*. Again, this means that the likelihood of arrest depended on which vignette variables were seen.

Table 21

RQ1.Arrest Model Building 3 - Level 1 & Level 2 Variables

	-2 Logliklihood	df	χ^2
Model 3	4154.658	93	96.33**
Variable	f-ratio	Estimate	T-ratio
Intercept	4.246*	18.183	4.088**
vig_diagnosis	99.809**	9.044	2.629*
vig_compliance	9.858*	-9.292	-3.380**
Interactions			
vig_crime*vig_sex	6.353*	16.350	3.052*
vig_crime*vig_diagnosis*vig_sex	7.351*	--12.038	-1.716
vig_diagnosis*vig_sex*vig_compliance	6.675*	-11.107	

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 22 presents the final model for the likelihood of arrest when controlling for all the key independent variables (IVs) as well as all relevant demographic variables. Overall, the -2LL (4133.082) indicates that this last model is a better model fit than the model which was created using the model building method with a χ^2 of 21.567 ($p<.05$). However, this is not a better model than the model which was created using only Level Two variables (see Table 19). The variable, *yearspolice*, is the only statistically significant variable at the individual level. As the officer's

age increased, the likelihood of arrest increased by 0.602% (*t*=1.992). The key independent variables were not statistically significant across all variables in the *arrest* models. Although the inclusion of the variables *CIT* and *CITVol* create a better fitting model overall, the variable's coefficients do not provide a statistical prediction of whether the officer or cadet was likely to arrest. Simply, there is no statistically significant relationship between the likelihood of arrest and if the officer or cadet had ever had any type of CIT training. This is also true for if the officer or cadet volunteered for the training.

Table 22

RQ1.Arrest Model 4 - Level 1 & Level 2 Variables

	-2 Logliklihood	df	χ^2
Final Model ALL	4133.082	105	21.576*
Variable	f-ratio	Estimate	T-ratio
Intercept		-35.796	.472
CIT	.305	-8.147	-552
CITVol	.102	.948	.749
Yearspolice	3.969*	.602	1.992*
vig_diagnosis	90.179**	9.058	2.653
vig_compliance	11.645**	-8.878	-3.312
Interactions			
vig_crime*vig_sex	6.350*	3.216	.952
vig_crime*vig_diagnosis*vig_sex	7.869*	-13.106	-1.932

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Dependent variable: involuntary commitment. The next set of models focuses on the likelihood of the participant involuntarily committing the individual in the vignette. As with the arrest dependent variable models, Table 23 and 24 each represents individual models as the researcher continued to include only relevant variables, one at a time. To begin, there are three variables which made statistically significant differences when added to the model. With the inclusion of the *CIT* variable only (no random effects) the -2LL decreased by 28.632 ($p<0.001$).

The *CITVol* variable provided the most significant change in the overall -2LL ($\chi 2$ = 685.537, p<0.001), and the *yearspolice* variable had a $\chi 2$ of 448.117 (p<0.001). Unlike the arrest variable, the *CAD/POL* variable did not indicate a statistically significant difference when added in to the model building. The smallest -2LL produced by these significant variables was 2629.103.

Table 23

RQ1. IC Model Building 1 - Level 2 Variables

Variable	-2 Logliklihood	df	$\chi 2$	removed from model
Null Model	6641.030	71	-	-
CIT	3762.757	72	28.623**	no
CITVol	3077.220	65	685.537**	no
CAD/POL	3076.857	66	0.363	yes
Yearspolice_mc	2629.103	62	448.117**	no
Sex	2630.073	63	-0.97	yes
Race	2630.132	63	-1.029	yes
Area_Dummy	2629.448	64	-0.345	yes
Deptsize_Dummy	2631.776	64	-2.673	yes
Age_Dummy	2629.663	66	-0.56	yes

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Table 24 presents the statistically significant variables from the first involuntary commitment model with the inclusion of random effects (vignette variables). All of the variables presented in the first model were also statistically significant in the second model. Again, *CITVol* had the largest impact on creating a better model ($\chi 2$=1245.886, p<0.001). The next largest change in the -2LL was by the variable measuring how long the officer had been a sworn police officer (-2LL=1245.886, p<0.001). Finally, the *CIT* variable had the smallest effect on the model with a -2LL of 58.732 (p<0.001).

Table 24

RQ1. IC Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Logliklihood	df	$\chi 2$	removed from model
Null Model	6641.030	71	-	-
CIT	6582.298	88	58.732**	no
CITVol	5336.412	81	1245.886**	no
Yearspolice_mc	4559.220	78	777.192**	no

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

The -2LL was 4516.437 for the third model with a $\chi 2$ of 42.783 ($p<0.001$), indicating the final model was statistically different from model 2 by including the vignette dimensions as random and fixed effects (See Table 25). *Similar to A3*, the statistically significant variable is a vignette characteristic. When predicting the likelihood of the participant *involuntarily committing* an individual, when the vignette person went from being intoxicated to showing signs of depression or schizophrenia, the likelihood of the person being involuntarily committed decreased by 14.364% (t=-3.124, $p<0.001$).

Additionally, there were two interactions which were statistically significant at the 0.05 level. The first indicates that there is a statistical difference in the likelihood of involuntary commitment based on the vignette diagnosis when considering the sex of the individual within the vignette (t=-2.245, $p<0.05$). The second interaction also indicates that when the participant interpreted the likelihood of involuntary commitment when assessing the diagnosis presented in the vignette depending on the compliance level presented within the question (t= -2.887, $p<0.05$).

Table 25

RQ1. IC Model Building 3 - Level 1 & Level 2 Variables

	-2 Logliklihood	df	χ2
Model 3	4516.437	95	42.783**
Variable	f-ratio	Estimate	T-ratio
Intercept	25.767**	65.499	16.762**
vig_diagnosis	153.420**	-14.364	-3.124*
vig_compliance	17.165**	-5.701	-1.525
Interactions			
vig_diagnosis*vig_sex	1.372	-16.334	-2.245*
vig_diagnosis*vig_compliance	15.757**	-17.207	-2.887*
vig_sex*vig_compliance	5.757*	-1.508	-0.317
vig_diagnosis*vig_sex*vig_compliance	4.495*	16.571	1.762

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 26 presents the final model which included all of the key independent variables, and the control and demographic variables. Overall, the -2LL (4516.081) indicates that this last model is not a better model fit than the model which was created using the model building method. With a χ^2 of 0.359, the final model's improvement of the -2LL was not a statistical improvement. Additionally, the best model was created using only Level Two variables (see Table 22). The vignette variable, *vig_diagnosis*, was the only statistically significant variable at the individual level. As the individual in the vignette moved from appearing intoxicated to showing signs of depression or schizophrenia, the likelihood of arrest decreased by 14.327% (t=3.172, $p<0.05$). The key independent variables were not statistically significant across all variables in the *involuntarily commit* models. Although the inclusion of the variables *CIT* and *CITVol* create a better fitting model overall, the variable's coefficients do not provide a statistical prediction of whether the officer or cadet was likely to arrest. Simply, there is no statistically significant relationship between the likelihood of attempting to involuntarily commit an

individual and if the officer or cadet had ever had any type of CIT training. This is also true for if the officer or cadet volunteered for the training.

Table 26

RQ1. IC Model 4 - Level 1 & Level 2 Variables

	-2 Logliklihood	df	χ2
Final Model ALL	4516.081	105	0.356

Variable	f-ratio	Estimate	T-ratio
CIT	.000	0.315	0.015
CITVol	.709	-3.604	-0.824
vig_diagnosis	458.776**	-14.327	-3.172*
vig_compliance	18.949**	-5.713	-1.555
Interactions			
vig_diagnosis*vig_crime	17.074**	-	-
vig_diagnosis*vig_sex*vig_compliance	4.839*	16.627	1.805

Note: Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **

Dependent variable: Informal Resolution

The third dependent variable analyzed for RQ1 is the likelihood of the respondent engaging in some type of *informal resolution* at the scene. Like the other dependent variables, each term was added to the overall model individually and only variables which created statistically significant better models were kept in the model. Similar to the *involuntary commitment* models, there are three variables which created a statistically better model, *CIT*, *CITVol*, and *yearspolice.* Also similar to the third arrest model (see Table 21) and the third involuntary commitment model (see Table 25), *CITVol* had the largest impact on creating a better model with a χ2 = 685.537 ($p<0.001$), while *yearspolice* had the second largest χ2 of 448.117 ($p<0.001$). Finally, whether or not the respondent said they had ever had CIT training.

Table 27

RQ1. IR Model Building 1 - Level 2 Variables

Variable	-2 Logliklihood	df	$\chi 2$	removed from model
Null Model	6641.030	71	-	-
CIT	3762.757	72	28.623**	no
CITVol	3077.220	65	685.537**	no
CAD/POL	3076.857	66	0.363	yes
Yearspolice_mc	2629.103	62	448.117**	no
Sex	2630.073	63	-0.97	yes
Race	2630.132	63	-1.029	yes
Area_Dummy	2629.448	64	-0.345	yes
Deptsize_Dummy	2631.776	64	-2.673	yes
Age_Dummy	2629.663	66	-0.56	yes

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 28 presents the results of the model building with the three variables which were statistically significant in the first informal resolution model. In this next set of models, the variable *CIT* did not create a statistically significant model when compared to the null model and was removed from the future models presented in Table 28. The two variables which were statistically significant were the *CITVol* ($\chi 2=1318.917$, $p<0.001$) and *yearspolice* ($\chi 2=765.353$, $p<0.001$). The final model for *informal resolution* was not statistically better than the previous model (see Table 27) with a $\chi 2$ of -3.385 indicating the inclusion of the vignette dimensions as fixed effects created a worse model than the previous model. The only variable which was statistically significant was the *compliance* variable ($t=3.765$, $p<0.001$). The likelihood of the officer or cadet engaging in an *informal resolution* increased by 13.576% when the vignette indicated the individual was noncompliant compared to when the individual was compliant.

Table 28

RQ1. IR Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Logliklihood	df	χ2	removed from model
Null Model	6427.984	71	-	-
CIT	6447.247	88	-19.263	yes
CITVol	5128.333	81	1318.917**	no
Yearspolice_mc	4362.980	78	765.353**	no

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 29

RQ1. IR Model Building 3 - Level 1 & Level 2 Variables

	-2 Logliklihood	df	χ2
Model 3	4366.365	93	-3.385

Variable	f-ratio	Estimate	T-ratio
Intercept	8.546*	15.642	4.129**
vig_diagnosis	25.010**	5.339	1.194
vig_compliance	40.326**	13.576	3.765**
Interactions			
vig_diagnosis* vig_compliance	10.675**	10.981	1.888

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

The final table for informal resolution (Table 30) presents the final model which includes all of the key IVs, and the control variables. The -2LL (4268.311) indicates that this last model is a better model fit than the model which was created using the model building method (χ^2=98.054, p<0.001). Additionally, the best model was created using only Level Two variables (see Table 27). The vignette variable, *vig_compliance*, is the only statistically significant variable at the individual level. As the individual in the vignette moved from being compliant and responsive to commands to a vignette in which the person was not compliant with commends, the likelihood of and informal resolution increased by 15.107% (t=3.956, p<0.05).

The key independent variables were not statistically significant across all the *informal resolution* models. While the inclusion of the variables *CIT* and *CITVol* create a better fitting model overall, the variable's coefficients do not provide a statistical prediction of whether the officer or cadet was likely to attempt to resolve the issue at the scene. Simply, there is no statistically significant relationship between the likelihood of attempting to involuntarily commit an individual and if the officer or cadet had ever had any type of CIT training. This is also true for if the officer or cadet volunteered for the training.

