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Effectiveness of the Mandt System Aggression Management Training in an Inpatient Behavioral Health Program

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Effectiveness of *The Mandt System* aggression management training in an inpatient behavioral health program

By

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Effectiveness of the *Mandt System* aggression management training in an inpatient behavioral health program

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Research is lacking on the efficacy of aggression management training programs based on clinical outcomes. This study examined the efficacy of an aggression management training on managing aggression and violent behavior at East Mississippi State Hospital (EMSH), an inpatient behavioral health program. This training, *The Mandt System*, replaced a previous training, *Techniques for the Management of Aggressive Behavior* (TMAB), which was considered to be non-replicable outside state facilities in Mississippi. This study should not be seen as a comparative study between The Mandt System and TMAB, but rather as an investigation into the effects of implementing The Mandt System as a new training at EMSH.

The efficacy of The Mandt System was examined through 4 key variables: patient to patient incidents, patient to staff incidents, seclusion episodes and restraint episodes. Over a 6 year period, incidents of aggression and violence were identified by extracting archival data from incident reports. Archival data were examined 3 years prior to the implementation of The Mandt System and 3 years after the implementation of the training. The researcher found that the rate of patient to patient incidents decreased as

well as the rate of seclusions and restraint episodes following implementation of The Mandt System training. The rate of the patient to staff incidents did not decrease.

Effective training on the management of aggression is essential in decreasing aggressive and violent behavior. Nevertheless, these findings are difficult to validate due to a scarcity of research that is supported by evidence from randomized controlled studies.

A review of the literature revealed that researchers do not give precedence to the study of aggression management training when dealing with aggressive behavior in inpatient behavior health settings. This is possibly due to the findings of Hage, Van Meijel, Fluttert, and Berden (2009) that research on the effectiveness of intervention strategies requires a more complicated study design and involves many methodological and logistical challenges. Although the results of this study suggest that this training can have a positive effect on aggression and violence, much more needs to be done to evaluate the effectiveness of aggression management training programs.

DEDICATION

The research and writing of this dissertation is dedicated to the memory of my father, Rev. Richard McDade and to my loving mother, Ocie McDade. My father was the center of my heart, and I miss him dearly. He instilled love, loyalty, respect and the drive to work and play hard in me. While growing up, I followed him around and watched him be the backbone of not only his immediate family but the entire McDade family. I am who I am today because of him.

Deep love and appreciation go to my amazing mother. You were my first friend, my best friend, and my forever friend. You instilled love, dedication, the willpower and the inspiration to further my education. I watched you be a wife and a mother to your five children while studying to become a nurse. You gave me life, nurtured me, taught me, fought for me, and gave sound advice. Most importantly, you gave me unconditional love.

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I hope that this research will contribute significantly to effective aggression management training while caring for individuals with mental disorders.

Yogi

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CHAPTER I

INTRODUCTION

The primary goal of inpatient behavioral health programs is to provide specialized mental health treatment for patients with mental disorders. Simultaneously, these programs are ultimately responsible for providing quality care and maintaining a safe and therapeutic milieu for both their patients and mental health staff. In spite of inpatient behavioral health programs' efforts in providing safeguards to protect their staff and patients, acts of aggression present a major challenge in maintaining this responsibility

According to the Occupational Safety and Health Administration (OSHA, 2004), healthcare and social service workers face significant risks of job-related violence. Mental health staff face an even higher risk of work-related assaults resulting primarily from aggressive and violent behavior of their patients (OSHA, 2004). Each year, injuries from aggressive and violent behavior occur in mental health facilities at alarming rates, resulting in aggression and violence being often cited as a major occupational hazard for mental health staff (Byrnes, 2000).