Table 30

RQ1. IR Model 4 - Level 1 & Level 2 variables

	-2 Logliklihood	df	chi2
Final Model ALL	4268.311	105	98.054**

Variable	f-ratio	Estimate	T-ratio
CIT	0.112	7.048	0.335
CITVol	0.004	-0.265	-0.061
vig_crime	5.756*	-5.196	-1.402
vig_diagnosis	24.256**	4.51	1.140
vig_compliance	36.162**	15.107	3.956*
Interactions			
vig_diagnosis*vig_compliance	8.112*	10.306	1.857

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Dependent variable: do nothing. The final group of models for the first research questions was the likelihood of an officer responding to the call of service but doing nothing when they arrive. As with the last three groups of models the variables *CIT* ($\chi 2=48.373$, $p<0.001$), *CITVol* ($\chi 2=1357.839$, $p<0.001$), and *Yearspolice* ($\chi 2=701.307$, $p<0.001$). These three variables remained important to create statistically better models across all of the dependent variables. Similar to the other models, *CITVol* had the largest impact on changing the overall model's -2LL with a $\chi 2$ of 1357.839 which is statistically significant at the 0.001 level. In the

second set of models, Table 28, the *CIT* variable was removed from the larger model; however, the variables *CITVol* (χ2=363.795, p<0.001), and *Yearspolice* (χ2=697.352, p<0.001) created better models once the random effects were added. Unlike the other dependent variable models, *Yearspolice* had a larger impact on creating a better model, overall.

Table 31

RQ1. Do Nothing Model Building 1 - Level 2 Variables

Variable	-2 Logliklihood	df	χ2	removed from model
Null Model	3791.380	71	-	-
CIT	6379.611	72	48.373**	no
CITVol	5021.772	65	1357.839**	no
CAD/POL	5020.895	66	0.877	yes
Yearspolice_mc	4320.465	62	701.307**	no
Sex	4320.598	63	-0.133	yes
Race	4319.714	63	0.751	yes
Area_Dummy	4318.204	64	2.261	yes
Deptsize_Dummy	4319.953	64	0.512	yes
Age_Dummy	4319.273	66	1.192	yes

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Finally, there were no statistically significant variables, or interactions at the individual level; however, significant f-ratios are reported in Table 33. Additionally, the -2LL of the third *do nothing* model (-2LL=2827.734) (Table 33) was not a better model when the vignette dimensions were included as fixed effects as the -2LL increased by 97.501. When a model was created containing all of the relevant variables, including the key independent variables, the model was significantly better than the third *do nothing* model with a χ2 of 94.004 (p<0.001); however, it was not a better model than the first *do nothing* model which included Level Two variables only. The key IVs are included in Table 34 for reference but were not statistically significant in any of the *do nothing* models. Simply, there is no statistically significant

relationship between the likelihood of doing nothing and if the officer or cadet had ever had any type of CIT training. This is also true for if the officer or cadet volunteered for the training.

Table 32

RQ1. Do Nothing Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Logliklihood	df	χ2	removed from model
Null Model	3791.380	71	-	-
CIT	4161.263	88	-369.883	yes
CITVol	3427.585	88	363.795**	no
Yearspolice_mc	2730.233	78	697.352**	no

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Table 33

RQ1. Do Nothing Model Building 3 - Level 1 & Level 2 Variables

	-2 Logliklihood	df	χ2
Model 3	2827.734	93	-97.501

Variable	f-ratio	Estimate	T-ratio
Interactions			
vig_crime	4.666*	.460	.512
vig_diagnosis* vig_compliance	4.389*	.701	.499

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Table 34

RQ1. Do Nothing Model 4 - Level 1 & Level 2 Variables

	-2 Logliklihood	df	χ2
Final Model ALL	2733.730	105	94.004**

Variable	f-ratio	Estimate	T-ratio
Intercept		0.381	0.026
CIT	0.015	-0.578	-0.124
CITVol	0.529	0.712	0.727

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Research Question 2

As with RQ1, to reduce the need to move back and forth between sections, the models in this section will be separated based on dependent variable. Thus, I present the model building results consecutively based on dependent variable, instead of presenting the models in a progressively more complicated manner. To begin, research question 2 (RQ2), asks *does the officer's response to the call for service change based on professional, or personal relationships held by the officers?* specifically, there are three hypotheses for this research question focusing on the relationship with an individual who can help, or advise with a mental health call for service, relationships between the respondents and close family or friends who have a mental health diagnosis, and the difference between those relationships.

Dependent variable: arrest. Table 35 presents the Level Two models for the likelihood of arresting an individual without the inclusion of the random effects (vignette dimensions). There are two variables that indicated they created better fitting models for the Level Two variables, *Professional* (-2LL= 6082.765) which indicated a statistically different model with the professional variable included (χ2=96.975, p<0.001). And *yearpolice* (-2LL=4710.899), p<0.001) also created a better fitting model with a χ2 1371.866 (p<0.001) but created a better model than the inclusion of the *professional* variable. The best model, which was created with only level two variables, when assessing the likelihood of arrest had a -2LL of 4710.899.

Table 35

RQ2. Arrest Model Building 1 - Level 2 Variables

Variable	-2 Logliklihood	df	$\chi 2$	removed from model
Null Model	6179.740	71	-	-
Professional	6082.765	72	96.975**	no
Family	6086.675	73	-3.91	yes
Yearspolice_mc	4710.899	63	1371.866**	no
CAD/POL	4710.899	63	0	yes
Sex	4710.363	64	0.536	yes
Race	4710.086	65	0.813	yes
Area_Dummy	4708.002	65	2.361	yes
Deptsize_Dummy	4709.685	65	1.214	yes
Age_Dummy	4712.104	67	-1.205	yes

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

As Luke (2011) suggests, when there is a theoretical reason to include random effects, the model should be built with the significant variables in the Level Two models. Thus, Table 36 presents the results of the model building for the likelihood of arrest given the relationships of the respondents. Both variables which created better models in the first set of models remained important in creating the model which includes the random effects. The largest impact was made by the *yearspolice* variables with a $\chi 2$ of 1420.557 (p<0.001), while the *professional* relationship variable had much smaller $\chi 2$ (15.614, p<0.05).

Table 36

RQ2. Arrest Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Logliklihood	df	$\chi 2$	removed from model
Null Model	6179.740	71	-	-
Professional	6164.126	88	15.614*	no
yearspolice	4743.569	80	1420.557**	no

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

When including the vignette dimensions in with the Level Two fixed effects, there are two statistically significant results at the variable level, and one statistically significant interaction. The first statistically significant variable was the vignette dimension *diagnosis* which indicated that when the diagnosis within the vignette changed from the person appearing intoxicated to exhibiting signs of depression or schizophrenia, the likelihood of arrest increased by 12.437% (t=4.001, p<0.001). The second variable that was statistically significant was also a vignette dimension. The variable *vig_compliance* indicated that when the person in the vignette became unresponsive to commands, the likelihood of arrest decreased by 8.360% (-3.595, p<.05). Lastly, the only interaction that was statistically significant beyond the F-ratio was the combination of *vig_diagnosis*, and *vig_sex*. This combination explains that when the respondent was considering the likelihood of arrest based on the diagnosis, the sex of the individual made a difference.

Table 37

RQ2. Arrest Model Building 3 - Level 1 & Level 2 Variables

	-2 Logliklihood	df	χ2
Model 3	4724.594	95	19.065
Variable	f-ratio	Estimate	T-ratio
Intercept	-	16.673	6.517**
vig_diagnosis	95.373**	12.437	4.001**
vig_compliance	16.711**	-8.630	-3.595*
Interactions			
vig_crime*vig_diagnosis	4.688*	-1.858	-0.438
vig_crime*vig_sex	6.338*	4.472	1.328
vig_diagnosis*vig_sex	1.303	13.308	3.017*
vig_crime*vig_diagnosis*vig_sex	6.594*	-14.579	-2.361
vig_crime*vig_diagnosis*vig_compliance	4.614*	5.411	.948

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Finally, the last table (Table 38) presents the final model for the likelihood of arrest when controlling for all the key independent variables (IVs) as well as all relevant demographic variables. Overall, the -2LL (4738.747) indicates that this model was not a better model fit than the model presented in Table 37 with a χ^2 of -14.153. However, the model in Table 37 was not better than the model which was created using only Level Two variables (see Table 35). The variables which are statistically significant variable at the individual level are *yearspolice* and *vig_diagnosis*; both are significant at the 0.05 level. As the officer's time as an officer increased, the likelihood of arrest increased by 0.633% (t=2.287) and as the person in the vignette went from appearing intoxicated to exhibiting signs of depression or schizophrenia, the likelihood of arrest increased by 12.014% (t=3.961).

There was one interaction which had a statistically significant t-test that indicated the interaction between *diagnosis* and *sex* changed the interpretation of the crime presented within the vignette. The key independent variables were not statistically significant across all variables in the *arrest* models. Although the inclusion of the variable *professional* created a better fitting model overall, the variable's coefficient does not provide a statistical prediction of whether the officer or cadet was likely to arrest. Simply, there is no statistically significant relationship between the likelihood of arrest and if the officer or cadet had ever had a person they could contact for assistance in mental health calls for service. On the other hand, the variable *family* did not increase the model fit and was not statistically significant in any model.

Table 38

RQ2. Arrest Model 4 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	χ2
Final Model ALL	4738.747	108	-14.153

Variable	f-ratio	Estimate	T-ratio
Intercept		-63.062	-1.354
Professional	0.517	-2.067	-0.603
Family	1.521	2.394	0.94
Yearspolice	5.320*	0.633	2.287*
vig_diagnosis	102.517**	12.014	3.961*
vig_compliance	15.724	-8.881	-3.787
Interactions			
vig_crime*vig_sex	7.749*	2.499	0.817
vig_crime*vig_diagnosis*vig_sex	5.326*	-11.942	-2.030*
vig_diagnosis*vig_sex*vig_compliance	4.822*	-11.100	-1.947

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Dependent variable: involuntarily commitment. Table 39 presents the Level Two models for the likelihood of *involuntarily committing* an individual without the inclusion of the random effects (vignette dimensions). There are three variables that indicated they created better fitting models for the Level Two variables, *Professional* (-2LL= 6578.801; χ2=62.229, p<0.001), *yearpolice* (-2LL=5233.044; χ2=1345.757, p<0.001), and the *department size* dummy variables (-2LL=5211.821; χ2=21.223, p<0.001). The variable *yearspolice* had the largest impact on the model fit, with the variable *professional* having the second largest impact. The best model which was created with only level two variables when assessing the likelihood of *involuntary commitment* had a -2LL of 5211.821.

Table 39

RQ2. IC Model Building 1 - Level 2 Variables

Variable	-2 Loglikelihood	df	χ2	removed from model
Null Model	6641.030	71	-	-
Professional	6578.801	74	62.229**	no
Family	6578.755	75	0.046	yes
CAD/POL	6577.671	75	1.13	yes
Yearspolice_mc	5233.044	65	1345.757**	no
Sex	5230.273	66	2.771	yes
Race	5232.638	67	0.406	yes
Area_Dummy	5232.780	67	0.264	yes
Deptsize_Dummy	5211.821	67	21.223**	no
Age_Dummy	5211.171	71	0.65	yes

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

The models in Table 40 include the vignette dimensions as random variables, with the significant variables from Table 39 to determine the best model fit. Two of the three variable remained important in creating better models; however, the variables measuring the officer's department size no longer created a statistically better model. As with the models including only Level Two variables, the *yearspolice* created the largest change in the -2LL with a decrease of 1257.108 ($p<0.001$). Table 41 presents the statistically significant variables and interaction present in the model which contains relevant Level Two variables, and a full factorial of the vignette characteristics. There was only one significant variable, *vig_diagnosis*, which is consistent with the other models which have been reported in this dissertation. The likelihood of *involuntary commitment* decreased by 18.790% when the individual was exhibiting signs of depression or schizophrenia compared to the likelihood of involuntary commitment when the person appeared intoxicated. Additionally, there were three interactions that were significant at the individual level, indicating that the likelihood of arrest based on the diagnosis presented in the vignette depended on the *vig_sex*, and the *vig_compliance*. Finally, the model in Table 41

was statistically the best model thus far when analyzing the likelihood of involuntarily committing an individual with a -2LL of 5185.944 (χ2=1455.086, p<0.001).