In 2013, 80% of serious violent incidents reported in healthcare settings were caused by interactions with patients. Patients are the largest source of violence in healthcare settings (OSHA, 2015):

> Healthcare workers are at an increased risk for workplace violence. From 2002 to 2013, incidents of serious workplace violence (those requiring days off for the injured worker to recuperate) were four times more common in healthcare than in private industry on average. In 2013, the broad "healthcare and social assistance" sector had 7.8 cases of serious workplace violence per 10,000 full-time employees. Other large sectors such as construction, manufacturing, and retail all had fewer than two cases per 10,000 full-time employees. (p. 2)

In 2013, the United States Department of Labor (2014) reported that psychiatric aides experienced the highest rate of violent injuries that resulted in days away from work, at approximately 590 injuries per 10,000 full-time employees. This rate is more than 10 times higher than the next group, nursing assistants, who experienced about 55 such injuries per 10,000 full-time employees. Registered nurses experienced about 14 violent injuries resulting in days away from work per 10,000 full-time employees, compared with a rate of 4.2 in the U.S. private industry as a whole.

The workplace violence rates reported by the United States Department of Labor are corroborated by the National Crime Victimization Survey, which estimates that between 1993 and 2009, healthcare workers had a 20% (6.5 per 1,000) overall higher rate of workplace violence than all other workers (5.1 per 1,000; United States Department of Justice, 2011). Research has found that workplace violence is underreported, which suggests that the actual rates may be much higher (Findorff, McGovern, Wall, &

Gerberich, 2005).

According to The Joint Commission (2015), during a 4 year period from 2010 to 2014, there were 185 violent events reported from their accredited organizations. The Joint Commission's Sentinel Event (Joint Commission, 2014) database included 118 reports of rape, 32 reports of homicide, 28 reports of physical assault, and 7 reports of sexual assault. Of the 185 reports, 102 were patient-on-patient violence (61 rapes, 22 homicides and 13 physical assaults) and patient-on-staff violence (six physical assaults). Over half of the 185 reports were committed by and/or on behavioral health/psychiatric patients in a behavioral health setting. These data are consistent with literature reports of violent events in health care settings (The Joint Commission, 2014) which accentuate the need for aggression management training for staff to effectively manage aggression and violent behaviors. Daffern, Howells, and Ogloff (2006) indicated that injuries of staff and co-patients who are the victims of aggression are common consequences of inpatient aggression. Hence, media reports of assaults committed by patients receiving inpatient psychiatric treatment present profound evidence that incidents of aggression and violence are both a reality and a concern for mental health service providers.

In a state mental hospital located in Osawatamie, Kansas, a patient called from his room and summoned a staff member for help. When the worker arrived in the room, she was sexually assaulted by the patient (Rosenberg, 2015). In Minnesota Security Hospital, a patient grabbed a security counselor by the hair, bashed her head into a brick wall and kicked her repeatedly, causing severe injuries (Feshir, 2015). At Riverview Psychiatric Center (state hospital) located in Maine, a patient, in a fit of rage, attacked a nurse with a chair and left her hospitalized with serious injuries to her face and eye (Adams, 2014).

This incident echoed a previous attack at the facility, when a patient became angry because he was denied a visit from his family. The patient attacked a pregnant mental health worker, beating her about the head and stabbing her in the hand with a pen. The Riverview worker told hospital officials a week prior to being attacked that she felt unsafe in the facility and claimed the state failed to protect her, according to a federal lawsuit she filed against the state (Adams, 2014).

A patient at Derry Township psychiatric hospital approached another patient and began punching her in the head with "no provocation." During the alleged assault, the attacked patients' eyeglasses were knocked from her face and broken while she was being choked. The assailant retrieved the broken eyeglass frame and threatened to gouge out the eyes of a second patient who entered the room. The second patient was stabbed on the forehead with the eyeglass frame (Signorini, 2013).

At East Mississippi State Hospital (EMSH), without provocation, a patient became agitated and attacked multiple staff members. Under the assignment of one to one observation with a direct care worker (DCW), the patient placed the DCW in a choke hold. A nurse arrived to assist in de-escalating the incident and was punched in the face by the patient. When a security officer responded to assist the staff, the patient bit the security officer's jaw. In another case at EMSH, a patient grabbed a housekeeper in a firm hold from behind as she walked down the hall and started "humping" on her back. When she yelled for assistance, a DCW responded and was hit in the face by the patient (East Mississippi State Hospital, 2014).