Table 40

RQ2. IC Model Building - Level 1 & Level 2 Variables

Variable	-2 Loglikelihood	df	χ2	removed from model
Null Model	6641.030	71	-	-
Professional	6569.146	90	71.884**	no
Yearspolice_mc	5312.038	81	1257.108**	no
Deptsize_Dummy	5312.539	83	-0.501	yes

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Table 41

RQ2. IC Model Building 3 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	χ2
Model 3	5185.944	96	1455.086**

Variable	f-ratio	Estimate	T-ratio
Intercept	-	63.860	19.997**
vig_diagnosis	204.292**	-18.790	-4.480*
vig_compliance	19.472**	-3.438	-1.035
Interactions			
vig_diagnosis*vig_compliance	15.650***	-16.277	-2.990*
vig_diagnosis*vig_sex	.280	-12.316	-2.052*
vig_diagnosis*vig_sex*vig_compliance	6.6147*	16.299	2.028*

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

The final Table (42) has a -2LL of 5185.938 with a χ2 of 0.006 meaning it was not a statistically better model than the model presented in Table 41. There were two variables which were statistically significant coefficients, suburban and vig_diagnosis. There were also two significant interactions, again, the interactions related to the *diagnosis* interpretation and the change of that interpretation based on the level of *compliance*, and *sex* levels within the

vignettes. When analyzing the *suburban* variable, the indication is that officers from *rural* or *urban* areas had a decreased likelihood of involuntary commitment when compared to urban officers (b=-14.734; t=2.321, p<0.05). Individuals who exhibited signs of depression or schizophrenia had a decrease of 18.933% in the likelihood of involuntary commitment when compared to individual exhibiting signs of intoxication.

The key independent variables were not statistically significant across all *involuntary commitment* models. Although the inclusion of the variable *professional* created a better fitting model overall, the variable's coefficient does not provide a statistical prediction of whether the officer or cadet was likely to arrest. Simply, there is no statistically significant relationship between the likelihood of arrest and if the officer or cadet had ever had a person they could contact for assistance in mental health calls for service. On the other hand, the variable family did not increase the model fit and was not statistically significant in any model.

Table 42

RQ2. Involuntary Commitment Model 4 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	χ^2
Final Model ALL	5185.938	108	0.006
Variable	**f-ratio**	**Estimate**	**T-ratio**
Professional	0.822	4.643	0.906
Family	2.348	-5.813	-1.532
Suburban	-	-14.734	-2.321*
vig_diagnosis	201.518**	-18.933	-4.515**
vig_compliance	20.479**	-3.480	-1.050
Interactions			
vig_diagnosis* vig_compliance	15.996**	-16.780	-3.099*
vig_diagnosis*vig_sex*vig_compliance	7.255*	16.790	2.101*

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Dependent variable: informal resolution. When trying to predict the likelihood of an *informal resolution* at the scene, I started with the Level Two variables in Table 43. The variable, *professional*, and the variable, *yearspolice*, both created significantly better fitting models when compared to the null model, and other variables, *yearspolice* had a -2LL of 5007.407 which created a $\chi 2$ change of 1375.164 ($p<0.001$); while the professional variable created a small $\chi 2$ change of 45.413 ($p<0.001$). Table 44 has similar results as Table 43, where *yearspolice* has the largest impact on decreasing the -2LL of the overall model ($\chi 2=1237.774$, $p<0.001$), and the *professional* variable creates a better model fit as well ($\chi 2=79.292$, $p<0.001$).

Table 43

RQ2. IR Model Building 1 - Level 2 Variables

Variable	-2 Loglikelihood	df	$\chi 2$	removed from model
Null Model	6427.984	71	-	-
Professional	6382.571	74	45.413**	no
Family	6382.177	75	0.394	yes
CAD/POL	6383.049	75	-0.478	yes
Yearspolice_mc	5007.407	65	1375.164**	no
Sex	5007.100	66	0.307	yes
Race	5006.569	67	0.838	yes
Area_Dummy	5005	67	2.407	yes
Deptsize_Dummy	5005	67	2.407	yes
Age_Dummy	5004.943	69	2.464	yes

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 44

RQ2. IR Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Loglikelihood	df	$\chi 2$	removed from model
Null Model	6427.984	71	-	-
Professional	6348.692	90	79.292**	no
Yearspolice_mc	5110.918	81	1237.774**	no

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Lastly, Table 45 has a -2LL of 5022.631 with a $\chi 2$ of 88.287 meaning it is a statistically better model than the model presented in Table 44. However, the best model fit came from model 42 which only included the Level Two variables. *Vig_compliance* was the only significant variable presented in Table 45. This slope indicated that as the vignette changed from an individual who was complying with commands to someone who was not compliant, the likelihood of an *informal resolution* increased by 12.295% (t=3.588, p<0.001). Additionally, there was only one statistically significant interaction, *vig_diagnosis* and *vig_compliance*. This interaction seems statistically important as it continues to come up throughout the models looking at RQ2.

As with the other models attempting to answer RQ2, the key independent variables were not statistically significant across any *informal resolution* models. Although the inclusion of the variable *professional* created a better fitting model overall, the variable's coefficient does not provide a statistical prediction of whether the officer or cadet was likely to engage in an informal resolution. Simply, there is no statistically significant relationship between the likelihood of *informal resolution* and if the officer or cadet had ever had a person they could contact for assistance in mental health calls for service. On the other hand, the variable *family* did not increase the model fit and was not statistically significant in any model.

Table 45

RQ2. IR Model 3 - Level 1 & Level 2 Variables

	-2 Log Likelihood	df	$\chi 2$
Final Model ALL	5022.631	108	88.287**
Variable	f-ratio	Estimate	T-ratio
Professional	0.263	-2.786	0.608
Family	1.126	4.259	1.061
vig_diagnosis	45.362**	7.300	1.706
vig_compliance	45.469**	12.295	3.588**
Interactions			
vig_crime*vig_compliance	5.537*	-4.404	-.0939
vig_diagnosis* vig_compliance	10.390**	12.294	2.175*

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Dependent variable: do nothing. The last set of models which were created to analyze the relationships that the officers or cadets may have with professionals in the mental health field, or personal experience with serious mental illness due to a family member or close personal friend, used the dependent variable of *do nothing*. Table 46 provides the Level Two results by creating the best fitting model without the inclusion of random effects or vignette dimensions as part of the fixed effects variables. There were only two variables which were statistically significant when creating the best model using only Level Two variables, *professional*, and *yearspolice*. *Yearspolice* created the best fitted model with a -2LL of 2903.469 and a $\chi 2$ change of 816.223 ($p<0.001$). *Professional* was a key independent variable which has consistently created better fitting model at the Level Two model building phase. In this scenario, when attempting to predict the likelihood of the officer or cadet doing nothing, the *professional* variable has a $\chi 2$ change of 741.688 ($p<0.001$).

Table 46

RQ2. Do Nothing Model Building 1 - Level 2 Variables

Variable	-2 Logliklihood	df	$\chi 2$	removed from model
Null Model	3791.380	71	-	-
Professional	3719.692	74	71.688**	no
Family	3718.157	75	1.535	yes
CAD/POL	3720.345	75	-0.653	yes
Yearspolice	2903.469	65	816.223**	no
Sex	2908.949	66	-5.48	yes
Race	2911.407	67	-7.938	yes
Area_Dummy	2903.594	67	-0.125	yes
Deptsize_Dummy	2909.731	67	-6.262	yes
Age_Dummy	2903.964	69	-0.495	yes

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 47 indicated there was only one relevant variable from the Level Two variable models which continued to make a statistically better model once the vignette characteristics are included as random effects. *Yearspolice* had a $\chi 2$ change of 647.599 ($p<0.001$) indicating a decrease in the -2LL. The *professional* relationship variable was not included in the model because it made a worse model once it was included with the Level One variables (random effects). Table 48 presents the key independent variables and their relationship to the likelihood of *doing nothing*. Neither the *professional* variable or the *family* variable was able to statistically predict an increase or decrease in the likelihood of *doing nothing*. In fact, there were no statistically significant variables in the final model. The model presented in Table 48 did increase the model fit ($\chi 2=30.687$) but this change was not statistically significant. Table 47:

Table 47

RQ2. Do Nothing Model Building 2 – Level 1 & Level 2 Variables

Variable	-2 Loglikelihood	df	$\chi 2$	removed from model
Null Model	3791.380	71	-	-
Professional	3963.187	90	-171.807	yes
Yearspolice	3143.781	81	647.599**	no

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 48

RQ2. Do Nothing Model 3 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	$\chi 2$
Final Model ALL	3113.184	108	30.687

Variable	f-ratio	Estimate	T-ratio
Professional	0.589	0.950	0.769
Family	0.261	-0.462	-0.511

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Research Question 3

The final group of models functions in the same manner as RQ1 and RQ2. Thus, to reduce the need to move back and forth between sections, the models in this section will be separated based on dependent variable. I present the model building results consecutively based on dependent variable, instead of presenting the models in a progressively more complicated manner. To begin, research question 3 (RQ3), asks *do police responses change based on the number and type of mental health resources in the immediate area?* Specifically, there are three hypotheses for this research question focusing on the number of resources in the area, the types of resources in the area, and if the respondent ever had a negative experience while trying to involuntarily commit someone to a mental health facility.

Dependent variable: arrest. Table 49 presents the Level Two models for the likelihood of arresting an individual without the inclusion of the random effects (vignette dimensions). There were three variables that indicated they created better fitting models for the Level Two variables, *resources* (-2LL= 5610.479), *Neg_experience* (-2LL=4304.854), and *yearpolice* (-2LL=4174.723). The most significant difference in the overall model was the inclusion of the variable assessing negative experiences with a $\chi 2$ of 1305.625 ($p<0.001$) with the next largest impact coming from the initial addition of the resources variable with a $\chi 2$ of 569.261 ($p<0.001$). Finally, the *yearspolice* had a $\chi 2$ of 130.131 which was significant at the 0.001 level. The best model created with only Level Two variables when assessing the likelihood of arrest had a -2LL of 4174.723.

Table 49

RQ3. Arrest Model Building 1 - Level 2 Variables

Variable	-2 Loglikelihood	df	$\chi 2$	removed from model
Null Model	6179.740	71	-	-
Resources	5610.479	70	569.261**	no
Types of Resources	5618.686	76	-7.896	yes
Neg_Experience	4304.854	61	1305.625**	no
CAD/POL mc	4304.854	61	0	yes
Yearspolice_	4174.723	62	130.131**	no
Sex	4184.607	63	-9.884	yes
Race	4184.767	63	-10.004	yes
Area_Dummy	4183.492	64	-8.769	yes
Deptsize_Dummy	4171.993	64	-8.769	yes
Age_Dummy	4176.562	66	-1.839	yes

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

The *types of resources* included in the model (Table 50) which contains random effects and fixed effects of the Level Two variables indicate that the type of resources does not create a better model fit in phase two of the model building; the same is true for the *yearspolice* variable. However, the other two variables of interest remained statistically significant when creating the

best model. With the *resource* variable (χ2=561.881, p<0.001) and the *negative experience* variable (χ2=1344.832, p<0.001) included in the Level One and Level Two model, the -2LL is 4273.027. Finally, when creating a large model (Table 51) which includes fixed and random effects, there were two significant variables, *vig_diagnosis* (t=2.903, p<0.05) and *vig_compliance* (t=-2.465, p<0.05). The likelihood of arrest increased by 15.489% when the vignette stated that the person at the scene was exhibiting signs of depression or schizophrenia when compared to the person appearing intoxicated. The *vig_compliance* variable showed the same general tendencies which have been seen throughout the mixed model section, when the person was unresponsive to commands the likelihood of arrest decreased by 6.639% as opposed to if the person was complying to commands. There was no statistically significant parameter estimate interactions in this model.

Table 50

RQ3. Arrest Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Loglikelihood	df	χ2	removed from model
Null Model	6179.740	71	-	-
Resources	5617.859	86	561.881**	no
Types of Resources	5652.685	92	-34.826	yes
Neg_Experience	4273.027	77	1344.832	no
Yearspolice_mc	4272.877	78	0.150	yes

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Table 51

RQ3. Arrest Model Building 3 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	chi2
Model 3	4265.929	92	7.058
Variable	f-ratio	Estimate	T-ratio
Intercept	67.874**	16.894	5.418**
vig_diagnosis	30.024**	15.489	2.903*
vig_compliance	4.557*	-6.639	-2.465*
Interactions			
vig_crime*vig_sex	4.823*	-0.334	-0.061

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 52 presents the results of the key independent variables and any statistically significant interactions. One out of the five different types of the mental health resources were significant at the 0.05 level. The likelihood of arrest decreased by 9.811% when there were other resources in the area which did not include an *outpatient mental health facility* (OMH) (t=-2.039, p<001). The number of *resources* in the area also was statistically significant at the 0.05 level and indicated that as the number of resources increase in the area the likelihood of arrest decreased by 0.482% (t=-2.260). The vignette variable *diagnosis* was at significant at the 0.05 level. There was an increased likelihood of arrest when the person was threatening suicide or hallucinating when compared to showing signs of intoxication (b=12.539; t=3.792, p<0.05). Finally, the likelihood of arrest changed based on the interpretation of the vignette *diagnosis* variable given which level of *sex* and *compliance* was shown in the same vignette.

Overall, the -2LL for the final model which included all relevant IVs, and the vignette characteristics as random and fixed effects was 4200.192. The final model (Table 52) had a statistically better model fit than Table 51; however, the best model fit was Table 49 which only included Level Two variables. There were two key independent variables that were statistically

significant in this final model, *resources* and *type of resource*, supporting RQ3:H1 but not supporting RQ3:H2 (see Chapter V for a discussion of these results).

Table 52

RQ3. Arrest Model 4 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	χ2
Final Model ALL	4200.192	108	
Variable	f-ratio	Estimate	T-ratio
Resources	5.110*	-0.482	-2.260*
Typmh_CMHC	3.069	-14.125	-1.752
Typmh_OMH	4.156*	-9.811	-2.039*
Typmh_ORES	0.301	-3.144	-0.549
Typmh_PH	1.580	6.443	1.257
Typmh_RTCA	0.274	-3.209	-0.523
Neg_Experience	0.487	-2.311	-0.698
vig_diagnosis	99.895**	12.539	3.792*
vig_compliance	11.353*	-8.325	-3.315
Interactions			
vig_crime*vig_sex	4.816**	2.100	.0638
vig_crime*vig_diagnosis*vig_compliance	4.516*	5.223	0.848
vig_diagnosis*vig_sex*vig_compliance	5.605*	-14.680	-2.325*

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Dependent variable: involuntary commit. The Level Two variable only models are presented in Table 53, in which four of the variables created a better model fit than the model that did not include any variables (null). The largest χ2 change was the inclusion of the *negative experience* variable with a χ2 of 1264.023 ($p<0.001$). The next largest change was the number of *resources* available in the area with a χ2 of 628.799 ($p<0.001$). *Yearspolice* (χ2=116.490, $p<0.001$) and Types of resources (χ2= 7.376, $p<0.05$) created better models but had less of an affect than the other two variables. Table 54 presents the results of the inclusion the relevant variables from table 53. In this group of models, *negative experience* and *types of resources* were run together because there was a lack of variation in the model when only the resource types

were included. The largest impact was the model which combined the *types of resources* and whether the respondent had a *negative* experience with a $\chi 2$ of 1273.756 ($p<0.001$). The smallest effect came from the *yearspolice* variable with a $\chi 2$ of 162.802 ($p<0.001$). Each of these variables were included in the third model phase (Table 55).

Table 53

RQ3. IC Model Building 1 - Level 2 Variables

Variable	-2 Loglikelihood	df	$\chi 2$	removed from model
Null Model	6641.030	71	-	-
Resources	6012.231	79	628.799**	no
Types of Resources	6004.855	81	7.376*	no
Neg_Experience	4740.832	71	1264.023**	no
CAD/POL	4740.832	71	0	yes
Yearspolice_mc	4624.342	72	116.490**	no
Sex	4642.231	73	0.111	yes
Race	4623.767	73	0.575	yes
Area_Dummy	4623.420	74	0.922	yes
Deptsize_Dummy	4624.310	74	0.032	yes
Age_Dummy	4626.858	76	-2.516	yes

Note: Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **

Table 54

RQ3. IC Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Logliklihood	df	$\chi 2$	removed from model
Null Model	6641.030	71	-	-
Resources	6181.633	95	459.397**	no
Types of Resources Neg_Experience	4907.877	87	1273.756**	no
Yearspolice_mc	4745.075	88	162.802**	no

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Similar to other models, the only statistically significant variable in the Level One (random and fixed effects) and Level Two (fixed effects) was the vignette dimension *diagnosis* and interaction terms. There was a 21.628% decrease in the likelihood of involuntary

commitment when the officers or cadets were exposed to individuals exhibiting signs of depression or schizophrenia compared to respondents being exposed to a person exhibiting signs of intoxication. And, as with other models, the likelihood of attempting to involuntarily commit an individual depended on the level of diagnosis with an effect coming from the level of compliance the officer or cadet experienced. Overall, the -2LL (4653.541) was significantly better than the model (Table 54) that did not include the vignette dimensions as random and fixed effects. However, the best model was produced by using only the Level Two variables (Table 54).

Table 55

RQ3. IC Model Building 3 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	$\chi 2$
Model 3	4653.541	98	91.534**

Variable	f-ratio	Estimate	T-ratio
Intercept	15.499**	51.573	3.657**
vig_diagnosis	196.730**	-21.628	-4.915**
vig_compliance	19.740**	-6.617	-1.941
Interactions			
vig_diagnosis*vig_compliance	11.379**	-12.170	-2.123*
vig_crime*vig_diagnosis*compliance	5.137*	18.191	2.136*

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Finally, Table 56 reports the slopes of the key independent variables as well as statistically significant variables and interaction terms. To begin, there were two types of models which were significant when trying to predict the likelihood of involuntary commitment, *Community Mental Health Center* (CMHC) and *Outpatient Mental Health Facility* (OMH); however, there were opposite effects. The likelihood of involuntary commitment increased by 20.065% ($p<0.05$) when there were other resources other than *CMHC* facilities. Oppositely, when the resources excluded *OMH* facilities the likelihood of involuntary commitment decreased

by 18.604% (p<0.05). The *vig_diagnosis* variables also were statistically significant which can be interpreted as, when the person in the vignette was exhibiting signs of depression or suicide the likelihood of involuntary commitment decreased by 21.693% (p<0.001). Lastly, as with the model in Table 55, there was a statistically significant relationship between the likelihood of involuntary commitment and the combination of diagnosis and compliance levels shown in the vignette. Finally, the -2LL model with all relevant variables decreased to 4652.910 but was not statistically improved from the model with did not include the vignette characteristics as fixed effects.

Table 56

RQ3. IC Model 4 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	χ^2
Final Model ALL	4652.910	108	
Variable	f-ratio	Estimate	T-ratio
Resources	0.111	0.093	0.333
Typmh_CMHC	4.264*	21.862	20.065*
Typmh_OMH	8.664*	-18.604	-2.943*
Typmh_ORES	0.351	4.450	0.593
Typmh_PH	2.027	9.583	1.424
Typmh_RTCA	2.364	-12.383	-1.538
Neg_Experience	0.318	2.449	0.564
vig_diagnosis	196.831**	-21.693	-4.938**
vig_compliance	20.443**	-6.613	-1.941
Interactions			
vig_diagnosis*vig_compliance	11.821*	-12.669	-2.215*

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Dependent variable: informal resolution. The second to last dependent variable assessed when determining the effect, the number and types of resources in the area, and negative experiences is the likelihood of engaging in some type of *informal resolution* at the scene. Unlike the other models that have been reported for RQ3, types of resources were not

statistically significant in the first model building phase. Aside from the exclusion of the types of resources variables, this model was similar to the other ones reported in this section. The most significant addition to the model was the *negative experience* variable with a $\chi 2$ of 1240.029 ($p<0.001$), with the variable *resources* having next biggest impact ($\chi 2=612.293$, $p<0.001$). Lastly, the years that the officer had been a police officer has the weakest impact on the model fit with a $\chi 2$ of 138.373 ($p<0.001$).

Table 57

RQ3. IR Model Building 1 - Level 2 Variables

Variable	-2 Loglikelihood	df	$\chi 2$	removed from model
Null Model	6427.984	71	-	-
Resources	5815.691	79	612.293**	no
Types of Resources	5817.643	81	-1.971	yes
Neg_Experience	4575.662	70	1240.029**	no
Yearspolice_mc	4437.289	71	138.373**	no
CAD/POL	4437.289	71	0	yes
Sex	4432.645	72	4.644	yes
Race	4436.378	72	0.911	yes
Area_Dummy	4436.448	73	0.846	yes
Deptsize_Dummy	4437.834	73	-0.545	yes
Age_Dummy	4435.064	75	0.846	yes

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

All three of the variable that were significant in improving the model fit in Table 57, were still significant in creating the best model fit even after the vignette dimensions were and as random effects. The model results in Table 58 followed the same format as the model building in Table 57, with the variable measuring *negative experiences* with *involuntary commitment* having the largest impact on the model fit ($\chi 2=1161.649$, $p<0.001$). The *number of resources* in the jurisdiction had a $\chi 2$ of 559.743 and was significant at the 0.001 level. Additionally, the number of years the respondent was an officer had a $\chi 2$ change of 159.184 with a significance level of 0.001. Each of these terms were used to create the model presented in Table 59. The only

statistically significant slope was the vignette variable *compliance* which indicated that as the vignette changed from individuals who were compliant with orders to individuals who were not compliant with commands, the likelihood of an informal resolution increased by 13.938% (t=4.074, p<0.05). The other variables and interactions reported in Table 59 had significant F-*ratios* but were not significant at the individual *t-test* level.

Table 58

RQ3. IR Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Loglikelihood	df	χ2	removed from model
Null Model	6427.984	71	-	-
Resources	5868.241	86	559.743**	no
Neg_Experience	4706.592	83	1161.649**	no
Yearspolice_mc	4547.408	84	159.184**	no

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

Table 59

RQ3. IR Model Building 3 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	χ2
Model 3	4473.390	99	74.018**

Variable	f-ratio	Estimate	T-ratio
Intercept	8.442*	6.574	0.471
vig_diagnosis	42.283**	9.062	2.033
vig_compliance	42.670**	13.938	4.074*
Interactions			
vig_diagnosis*vig_compliance	10.699*	7.365	1.278

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

The final table (Table 60) reports the key independent variables, as well as any significant variables and interactions that were present in the model when the vignette characteristics were included as random and fixed effects. The overall -2LL for the final model is 4477.948, meaning the model that includes all relevant variables and a factorial model with the

Level One variables was not as good of a model fit as Table 59. However, there were a few statistically significant variables in the model. The variable *Outpatient Mental Health Facility* (OMH) indicated that as the jurisdiction area goes from having *OMH f*acilities to any other type of facility, the likelihood of an informal resolution increases by 25.455% (t=3.652, p<0.001). Other significant variables include *vig_diagnosis*, meaning as the vignette changed from having an individual appearing intoxicated to threatening suicide or hallucinating, the likelihood of the respondent engaging in an informal resolution increased by 9.489% (t=2.193, p<0.05). The second vignette variable (*vig_compliance*) indicates that when the vignette changed from compliance to non-compliance, the likelihood of an informal resolution increased by 14.403% (t=4.323, p<0.001). There were no statistically significant interaction terms at the individual level.