These highly publicized incidents are only a few examples of aggression and violent incidents among mental health staff and patients. Yet, these behaviors are not

new. Aggressive and violent behaviors toward mental health staff working in psychiatric hospitals can be devastating to their physical, psychological, emotional and spiritual well-being (Stubbs & Dickens, 2008) and are a principal cause of staff injuries in psychiatric hospitals (Ilkiw-Lavalle & Grenyer, 2002).

For this reason, implementation of an aggression management training program to manage aggression and violence is imperative in inpatient behavioral health programs that have such incidents. More importantly, the efficacy of aggression management training should be taken into consideration before selecting the training as an intervention to manage aggressive and violent behavior. This study examined the efficacy of The Mandt System (an aggression management training program) in an acute inpatient behavioral health program. The Mandt System replaced Techniques for the Management of Aggressive Behavior (TMAB), an in-house aggression management training that was previously utilized at the inpatient behavioral health program. This study should not be seen as a comparative study between The Mandt System and TMAB, but rather as an investigation into the effectiveness of implementing The Mandt System as a new training at EMSH.

Statement of the Problem

Aggressive and violent incidents perpetrated by patients are a major concern in psychiatric acute mental health care inpatient settings (Needham et al., 2004). Aggression not only endangers the safety and well-being of staff and vulnerable and fragile peers, but also endangers the aggressors' safety (Bisconer, Green, Mallon-Czajka, & Johnson, 2006). Research has shown that aggression management training can be effective in addressing these challenging behaviors (Livingston, Verdun-Jones, Brink,

Lussier, & Nicholls, 2010). Granted that a variety of aggression management training programs exist to date. However, few research studies have examined the efficacy of these programs based on clinical outcomes.

Morrison & Carney-Love (2003) suggested that many of the training programs that are in existence are not based on research, sound clinical principles, nor theory. Nevertheless, the dangers arise not only from the exposure to aggressive and violent behavior in mental health facilities but also a combination of ineffective aggression management training to manage such behaviors. Because there is a lack of literature examining the efficacy of aggression management training programs based on clinical outcomes, this study addressed this limitation by retrospectively evaluating the efficacy of aggression management training, specifically The Mandt System, in a behavioral health program.

Justification for the Study

Aggression and violence continue to have a significant impact on patients and staff, ward routine, and mental health services in general (Daffern & Howells, 2002) and should be taken seriously (Tenneij & Kotok, 2008) by mental health facilities. The researcher's review of literature has shown that aggression and violence costs are tangible (e.g., staff injuries and absences, prolonged hospitalizations) and intangible (poor morale, disrupted therapeutic milieu; Nolan, Constance, & Citrome, 2009). Aggressive and violent behaviors directed towards staff who work in psychiatric hospitals are an ever-present risk that requires prevention and management interventions to decrease the risk and provide for the safety of the staff, as well as the patients (Anderson & West, 2011).

Clearly, there is a need to evaluate the efficacy of aggression management training programs based on clinical outcomes, particularly in inpatient behavioral health program in which violence is most prevalent. However, many researchers addressing aggression management training focused on either the staff and patient perceptions (Benedictis et al., 2011), views (Nolan et al., 2009) and/or attitudes (Duxbury, Hahn, Needham, & Pulsford, 2008; Jansen, Dassen, & Groot-Jebbink, 2005), and confidence levels (Ching, Daffern, Martin, & Thomas, 2010; Killick & Allen, 2005) of managing aggression and violence. Although these programs undoubtedly help staff to feel better about managing aggressive patients, the question must be asked, "Do they work?" (Morrison & Carney-Love, 2003). There is little research examining aggression training programs based on clinical outcomes to determine if these programs are effective.