Table 60

RQ3. IR Model 4 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	χ2
Final Model ALL	4477.948	107	
Variable	**f-ratio**	**Estimate**	**T-ratio**
Resources	1.543	0.380	1.242
Typmh_CMHC	0.335	-6.960	-0.579
Typmh_OMH	13.339**	25.455	3.652**
Typmh_ORES	0.016	-1.058	-0.125
Typmh_PH	3.000	-12.533	-1.732
Typmh_RTCA	2.116	13.153	1.455
Neg_Experience	0.348	2.718	0.590
vig_diagnosis	45.510**	9.489	2.193*
vig_compliance	45.708**	14.403	4.323**
Interactions			
vig_crime*vig_diagnosis	4.522*	-7.874	-1.743
vig_diagnosis*vig_compliance	11.452*	6.759	1.206

Note. Significant correlations flagged at the p<0.05 with a *; significant correlations flagged at the p<0.01 with a **.

There was only one key independent variable that was statistically significant when predicting the likelihood of an informal resolution occurring at the scene (*OMH variable*). Although the inclusion of the variable *resources,* and *negative experience* created a better fitting model overall, the variable's coefficient does not provide a statistical prediction of whether the officer or cadet was likely to engage in an *informal resolution*. Simply, there is no statistically significant relationship between the likelihood of arrest and the number of mental health resources in the area. Additionally, the same is true for assessing if having a negative experience was a significant predictor in the likelihood of informal resolution. Finally, even though the final model (Table 60) had one significant slope with a type of resource, the type of resource did not create a statistically better model at the Level Two variables only model (Table 57).

Dependent variable: do nothing. The final group of models pertains to the likelihood the officer or cadet would arrive at the scene and *do nothing*. To start, as with the other models, Table 61 presents the relevant variables and whether they created statistically better models with their inclusion. The variable which had the largest $\chi 2_{change}$ was the number of resources available in a given area. The second largest -2LL reduction was after including the *negative experience* variable which had a $\chi 2$ of 578.617. The *yearspolice* variable ($\chi 2$=70.15, p<0.001) and the *department size* variable ($\chi 2$=82.273, p<0.001) both helped create statistically better models, with the lowest -2LL being 2428.250.

Table 61

RQ3. Do Nothing Model Building 1 - Level 2 Variables

Variable	-2 Loglikelihood	df	$\chi 2$	removed from model
Null Model	3791.380	71	-	-
Resources	3158.346	70	633.034**	no
Types of Resources	3161.671	76	-3.325	yes
Neg_Experience	2579.729	61	578.617**	no
CAD/POL	2579.729	61	0	yes
Yearspolice_mc	2509.579	62	70.15**	no
Sex	2059.708	63	-.129	yes
Race	2510.793	63	-1.214	yes
Deptsize_Dummy	2427.306	64	82.273**	no
Area_Dummy	2428.250	66	0.944	yes
Age_Dummy	2421.994	68	5.312	yes

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 62 presents the next phase of model building which includes the vignette variables (Level One) as the random intercepts, and the significant independent variables (Level Two) as the fixed variables. Three of the four variables from the first model were statistically significant in changing the -2LL into better models. *Yearspolice* and having a *negative experience* were very similar in their $\chi 2$ tests, 410.622 ($p<0.001$) and 408.655 ($p<408.655$). The number of *resources* also remained important in creating more significant models ($\chi 2=377.809$, $p<0.001$); however, the *department size* variable was removed from the third model (Table 63) because it created a worse model when compared the term (*yearspolice*) entered before department size.

Table 62

RQ3. Do Nothing Model Building 2 - Level 1 & Level 2 Variables

Variable	-2 Loglikelihood	df	$\chi 2$	removed from model
Null Model	3791.380	71	-	-
Resources	3413.571	86	377.809**	no
Neg_Experience	2958.655	82	408.655**	no
Yearspolice_mc	2548.029	84	410.622**	no
Deptsize_Dummy	2577.780	86	-29.751	yes

Note. Significant correlations flagged at the $p<0.05$ with a *; significant correlations flagged at the $p<0.01$ with a **.

Table 63 reports the model which includes random and fixed effects, as well as the vignette characteristics added into the fixed effect slopes. However, there were no statistically significant variables throughout the entire model. Similarly, the key independent variables have been reported in Table 64 for reference but the final model (Table 64) did not have any statistically significant predictors when assessing the likelihood of the respondent *doing nothing*. To put it simply, none of the key independent variables which were hypothesized to have an effect on the dependent variables can predict the likelihood of officers or cadets *doing nothing*. Furtheremore, the model presented in Table 64 only improved the model fit by 2.608; however, this was not a statistically significant change. The same was true for model three presented in Table 63, the change in -2LL did not equate to a statistically better model when compared to Table 62 or Table 21.

Table 63

RQ3. Do Nothing Model Building 3 - Level 1 & Level 2 Variables

	-2 Log Likelihood	df	$\chi 2$
Model 3	2537.068	99	12.934

Variable	f-ratio	Estimate	T-ratio
	NONE		

Table 64

RQ3. Do Nothing Model 4 - Level 1 & Level 2 Variables

	-2 Loglikelihood	df	$\chi 2$
Final Model ALL	2534.460	108	2.608

Variable	f-ratio	Estimate	T-ratio
Resources	0.048	0.012	0.218
Typmh_CMHC	0.095	-0.629	-0.309
Typmh_OMH	0.422	0.787	0.650
Typmh_ORES	0.010	0.146	0.100
Typmh_PH	2.569	-2.066	-1603
Typmh_RTCA	0.806	1.392	0.878
Neg_Experience	0.888	-0.787	-0.942

Statistical Summary

The purpose of this section is to briefly review the statistical approaches used throughout the anaylsis chapter (IV) of this dissertation. To start, mixed modeling was used for statistical purposes and theoretical purposes. The null models (Table 11) indicated that there was unexplained variation within the models which cannot be accounted for based solely on the intercept. Secondly, there was theoretical justification for using mixed modeling because there was nested data given the use of a factorial survey design. I used two types of covariance types, the toeplitz:heterogenous covariance for repeated measures, and the ante-dependence:first order covariance for the random variables. These two covariance types were used because they

properly controlled for the heterogenous variability within the variables and the correlation coefficients of terms.

Secondly, there are two types of maximum likelihood estimations when building mixed models, maximum likelihood (ML) and restricted maximum likelihood (REML) (Fields, 2016; Luke, 2011; West, Welch & Galecki, 2007). However, there were two reasons I selected the ML estimation when fitting the models for this analysis, one, REML and ML estimations produce the same fixed-effects estimates (Luke, 2011), and two, because the best way to measure statistical change between two multilevel models is by calculating a $\chi 2$ for the difference (Fields, 2016). Analyzing the random slopes and intercepts was outside of the scope of this dissertation since the RQs specifically focus on the fixed effects. More so, due to the lack of statistically significant variables in the models, the model fits were used to explore the RQs and hypotheses; thus, ML had to be used for comparison purposes.

There are five different types of Information Criteria which assess the model's goodness of fit. While most researchers suggest using the Akaike's Information Criterion (AIC) or the Schwarz's Bayesian Criterion (BIC) to compare model because of the tests correction of error terms (Auspurg & Hinz, 2016; Fields, 2016, Luke, 2011; West, Welch & Galecki, 2007); I chose to focus on the -2 Log Likelihood estimates of the models. This type of model fit was directly influenced by the number of parameter's in the model; however, by including the $\chi 2$ test, the model becomes a better predictor of variables which create statistically better models. This same comparison cannot be made when using the AIC or BIC (Fields, 2016).

In total, there were approximately 150 mixed models created and summarized in the tables above assessing the goodness of fit and the effect key independent variables had on the -2 LL. Using the bottom-up method of creating the variables, I started with models which only

included the vignette variables (Level One) as the fixed effects to determine statistical significance as predictors for each dependent variable. Second, another model was created which only contained the Level Two variables (independent variables). Variables which did not create statistically significant model were removed from the model, and another single term was included. When all relevant variables were included, the ones that made a significant difference in the model were included in the next progression which included the random effects (vignette characteristics).

Variables which did not create better models were excluded from the next round of models which were used to assess the statistically significant variables in a model which these models included a full factorial design among the Level One variables as fixed effects, Level Two variables (which are always the IVs), and the vignette characteristics as the random effects. A final model was run from a theoretical standpoint to determine if there were statistically significant variables which had be excluded at an earlier stage or were needed to control for some type of spurious relationship.

CHAPTER FIVE

DISCUSSION

Introduction

The primary purpose of this study was to study the effects of training, relationships, and the availability of resources had on different response strategies law enforcement offers could employ when responding to a call for service in which there was a person at the scene with a suspected mental health diagnosis. At the time of this study, I was not aware of any other studies which measure these ideas using a factorial design. The closest study was completed in 2004 which used a factorial survey to judge officer's decision-making process; however, the study focused on police perceptions and the only vignette dimension with multiple levels was a race variable (Cooper et al., 2004).

The last chapter of this dissertation was separated into subsections. To begin, a discussion of the relevant findings is discussed in light of the research questions and the hypotheses. This discussion includes whether the hypotheses were supported by the data and speculation as to why some of the results were not supported by the data. Following the relevant findings, there is a brief discussion of the policy implications for the study. Although there was a lack of of statistical significance among individual independent variables, the policy implication section discusses the study's results in conjunction with policy implications suggested by the literature. The next section discusses the limitations that were faced in this study; followed by a brief look at future research.

Relevant Findings

Table 65

Hypotheses Summary

	RQ1	RQ2	RQ3
HYPO1	Not Supported	Not Supported	Supported
HYPO2	Not Supported	Not Supported	Not Supported
HYPO3	Not Supported	Not Supported	Supported

Research Question One

How does Crisis Intervention Training (CIT) affect the way in which officers respond to mental health calls for service? This RQ had three hypotheses which are directly, and indirectly, affected by CIT training, whether the person is a cadet or officer, and if they volunteered for any CIT training to which they have been exposed. To begin, in both the overall models, and the model 3s (created based on the most relevant and statistically significant variables) none of the key independent variables were statistically significant in any model regardless of the dependent variable. When analyzing the first hypothesis RQ1.H1: there was a difference in response based on if the respondent is an officer or cadet. The variable *CIT/POL* only created a better fitting model at the Level Two variable model attempting to predict the likelihood of arrest ($p<0.05$). When analyzing the remaining models, this variable was no longer helpful in creating better models, nor did it become statistically significant at the individual level. For RQ1:H1, the hypothesis is not supported by the results, and the conclusion is there is no difference between the way cadets and officers responded to the likelihood of arrest.

The next hypothesis focused on whether the officer or cadet volunteered for the CIT training or did not volunteer for the CIT training (RQ1.H2). Similar to RQ1.H1, this variable was never statistically significant at the individual level; instead I assessed the model fit to determine if these variables created statistically better models. Across all models, and regardless of the DV, the *CITVol* variable had the largest impact on reducing the model's -2LL. Although, not directly interpretable, it was clear that by including the variable which measured if the respondent volunteered for the CIT training made a statistically significant better model. The literature supports the hypothesis, indicating that officers who are chosen or want to participate in the CIT training have better problem-solving skills (Bower & Pettit, 2011), tend to be more interpersonal (Thelander, 1997), and these positive interactions can stop a situation from escalating (Courey et al., 2008).

Overall, the final hypothesis (RQ1.H3) suggests that officers or cadets who have had CIT training will differ in their responses when compared to those who have not had any CIT training. Similar to the *CITVol*, the *CIT* variable was not statistically significant at the individual level. More so, it was not always included in all models because in some instances, it did not create statistically better models. For example, when the DV was *arrest*, or *involuntarily commit*, the *CIT* variable did make statistically better models. Overwhelmingly, the literature supports the importance of using CIT training to keep individuals with serious mental health diagnoses out of the criminal justice system (Bower & Pettit, 2011; Teller et al., 2006; Watson et al., 2010). However, in the *informal resolution* and *do nothing* models, this variable did not make a statistically significant difference.