It is also important to mention that many aggression management training programs evaluate the staff reactions to the program (Duxbury, 2002). Though such evaluation can be useful in improving the program, it does not demonstrate how learning has been integrated into practice to reduce the incidence of aggression and violent acts. Therefore, another justification for this study is the need to improve measurement and monitoring of the efficacy of aggression management training based on clinical outcomes. By providing empirical data (ideally, a reduction in instances of aggression and violence), inpatient behavioral health programs will have solid principles from which to base their decisions prior to selecting a program. As a result, inpatient behavioral health programs will be able to implement best practices for their staff to manage aggression and violence. In addition, aggressive and violent behaviors may be prevented and/or decreased. This could positively impact the facility's tangible and intangible cost

of such behaviors and allow quality care in a safe therapeutic environment. This study explored clinical outcome data (aggression incidents, seclusion and restraint rates) of an acute inpatient behavioral health setting utilizing aggression management training.

This study will be beneficial to all stakeholders in mental health including regulatory agencies, boards of mental health, facility directors, mental health staff, direct care staff, and staff development training departments. Because of the negative effects of aggression and increasing demands of accountability by regulatory agencies to manage aggression, determining the effectiveness of aggression management training programs are particularly important for the stakeholders when maintaining safeguards to protect staff and patients. Research into the effectiveness of aggression management training programs can provide a systematic evaluation of their impact on reduction of aggression and violent behavior. This will assist inpatient behavioral health programs in determining whether they have structured approaches and procedures in place when managing aggression.

Most importantly, patients receiving services in mental health settings are key beneficiaries of this study. Patients may effectively learn to exhibit less aggression and violence and increase positive interaction with their peers and mental health staff. This could eventually lead to compliance with discharge planning to a less restrictive environment. In conclusion, this study will add to the counseling literature by providing evidenced based data on aggression management training programs, specifically The Mandt System.

Research Questions

The purpose of this study was to examine the effect of The Mandt System on aggression and violence at EMSH by addressing five research questions:

Research Question 1: What is the effect of the implementation of The Mandt System on the rate of patient to patient incidents related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Research Question 2: What is the effect of the implementation of The Mandt System on the rate of patient to staff incidents related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Research Question 3: What is the effect of the implementation of The Mandt System on the rate of seclusions related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Research Question 4: What is the effect of the implementation of The Mandt System on the rate of restraints related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Binomial Analysis to Answer Research Questions

To examine the efficacy of The Mandt System in managing aggression and violence in an inpatient behavioral health program, the following binomial tests were used to evaluate the data and answer the following hypotheses:

$H_0 1$: There is no statistically significant effect of the implementation of The Mandt System on the rate of the patient to patient incidents.

$H_0$2**:** There is no statistically significant effect of the implementation of The Mandt System on the rate of the patient to staff incidents.

$H_0$3**:** There is no statistically significant effect of the implementation of The Mandt System on the rate of seclusions.

$H_0$4**:** There is no statistically significant effect of the implementation of The Mandt System on the rate of restraints.

Limitations and Assumptions of the Study

The first limitation of this study is that it was conducted at a large behavioral health program. The findings may not be applicable to smaller hospitals. Second, the capturing, reporting and storing of the data may not be the same at other facilities. This could cause a challenge for comparison. Thirdly, this study pertains to a subset of patients at EMSH, and may not be generalizable to all patients receiving services from other inpatient behavioral health programs. Fourth, the data are archival (collected 2007-2013), and the researcher has no control over how the data were collected. Archival data may be biased due to selective deposit (biases influence what information is recorded in an archival record) and selective survival (survival occurs when archival records are missing or incomplete). Lastly, there were changes to the infrastructure of the facility during the time period selected for this study, which required a reduction in the number of beds. The reduction in the number of beds caused a reduction in the monthly census. The reduction in the monthly census may account for the reduction in the number of reported incidents.

The first assumption of this study is that the incident reports are an indicator to calculate the total actual number of events that occurred on a unit. The second

assumption is that The Mandt System was taught and used as intended and that the annual recertification training is effective in its goal to give staff refresher training. Third, the results of this study will cause no harm to patients, staff or correspondents. Lastly, the nature of the patients receiving treatment has not changed during the time period utilized for this study.

Conceptual and Operational Definitions of Terms

Conceptual and operational definitions used in this study are as follows:

1. Acute inpatient psychiatric setting- a setting for the care and treatment of patients affected with acute or chronic mental illness (Whittington, 2002). For the purpose of this study, an acute inpatient psychiatric setting is that of inpatient services provided at EMSH.

2. Aggression- behavior directed towards another individual that is carried out with the immediate intent to cause harm (Anderson & Bushman, 2002). Aggression and violence refer to a range of behaviors or actions that can result in harm, hurt or injury to another person, regardless of whether the violence or aggression is physically or verbally expressed, physical harm is sustained or the intention is clear. For the purpose of this study, acts of aggression and violence will include severe physical, forceful, assault of an individual such as kicking, beating, grabbing, spitting, choking, pushing, forcing sex, and using an object as a weapon. Because researchers acknowledge that difficulties still exist in defining aggression and violence (Rippon, 2002), for the purpose of this study, "aggression" and "violence" will be used interchangeably.

3. Aggression management training - training on the management or minimization of aggressive behavior that aims to 'equip' an employee to be more competent in a range of circumstances (Poyner & Warne, 1988). For the purpose of this study, aggression management training involves the following: (1) training of staff to empower the patients to make decisions to help manage their own behavior; (2) creating an environment to promote positive behavior to reduce opportunities for aggression/violence; and (3) implementing safe non-physical and physical techniques to reduce instances of staff/patient injuries and seclusion/restraint episodes.

4. Behavioral health program- a program that provides inpatient services for people (adults and children) with mental disorders and/or substance use disorders (Mississippi Department of Mental Health, 2016b). For the purpose of this study, inpatient behavioral health program and mental health facility will be used interchangeably.

5. East Mississippi State Hospital (EMSH)-a state owned and operated behavioral health program that provides inpatient mental health services for adults and adolescents with serious mental illness and/or substance abuse (Mississippi Department of Mental Health, 2016a).

6. Mental health staff- a professional who provides mental health services for people with mental disorders in an acute inpatient mental health setting. For the purpose of this study, mental health staff refers to psychologists, counselors, social workers, nurses and direct care workers (EMSH, 2015).

7. Mental disorder- a syndrome characterized 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 in social, occupational, or other important activities. An expectable or culturally approved response to a common stressor or loss, 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 (American Psychiatric Association, 2013). For the purpose of this study, mental disorder and mental illness will be used interchangeably.

8. Patient- individual receiving health care services. For the purpose of this study, the patient in this study will consist of an individual who received mental health services at a behavioral health program from 2007 to 2013.

9. Patient to patient incident- an incident that involves verbal or physical contact between two or more patients (EMSH, 2015)

10. Patient to staff incident- an incident that involves verbal or physical contact from a patient to staff (EMSH, 2015).

11. Proactive or instrumental aggression - an aggressive act that is intended to achieve self-serving outcomes such as getting attention or material gain (Gendreau & Archer, 2005).

12. Reactive or emotional aggression- injury or harm to another person where the perpetrator's pleasure or satisfaction is the main reward (Little, Jones, Henrich, & Hawley, 2003).

13. Restraint - a physical restraint is any manual method or physical or mechanical device, material or equipment that immobilizes or reduces the ability of a person to move his or her arms, legs, body or head freely (Department of Health and Human Services, 2006). For the purpose of this study, a restraint is utilized for the purpose of managing aggressive and violent behavior contributing to self-harm and/or danger to others.

14. Seclusion - an involuntary confinement of a person alone in a room or an area in which the person is physically prevented from leaving (Department of Health and Human Services, 2006). For the purpose of this study, seclusion is utilized as a last resort for the management of aggressive and violent behavior contributing to self-harm and/or danger to others.