These results were very surprising because the literature is clear about officers wanting more training to be better equipped to handle these situations, as well as, the notion that due to

their lack of experience, cadets would have statistically different responses than officers (Lord & Bejerraard, 2014). Additionally, Ruiz and Miller (2004) suggest that the level of confidence an officer has is directly influenced by the training and policies in existent in their departments. And, more consequently, Bittner (1967) reports that officers are not necessarily confident in having to interact with individuals with mental health disorders. Thus, it stands to reason the more CIT programs implemented within departments, the increased level of confidence, and less instances of excess use of force used on individuals with mental illnesses. With that being said, the internal validity of model increased as the *CIT* and *CITVol* variables were added, which could be speculated that the key IVs are important in determining the dependent variable, but there is something else more important effecting the way the participants responded.

Research Question Two

The next research question was: does the officer's response to the call for service change based on professional, or personal relationships held by the officers? There were three hypotheses included in this research question which focused on the relationship respondents had with individuals who would be able to help while the officer responded to a call for service, individuals whom they knew with serious mental health disorders, and the difference between the two relationships. RQ2.H1 stated: police are more likely to divert individuals from the criminal justice system if they have a professional relationship with a mental health liaison, or individual, who works in the mental health field. The *professional* relationship variable was never statistically significant at the individual level, meaning the data does not support this hypothesis. However, when taking the -2LL change into consideration, the *professional* variable made statistically better models across each model building phase and three of the four

dependent variables. The only DV in which having a professional relationship did not have an impact was the *do nothing* DV.

In the second hypothesis, I hypothesized that police are more likely to divert individuals from the criminal justice system if they know someone personally who has a serious mental illness when compared to a respondent who does not know someone with a serious mental illness. This hypothesis stems largely from the research conducted on Mobile Crisis Team (MCT) and the success the MCTs have had diverting individuals away from the criminal justice system (Kisely et al., 2010; Lord & Bjerregaard, 2014; Steadman et al., 2000). The success of MCT was due in large part to the support the officers were offered by on-call clinicians, or clinicians who would go to the call for service after being called by the police dispatcher. Unfortunately, the *family* variable was never statistically significant, nor did it increase the model fit in anyway regardless of the dependent variable. Thus, RQ2.H2 was not supported by this study, nor does it seem to be a statistically relevant variable.

The last hypothesis (RQ2.H3) compares the relationship between a family or friend and a professional contact: police who know someone with a mental illness are more likely to divert an individual away from the CJS than police who report only knowing a mental health care professional. Even though this cannot be directly answered because neither variable was statistically significant. It should be mentioned that when determining model fit, the *family* variable was not statistically significant, and the *professional* relationship variable was significant. This could indicate that this hypothesis is incorrect, and in fact the *professional* relationship variable is more important in predicting the likelihood of individuals being diverted away from the criminal justice system, however this is speculation.

Only some of the results discussed are surprising considering the literature about the topic. For example, RQ2.H2 was not supported by the data, indicating that, even when having a family member who has been diagnosed with a serious mental illness there was not statistical benefit to including it in the model. Furthermore, the *family* variable was never statistically significant at the individual level. However, considering the date of Bonovitz and Bonovitz' (1981) study reporting the importance of social interactions, and acting informally it may be worth exploring more specific relationships, for example: child, parents, siblings of the officers.

Despite the lack of support for the *family* variable, having a professional relationship (RQ2.H1), did increase the goodness of fit in most models when predicting the dependent variable. This speaks to Burt's (1992) and Granovetter's (1973) conclusion that having multiple relationships outside a single "group" goes a long way in increasing the amount of knowledge one would be able to receive. Additionally, officers who responded yes to knowing someone professionally whom they could contact, may be in a "bridge position" giving them the opportunity to rely messages between their departments and their professional contacts (Cohen et al., 2000; Cornwell & Waite, 2009). Due the important role the *professional* variable played in the increased model fit, I think it would be important to explore these relationships in more detail to determine the level of effectiveness.

Research Question Three

The final research question was the only research question which produced some statistically significant results regarding the hypotheses presented under RQ3. RQ3 asked: - Do police responses change based on the number and type of mental health resources in the immediate area? Thus, the final three hypotheses focus on the resources that are available to officers and the likelihood of diverting the individual from the criminal justice system. To begin,

I hypothesized that the more mental health resources (MHR) available in each geographical location will increase the rate of diversion from the criminal justice system (RQ3.H1). The hypothesis is supported by Engel and Silver (2001) who suggest that when there is a lack of resources in the area, there are only really two options for the officer(s) arrest or let them go. The *resource* variable which measured the number of available mental health resources in the area, was continuously important in creating statistically better models. Across all of the dependent variables, the *resource* variable created a better model both at the Level Two only models and when the vignettes were included as random slopes. It also was statistically significant when predicting the likelihood of the respondent arresting the individual. This slope indicated that as the number of resources increased by 1, the likelihood of arrest decreased by approximately 0.50% percent which can add up when discussing the range of available resources (from 1 to 50 in a given area). This hypothesis was supported by the literature (Engel & Silver, 2001) as well as the data. It is important to consider the importance of the available resources for police officers, especially when there is a public outcry for reform. Systems Theory supports these claims, suggesting that as one system fails, so do the systems which have stake in the original system. In this case, the mental health system and the criminal justice system, respectively.

Secondly, I hypothesized that the type of the MHR will be more important for diversion from the criminal justice system than the number of MHRs in a geographical location (RQ3.H2). Unfortunately, the types of mental health facilities and the number of resources cannot be directly compared because they were not statistically significant at the same time. However, when considering the impact, the $\chi 2$ change has on the -2LL, it was clear that the *number of resources* in the area had a much more significant impact when compared to the *type of MHR*. In fact, the type of mental health resource only mattered when attempting to predict the likelihood

of involuntary commitment. Even still, it had the smallest $\chi 2$ change. I speculate that this is largely due to the idea that any resource(s) is better than having no resources. Despite some of the types of resources being significant at the individual level, there were multiple types of resources which never created better models given a change in the -2LL.

The final hypothesis focused on the impact that a negative experience has on the likelihood of involuntarily committing an individual based off prior experience. I hypothesized that, officers who have had a negative experience when involuntarily committing an individual, will be less likely than officers who have had a positive or no experience involuntarily committing an individual, to try to have them involuntarily committed. As with many of the other variables of interest, the variable which measured if the person had a bad experience involuntarily committing an individual was statistically insignificant at the individual level. This was also a surprising result as many of the pre-tested officers, or those who agreed to provide variable feedback on what should be on the survey, many of them indicated their dissatisfaction with the involuntary commitment process due to negative experiences. Despite not have a statistically significant slope to support the hypothesis, the variable *negative experience* consistently decreased the -2LL across all DV. This indicated that the inclusion of whether the person had a negative experience statistically effects the overall goodness of fit even if the variable is not statistically significant.

Potential Policy Implications

Police are typically wary of individuals with mental illness because they are perceived as being extra-dangerous and unpredictable (Ruiz & Miller, 2004). This is reinforced, in part, by society's negative views of those with mental illness. Such perceptions force the police into one of two responses: either recognizing the need for treatment or arresting a person to protect the

community (Engels & Silver, 2001; Jennings & Hudak, 2005). Such mixed sentiments about how to respond to persons with mental illness (PMI) can prevent an officer from seeing past safety concerns to mental health needs, and historically has led to violence (Morabito et al., 2012).

The biggest policy implication which can be drawn from the study is the important of having adequate resources available for police officers when they respond to calls for service in which the person has a mental health disorder. While the overwhelming number of hypotheses were not supported by the data, it was clear that the number of resources, types of resources, and if the officer had a negative experience when attempting to involuntarily commit someone had a statistically significant effect on the models, regardless of which dependent variable was being predicted. More so, studies suggest that there is a link between outpatient treatment centers and a decrease in felonies (Constantine et al., 2010; Ringhoff, Rapp & Robst, 2012).

As discussed in Chapter IV and in the relevant findings, the Outpatient Mental Health Facility (OMH) was statistically significant at the individual level, indicating a decrease in likelihood of arrest, and involuntary commitment; while increasing the likelihood of informal resolution. Perez et al. (2003) draw the same conclusion, reporting that individuals who do not have adequate treatment resources are more likely to end up in the criminal justice system. More so, when applying the Systems Theory to the criminal justice and mental health systems, because we still lack adequate resources for MDI, and lack available resources for officers to divert from the criminal justice system, both systems are unable to effectively manage this population of individuals (Cotton & Coleman, 2010).

The second potential policy implication is the inclusion of CIT and CITVol concepts into police forces. Again, while not statistically significant at the individual level, these variables

created significant changes in the models across dependent variables. More importantly, CIT already has shown to have a significant impact on how police officers respond to mental health calls for service (Compton, Broussard, Reed, Crisafio & Watson, 2015; Morabito et al., 2012). Additionally, according to research when officers are provided with the right training and adequate resources, the likelihood a situation escalating will decrease (Morabito et al., 2012; Taheri, 2014). And most importantly when discussing policy implications of training strategies for officers is the willingness of the officers to engage and internalized the strategies. To that point, CITVol was consistently the biggest impact on creating a good model, and according to Lord and Bejerraard (2014), officers are requesting de-escalation techniques and strategies for identifying a mentally disordered individual.

Consider Peplau's (1992) Theory of Interpersonal Relations, given the strong, and statistically significant evidence presented by the importance of interpersonal relationships when working or engaging with MDI. Studies suggest that MDI have a difficult time communicating and relating with other people; this is similar to the Peplau's (1992) findings about psychiatric patients. Using components of CIT that provide a supportive environment, one-on-one attention, and officers who understand MDI, officers may be able to de-escalate situations following Peplau's Theory of Interpersonal Relations (Peplau, 1992).

Limitations

Quasi-experimental designs can sometimes be used for generalizability even though it is not a "true experiment." According to Bachman and Schutt (2010), when true experiments are conducted in a laboratory setting, it is unlikely that the sample population can describe the same predicted outcomes in the true population. Quasi-experimental designs can be more cost effective, more feasible, present significant findings and are best suited for looking at issues that

occur in real life (Bachman, & Schutt, 2010; Muijs, 2011). In a true experiment, the setup is artificial, while controlling for all variables in a laboratory setting, all variables cannot be controlled in real life; this is where the control becomes a disadvantage for a true experiment design and an advantage for quasi-experimental designs (Muijs, 2011). A disadvantage of using a quasi-experimental design is the difficulty of establishing causality. The difficulty stems from confounding variables, otherwise known as spuriousness (Bachman, & Schutt, 2010). That was to say, the study did not show that individuals who have some type of mental health training are more likely to divert individuals away from the criminal justice, when in reality there are more factors which play into why an individual is ultimately diverted away from the criminal justice system.

Another limitation is lack of complexity within the vignette dimensions and levels. Ausperg and Hinz (2016) suggest having at least five dimensions with a minimum of two levels within each dimension. However, this dissertation only has four dimensions within each vignette. This can create a repetitive set of questions which makes it easier for respondents to identify the variables which are being manipulated within the study. To decrease the likelihood of participants identifying the underlying variables, each was exposed to only five vignettes.

Finally, as discussed above, this dissertation used a convenience sample of officers and cadets. While I maintain that the homogenous nature of officers, and isomorphic pressures placed on police departments and subsequently the officers, makes a convenience sample less of an issue in this particular study, to increase the generalizability of the study, simple-random sampling should be used. It also would be important, despite the above argument against the need to insulate variables regarding officers, to separate officers into state and local officers, and the rank of those officers.

Future Research

Considering the methodological limitations of this study, future research should include more complicated vignette dimensions and levels to tease out which vignette variables are truly having an effect on how the participants are responding. The most important aspect of these methodological limitations was the sample size, and sampling strategy. Therefore, a better, and larger sample is needed to increase the methodological rigor of the vignettes and provide a more representative sample of local police officers. A larger sample size would allow for more complicated vignettes, a more representative sample, and decrease the limitations associated with having a small sample.