15. The Mandt System – an aggression management training program that is a person-centered, values-based process that encourages intentional and positive interaction with others by keeping interactions between people from becoming incidents, incidents from becoming crises and de-escalating crises as quickly and safely as possible (The Mandt System, 2015a). For the purpose of this study, The Mandt System is the aggression management training program utilized at East Mississippi State Hospital to manage aggressive and violent behavior.

16. Violence- an intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, which either results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development, or deprivation (Krug, Mercy, Dahlberg, & Zwi, 2002).

Overview

This chapter presented the statement of the problem, justification for the study, research questions, limitations and assumptions, and conceptual and operational

definitions utilized throughout the study. Chapter 2 will review the theoretical frameworks, types of aggression, mental illness and aggression, assessment of aggression, aggression management training programs, managing aggression/violence in mental health facilities, history of EMSH, and behavior management programs at EMSH. Chapter 3 will review the methodology including research design, research site, data set, procedures, data analysis, and binomial tests. Chapter 4 will present and discuss the results of the study. Chapter 5 will present a summary, recommendations for mental health administrators, recommendations for mental health staff, and recommendations for future research. Implications and conclusions will also be discussed.

CHAPTER II

REVIEW OF LITERATURE

This chapter reviewed the literature in the following areas: (a) theoretical frameworks; (b) types of aggression; (c) mental illness and aggression; (d) assessment of aggression; (e) aggression management training programs; (f) management of aggression in inpatient behavioral health programs; (g) overview of East Mississippi State Hospital; and (h) history of aggression management training at East Mississippi State Hospital.

Theoretical Frameworks

It is important to present a comprehensive framework for explaining aggression. The theoretical framework for this proposed study was derived from Social Learning Theory, Cognitive-Neoassociation Theory and the General Aggression Model. Although literature is limited in the area of theory based aggression management training, this combined theoretical framework was selected because patient behavior can best be understood from a number of theoretical perspectives.

Social Learning Theory

Most commonly associated with behaviorist Bandura (1973), the Social learning theory suggests that a combination of environmental (social) and cognitive processes influence behavior. Social learning theory considers aggression primarily a learned form of social behavior adopted either as a result of experience or by observing the behaviors

of others performed when rewarded and maintained through positive reinforcement (Bandura, 2001). Social learning theory is based on what Bandura (1978) called a reciprocal determination (behavior and the environment affect each other).

Additionally, Bandura (1986) suggested that an individual will behave aggressively if an internal benefit analysis has determined that the individual will profit from being aggressive. An individual's impulse control is only relevant if it helps or hinders the ability to complete goal directed acts of all kinds including aggressive acts. Social learning theory makes no specific predictions about an individual's impulse control. However, an individual who is less impulsive may in fact be more effective in using aggression for personal gain (Bandura, 1986).

Although Bandura (1977, 1986) believed that observing aggression and violence is likely to lead to aggressive acts, he contended that one could control one's own behavior through self-regulation. Self-regulation requires a person to self-observe, make judgments about their environment and themselves, and self-respond. This is a personal reward/punishment system based on one's behavior or performance. Social learning theory has been applied extensively to the understanding of aggression (Bandura, 1973) and psychological disorders, particularly in the context of behavior modification (Bandura, 1969).

Behavioral health treatment programs based on social-learning principles and procedures have been shown to be effective in treating individuals with serious and persistent mental illness (Menditto, 2002). According to Liberman (2011), given the neurocognitive deficits, learning disabilities and lengthy histories of inadvertent reinforcement of provocative and aggressive behavior among persons with

developmental and serious psychiatric disorders, basic principles of learning are needed to teach alternatives to belligerent behavior. Examples of behavior therapies that have been documented as effective in reducing aggression and self-injury include differential reinforcement of other behavior, social skills training, teaching interaction, social learning modalities, and time-out from reinforcement.