There are multiple aspects of the vignettes which should be investigated in future research. To start, the inclusion of more dimensions, and multiple levels within the dimensions, would create more complicated vignettes. The vignettes which were presented in this study, began with every caller indicating that the person had a mental illness. To determine if this indication of mental illness influenced the likelihood of *arrest, involuntary commitment, informal resolution,* and *doing nothing*, vignettes should have multiple levels where the caller does not indicate any mental illness, as well. Another factor that should be considered, is presenting vignettes which are specific situations officer may face. For example, the officer responds to a call for service at a private residence. Finally, there should be a dimension within the vignettes to assess the level of threat toward the public, as well as the police officer(s) and allow the officers to respond by using some type of use of force.

Due to the inconclusiveness of this dissertation, key IVs were critical to creating good models of fit but were not statistically significant at the individual level, future research should start small by beginning with the most relevant variables from the literature and work up. This

will allow the research to be supported and provide more of an explanatory factor of the key IVs. Finally, future research should spend more time looking at officer perceptions of interacting with individuals with mental health disorders as there is currently no consensus on officer's perceptions as they respond to these types of calls for service.

Conclusion

Despite the majority of the hypotheses not being supported by the data, this dissertation accomplished its goal of adding to the limited amount of literature there is on police response to mental health calls for service. Given the infrequent use of vignettes in social science research, this dissertation also added to methodological research; specifically, literature on the mixed-modelling approach to factorial surveys. Due to methodological drawbacks and a smaller sample size, the study does not have a lot of reliability. Despite the limitations, this study has provided a lot of useful and relevant results. When building models, the key independent variables created significantly better models; in fact, overwhelmingly the key IVs critical to making the best models. As previously mentioned, this dissertation was exploratory in nature as mixed methods often is underutilized in academic research (Luke, 2011). More so, there is a lack of research using factorial surveys to measure police perceptions about mental health calls for service.

The most important finding from this dissertation is the importance of having adequate resources for police officers. Reviewing the results of RQ3 from a statistical and theoretical perspective, it was clear that the literature supports the results of this study regarding MHRs. Additionally, although not the purpose of this study, the results indicates there was a statistical benefit to building models from the bottom-up with exploratory research. Mental health literature should continue to include evaluate the perceptions of police response to mental health calls for

service and strive to get a better idea about how to help individuals with mental health disorders navigate the criminal justice system.

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Ray, B. (2014). Long-term recidivism of mental health court defendants. *International Journal of Law and Psychiatry, 37*, 448-454. doi.org/10.1016/j.ijlp.2014.02.017

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Appendix A

Department Recruitment Letter

Greetings,

My name is Kayla Jachimowski and I am currently a doctoral candidate at Indiana University of Pennsylvania. I am conducting research regarding Crisis Intervention Teams (CITs). I am writing to ask if you would allow me to survey officers in your department. The survey has been created with input from law enforcement officers and police academy instructors. In addition, the survey was pretested by this same group of law enforcement officials. Each reviewer was able to finish the survey in its entirety in less than 10 minutes. The survey can be administered in-person using paper and pencil (during your roll-call periods, for example), or I can provide you with a link which will allow officers to take the survey online. I have attached a sample survey link to this letter for you to review.

If you are interested in helping me with my dissertation research, please contact me and I can provide you with more details and answer any questions you might have.

Sample survey link: https://goo.gl/qWtjv5

If you have any questions please do not hesitate to contact me.

Thank you for your time and consideration, as well as your service; I look forward to hearing from you.

Sincerely,

Kayla G. Jachimowski
Doctoral Student
Department of Criminology and Criminal Justice
Indiana University of Pennsylvania
Wilson Hall, Room G-10
411 North Walk
Indiana, PA 15701
k.g.jachimowski@iup.edu
Office: 724-357-5978

Appendix B

Informed Consent Form [Officer Online]

IUP Department of Criminology
Wilson Hall, Room 202
Indiana, Pennsylvania 15705

Dear Officer,

You are invited to participate in a research study. The attached survey is designed to gather information about Crisis Intervention Teams and Mental Health Training. The answers and personal data you provide will be analyzed and reported only in a group format so that all individual answers will remain confidential. Even the researchers will not be able to identify individual survey participants. The survey should take no more than 10 minutes to complete.

Your participation is completely voluntary. You may choose to withdraw or not participate at any time simply by exiting the browser. There will not be any penalty for non-participation. There will be no benefit for participating other than to assist the researcher. Your participation is anonymous and all information will be held in the strictest confidence. If you are under the age of 18 years old, please do not complete the survey. Though your perceptions remain important, statutory regulations prohibit our solicitation of your responses.

There are no known risks for participating in this research. THIS PROJECT HAS BEEN APPROVED BY THE INDIANA UNIVERSITY OF PENNSYLVANIA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS (PHONE 724-357-7730).

Other than for personal data asked about at the end of the survey, please do not put any other identifying information on the survey. The personal data are requested only for the research. If you are not comfortable completing the personal data portion of the survey, please complete only the questions and submit the form without entering your personal data. All completed surveys will remain secured and only the researcher and her faculty mentor will have access to them.

If at any time you have questions, please ask. You can contact Kayla Jachimowski or Dr. Jonathon Cooper at the address or telephone numbers listed below.

Your participation in this survey is very important to us. Please follow the directions provided on the survey. Respond to all the questions honestly, knowing that there are no right or wrong answers.

By continuing to the survey, you are indicating that you have read the description of the study, are at least of the age of 18, and that you agree to the terms as described.

Thank you for your assistance in this research.

Sincerely,

Kayla Jachimowski (724-357-2720)
Jonathon Cooper, Ph.D. (724-357-2720)
Department of Criminology
200 Wilson Hall
Indiana University of Pennsylvania
Indiana, PA 15705

Appendix C

Informed Consent Form [Officer In-Person]

IUP Department of Criminology
Wilson Hall, Room 202
Indiana, Pennsylvania 15705

Dear Officer,

You are invited to participate in a research study. The attached survey is designed to gather information about Crisis Intervention Teams and Mental Health Training. The answers and personal data you provide will be analyzed and reported only in a group format so that all individual answers will remain confidential. Even the researchers will not be able to identify individual survey participants. The survey should take no more than 10 minutes to complete.

Your participation is completely voluntary. You may choose to withdraw or not participate at any time simply by stopping where you are in the survey and leaving the remainder of the survey blank. If you decide not to participate, or if you are under the age of 18 years old, please remain seated and turn the blank or partially completed survey in when the completed surveys are collected. There will not be any penalty for non-participation. There will be no benefit for participating other than to assist the researcher. Your participation is anonymous and all information will be held in the strictest confidence. If you are under the age of 18 years old, please do not complete the survey. Though your perceptions remain important, statutory regulations prohibit our solicitation of your responses.

There are no known risks for participating in this research. THIS PROJECT HAS BEEN APPROVED BY THE INDIANA UNIVERSITY OF PENNSYLVANIA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS (PHONE 724-357-7730).

Other than for personal data asked about at the end of the survey, please do not put any other identifying information on the survey. The personal data are requested only for the research. If you are not comfortable completing the personal data portion of the survey, please complete only the questions and submit the form without entering your personal data. All completed surveys will remain secured and only the researcher and her faculty mentor will have access to them.

If at any time you have questions, please ask. You can contact Kayla Jachimowski or Dr. Jonathon Cooper at the address or telephone numbers listed below.

Your participation in this survey is very important to us. Please follow the directions provided on the survey. Respond to all the questions honestly, knowing that there are no right or wrong answers.

<u>By continuing to the survey, you are indicating that you have read the description of the study, are at least of the age of 18, and that you agree to the terms as described.</u>

Thank you for your assistance in this research.

Sincerely,

Kayla Jachimowski (724-357-5978)
Jonathon Cooper, Ph.D. (724-357-7740)
Department of Criminology
202 Wilson Hall
Indiana University of Pennsylvania
Indiana, PA 15705

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Appendix D

Informed Consent Form [Cadet]

IUP Department of Criminology
Wilson Hall, Room 202
Indiana, Pennsylvania 15705

Dear Cadet,

You are invited to participate in a research study. The attached survey is designed to gather information about Crisis Intervention Teams and Mental Health Training. The answers and personal data you provide will be analyzed and reported only in a group format so that all individual answers will remain confidential. Even the researchers will not be able to identify individual survey participants. The survey should take no more than 10 minutes to complete.

Your participation is completely voluntary. You may choose to withdraw or not participate at any time simply by stopping where you are in the survey and leaving the remainder of the survey blank. If you decide not to participate, or if you are under the age of 18 years old, please remain seated and turn the blank or partially completed survey in when the completed surveys are collected. There will not be any penalty for non-participation. There will be no benefit for participating other than to assist the researcher. Your participation is anonymous and all information will be held in the strictest confidence. If you are under the age of 18 years old, please do not complete the survey. Though your perceptions remain important, statutory regulations prohibit our solicitation of your responses.

There are no known risks for participating in this research. THIS PROJECT HAS BEEN APPROVED BY THE INDIANA UNIVERSITY OF PENNSYLVANIA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS (PHONE 724-357-7730).

Other than for personal data asked about at the end of the survey, please do not put any other identifying information on the survey. The personal data are requested only for the research. If you are not comfortable completing the personal data portion of the survey, please complete only the questions and submit the form without entering your personal data. All completed surveys will remain secured and only the researcher and her faculty mentor will have access to them.

If at any time you have questions, please ask. You can contact Kayla Jachimowski or Dr. Jonathon Cooper at the address or telephone numbers listed below.

Your participation in this survey is very important to us. Please follow the directions provided on the survey. Respond to all the questions honestly, knowing that there are no right or wrong answers.

<u>By continuing to the survey, you are indicating that you have read the description of the study, are at least of the age of 18, and that you agree to the terms as described.</u>

Thank you for your assistance in this research.

Sincerely,

Kayla Jachimowski (724-357-5978)
Jonathon Cooper, Ph.D. (724-357-7740)
Department of Criminology
202 Wilson Hall
Indiana University of Pennsylvania
Indiana, PA 15705

Appendix E

Pre-Test Survey

PRE-TEST

Thank you for volunteering to pre-test the following survey on police response to mental health calls for service. Due to your expertise in this area, I am very interested in any comments you have regarding the wording, the scenarios, or in general; for example, the survey layout, or missing information which may be important to get a complete understanding of the response. While taking the survey, please time how long it takes to complete the survey in its entirety. Note: Your answers will not be used in any research - after reading your feedback the survey will be discarded. Upon completion contact me and I can make arrangements for it to be picked up. If you have any questions please feel free to contact me at k.g.jachimowski@iup.edu.

Thank you again, your time and comments are appreciated.

Best,

Kayla G. Jachimowski
Doctoral Candidate
Department of Criminology & Criminal Justice
Indiana University of Pennsylvania
411 North Walk Rm. G-10
Indiana, PA 15705
724-357-5978
k.g.jachimowski@iup.edu

SECTION 1

Instructions: Please read each of the following scenarios. After you will be asked to answer questions about how you would respond to each situation as described in the scenario There are no right or wrong answers.

Example: After a long week at work, Nicole and some colleagues decide to go out and have a drink at a local bar. Nicole works as a veterinary technician and has had to make tough decisions regarding the health of an animal. Using the following scale, how likely do you feel it is that Nicole would get each one of the following alcoholic drinks?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely Certain

Chance of Nicole ordering hard liquor, straight: 20%
Chance of Nicole ordering hard liquor with a mixer: 80%
Chance of Nicole ordering a beer or hard cider: 75%
Chance of Nicole ordering another category of drink not listed: 30%

Begin answering the following survey questions

1. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and threatening suicide. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transport them to your holding facility: _____

Likelihood of arresting the person and seek to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (ie: conflict resolution, warning):_____

Likelihood of doing nothing and leaving the scene: _____

2. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is acting strange and arguing with objects, they appear to be hallucinating. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transport them to your holding facility: _____

Likelihood of arresting the person and seek to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (ie: conflict resolution, warning):_____

Likelihood of doing nothing and leaving the scene: _____

3. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transport them to your holding facility: _____

Likelihood of arresting the person and seek to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (ie: conflict resolution, warning):_____

Likelihood of doing nothing and leaving the scene: _____

4. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is acting strange and threatening suicide. When you arrive on the scene you identify as a police officer and the female is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transport them to your holding facility: _____

Likelihood of arresting the person and seek to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (ie: conflict resolution, warning):_____

Likelihood of doing nothing and leaving the scene: _____

5. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the female is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transport them to your holding facility: _____

Likelihood of arresting the person and seek to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (ie: conflict resolution, warning):_____

Likelihood of doing nothing and leaving the scene: _____

SECTION 2

The next of questions are general questions about your professional and personal experience as a police officer. Check the most appropriate box. Please answer the following questions as accurately as possible.

Have you ever received any type of *mental health* or *crisis intervention training?* If yes, go to the next question, if no, skip the next question.

- ❑ Yes
- ❑ No

Did you volunteer for the *mental health* or *crisis intervention training*?

- ❑ Yes
- ❑ No

Do you know someone professionally whom you can contact for questions on mental health, or if you need help during a call for service?

- ❑ Yes
- ❑ No

Do you know someone with a serious mental illness, such as schizophrenia, bi-polar/manic, or major depressive disorder?

- ❑ Yes
- ❑ No

Have you ever had a negative experience while trying to involuntarily commit an individual?

- ❑ Yes
- ❑ No

How many years have you been a sworn police officer? If less than one year, please indicate that.

- ❑ _____

SECTION 3

The final section of the survey is your personal data. Please answer the questions as accurately as possible.

What is your sex?

- ❑ Male
- ❑ Female

In years, how old will you be at the conclusion of this year?

- ❑ _____

Which of the following racial or ethnic group do you most closely identify? *Check all that apply.*

- ❑ African American
- ❑ Asian
- ❑ Caucasian
- ❑ Hispanic/Latino
- ❑ Other: _____ (please indicate)

Space for comments (feel free to write next to the questions as well):

_____
_____
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_____

Time to complete: _____

Name and title: _____

Appendix F

Example Officer Survey

SECTION 1

Instructions: Please read each of the following scenarios. After you will be asked to answer questions about how you would respond to each situation as described in the scenario There are no right or wrong answers.

Example: After a long week at work, Nicole and some colleagues decide to go out and have a drink at a local bar. Nicole works as a veterinary technician and has had to make tough decisions regarding the health of an animal. Using the following scale, how likely do you feel it is that Nicole would get each one of the following alcoholic drinks?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely Certain

Chance of Nicole ordering hard liquor, straight:	25%
Chance of Nicole ordering hard liquor with a mixer:	86%
Chance of Nicole ordering a beer or hard cider:	71%
Chance of Nicole ordering another category of drink not listed:	30%

Begin answering the following survey questions

1. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and threatening suicide. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

2. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is acting strange and arguing with objects, they appear to be hallucinating. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

3. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

4. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is acting strange and threatening suicide. When you arrive on the scene you identify as a police officer and the female is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

5. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the female is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

SECTION 2

The next of questions are general questions about your professional and personal experience as a police officer. Check the most appropriate box. Please answer the following questions as accurately as possible.

Have you ever received any type of *mental health* or *crisis intervention training?* If yes, go to the next question, if no, skip the next question.

- ❑ Yes
- ❑ No

Did you volunteer for the *mental health* or *crisis intervention training*?

- ❑ Yes
- ❑ No

Do you know someone professionally whom you can contact for questions on mental health, or if you need help during a call for service?

- ❑ Yes
- ❑ No

Do you know someone with a serious mental illness, such as schizophrenia, bi-polar/manic, or major depressive disorder?

- ❑ Yes
- ❑ No

Have you ever had a negative experience while trying to involuntarily commit an individual?

- ❑ Yes
- ❑ No
- ❑ Not Applicable

Think of the place you patrol most frequently, how would you categorize that area?

- ❑ Urban
- ❑ Suburban
- ❑ Rural

How would you classify the size of your department?3

- ❑ Small (oversees a population of 9,999 citizens or less)
- ❑ Medium (oversees a population of 10,000 to 99,999 citizens)
- ❑ Large (oversees a population of 100,000 or more)

How many years have you been a sworn police officer? If less than one year, please indicate that.

- ❑ _____

SECTION 3

The final section of the survey is your personal data. Please answer the questions as accurately as possible.

What is your sex?

- ❑ Male
- ❑ Female

In years, how old will you be at the conclusion of this year?

- ❑ _____

Which of the following racial or ethnic group do you most closely identify? *Check all that apply.*

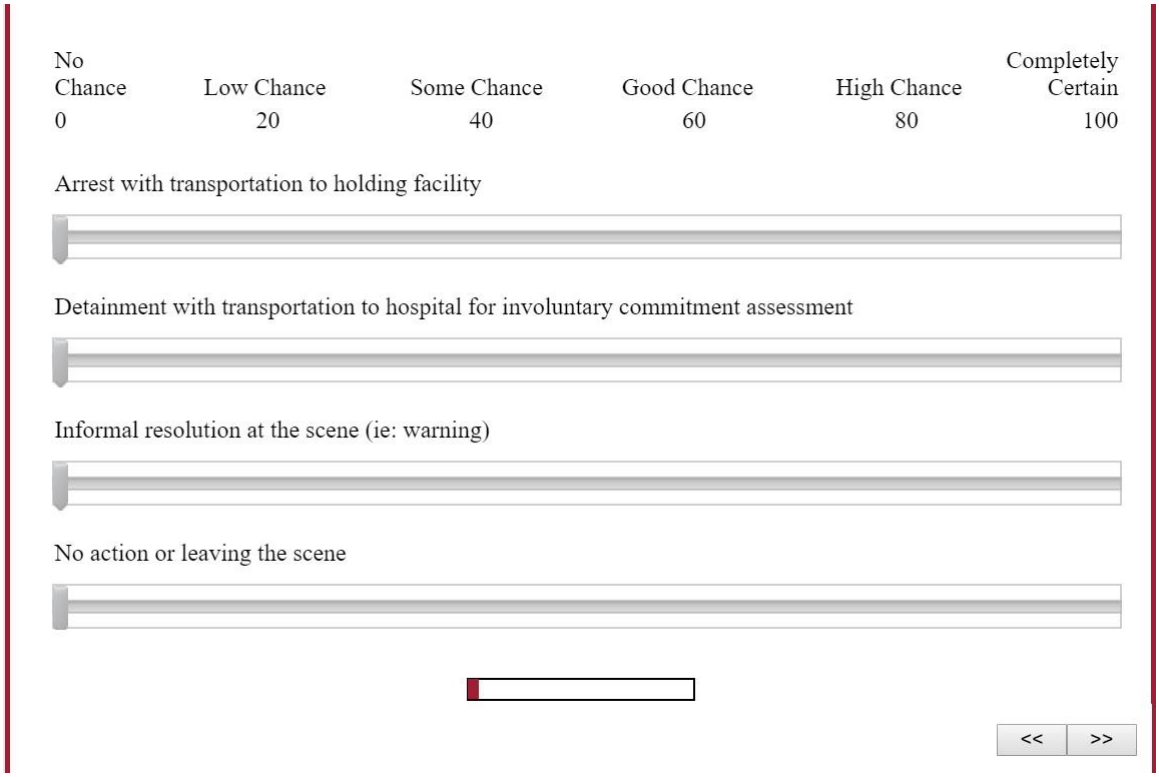
- ❑ African American
- ❑ Caucasian
- ❑ Hispanic/Latino
- ❑ Asian
- ❑ Other: _____ (please indicate)

Please write in the County and State in which your department jurisdiction falls.

- ❑ _____

Appendix G

Slider Bar



Appendix H

Example Cadet Survey

SECTION 1

Instructions: Please read each of the following scenarios. After you will be asked to answer questions about how you would respond to each situation as described in the scenario There are no right or wrong answers.

Example: After a long week at work, Nicole and some colleagues decide to go out and have a drink at a local bar. Nicole works as a veterinary technician and has had to make tough decisions regarding the health of an animal. Using the following scale, how likely do you feel it is that Nicole would get each one of the following alcoholic drinks?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely Certain

Chance of Nicole ordering hard liquor, straight:	25%
Chance of Nicole ordering hard liquor with a mixer:	86%
Chance of Nicole ordering a beer or hard cider:	71%
Chance of Nicole ordering another category of drink not listed:	30%

Begin answering the following survey questions

1. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and threatening suicide. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

2. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is acting strange and arguing with objects, they appear to be hallucinating. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

3. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

4. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is acting strange and threatening suicide. When you arrive on the scene you identify as a police officer and the female is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

5. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, the individual is asking for money from pedestrians and is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the female is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Chance		Low Chance		Some Chance		Good Chance		High Chance		Completely

Likelihood of arresting the person and transporting them to your holding facility: _____

Likelihood of arresting the person and seeking to have them involuntarily committed:_____

Likelihood of an informal resolution at the scene (i.e., conflict resolution, warning): _____

Likelihood of doing nothing and leaving the scene: _____

SECTION 2

The next of questions are general questions about your professional and personal experience as a police officer. Check the most appropriate box. Please answer the following questions as accurately as possible.

Have you ever received any type of *mental health* or *crisis intervention training?* If yes, go to the next question, if no, skip the next question.

- ❑ Yes
- ❑ No

Did you volunteer for the *mental health* or *crisis intervention training*?

- ❑ Yes
- ❑ No

During your courses at the Criminal Justice Training Center, have you discussed or been trained on dealing with individuals who appear to have a mental illness?

- ❑ Yes
- ❑ No

Do you know someone professionally whom you can contact for questions on mental health, or if you need help during a call for service?

- ❑ Yes
- ❑ No

Do you know someone with a serious mental illness, such as schizophrenia, bi-polar/manic, or major depressive disorder?

- ❑ Yes
- ❑ No

How many weeks have you been attending courses at the Criminal Justice Training Center?

- ❑ _____

SECTION 3

The final section of the survey is your personal data. Please answer the questions as accurately as possible.

What is your sex?

- ❑ Male
- ❑ Female

In years, how old will you be at the conclusion of this year?

- ❑ _____

Which of the following racial or ethnic group do you most closely identify? *Check all that apply.*

- ❑ African American
- ❑ Asian
- ❑ Caucasian
- ❑ Hispanic/Latino
- ❑ Other: _____ (please indicate)

Appendix I

Vignette Universe

1. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and threatening suicide. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

2. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and threatening suicide. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

3. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and threatening suicide. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

4. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and threatening suicide. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

5. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and arguing with objects and appears to be hallucinating. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

6. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and arguing with objects and appears to be hallucinating. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

7. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and arguing with objects and appears to be hallucinating.

When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

8. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and arguing with objects and appears to be hallucinating. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

9. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and person is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

10. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and the person is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the male is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

11. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and the person is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

12. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and the person is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the male is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

13. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and threatening suicide. When you arrive on the scene you identify as a police officer and the female is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

14. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and threatening suicide. When you arrive on the scene you identify as a police officer and the female is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

15. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and threatening suicide. When you arrive on the scene you identify as a police officer and the female is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

16. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and threatening suicide. When you arrive on the scene you identify as a police officer and the female is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

17. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and arguing with objects and appears to be hallucinating. When you arrive on the scene you identify as a police officer and the female is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

18. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and arguing with objects and appears to be hallucinating. When you arrive on the scene you identify as a police officer and the female is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

19. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and arguing with objects and appears to be hallucinating. When you arrive on the scene you identify as a police officer and the female is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

20. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and arguing with objects and appears to be hallucinating. When you arrive on the scene you identify as a police officer and the female is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

21. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and person is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the female is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

22. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is

acting strange and the person is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the female is unresponsive to your commands. Using the following scale, how likely are you to do each of the following actions?

23. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is asking for money from pedestrians and the person is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the female is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?

24. While you are on patrol you receive a call for service, the dispatcher relays that the caller indicated the individual has a mental illness. According to the caller, there is an individual who is acting strange and the person is exhibiting signs of intoxication. When you arrive on the scene you identify as a police officer and the female is responsive to your commands. Using the following scale, how likely are you to do each of the following actions?