Social learning modalities include a behavioral therapy approach that is variously termed token economy, credit incentive system, contingency contracting, and contingency management. According to Liberman (2011), a motivational system is developed (often in collaboration with patients) that organizes the social environment and determines which of the adaptive behaviors of each of the individual patients is to receive generalized rewards contingent on the observation of the patient's prosocial behavior by staff. To make the rewarding of positive behavior more effective, a staff member gives praise or social reinforcement along with tokens, credits for credit cards, or points delivered to patients immediately following the appearance of the desired behavior that will bring the patient's behavior closer to the normal range.

The first landmark research on the effectiveness of the Social Learning Program (SLP) in inpatient settings with seriously mentally ill populations was a seven year clinical study by Paul & Lentz (1977). These researchers compared two psychiatric rehabilitation programs (SLP and a milieu therapy) and a standard inpatient care setting. Based on operant and social learning procedures, the SLP was applied during all waking hours by all staff on the unit. The SLP used a highly specific token economy system in which immediate feedback was given for targeted appropriate and inappropriate behaviors. The milieu program emphasized patient involvement and promoted patient

empowerment. Patients were assigned to living groups that stimulated social interaction, group activity, and patient involvement. The standard inpatient care setting received standard custodial care with no rehabilitation programming. When all three treatment groups were compared, the SLP was consistently more effective than the other two programs (milieu program and standard inpatient care setting) on a number of outcome variables including a higher discharge rate, fewer instances of inappropriate and/or aggressive behavior, an increase in appropriate behaviors, and a reduction in symptomatology. Moreover, patients on the SLP required significantly less medication compared to the other two programs.

Springer et al. (2010) conducted a case study on a veteran patient that demonstrated high levels of aggressive behavior as well as persistent adaptive behavior deficits. The veteran had a complex psychiatric history with multiple hospitalizations resulting from aggressive behavior in community placements. In an inpatient acute unit, the veteran participated in a comprehensive Treatment Recovery and Rehabilitation Plan (TRRP) based on a social-learning program. The procedures resulted in rapid improvement in his recovery-related outcomes. The veteran was discharged within 31 days of TRRP initiation. This intervention significantly reduced his maladaptive behavior and increased his treatment participation. Following discharge, there was a re-emergence of his problematic behaviors in a community placement, which resulted in a more restrictive re-hospitalization. The researchers concluded that the absence of TRRP implementation at this placement likely contributed to the re-emergence of his problem behavior.

Menditto, Beck, and Stuve (2000) conducted a study to examine the efficacy of a social learning program at a state hospital on a unit that admitted primarily aggressive patients. The results indicated that over a 20-year time period during the implementation of a social learning program, 219 patients demonstrated improvement in the areas of social interaction (75%), self-care skills (80%), and work and leisure skills (83%). During the same time period, assault and property destruction declined by 73% and verbal aggression by 86%.

Cognitive-Neoassociation Theory

In the 1920's, physiologist Cannon (1929) introduced the term "fight-or-flight". According to Cannon (1929), the "fight-or-flight" response, also known as the acute stress response, refers to a physiological reaction that occurs in the presence of something that is terrifying, either mentally or physically. The response is triggered by the release of hormones that prepare your body to stay and deal with a threat or to run away to safety. Cannon realized that a chain of rapidly occurring reactions inside the body helped to mobilize the body's resources to deal with threatening circumstances.

Conjoining aggression to Cannon's (1929) concept of "fight or flight" behavioral reactions, social psychologist Berkowitz's (1989) cognitive-neoassociation theory of aggression proposed that unpleasant incidents and experiences such as frustrations, provocations, loud noises, uncomfortable temperatures, and unpleasant odors produce negative affect which is neutrally linked to various thoughts, feelings, and behavioral tendencies associated with fight (orientation to injure the target) or flight (orientation to fear and escape the noxious situation) tendencies. Berkowitz suggested that aggressive thoughts, emotions and behavior propensities are linked together in memory and, when

simultaneously activated, develop associations which may lead to aggression and violence.

A cognitive-neoassociation theorist believes that aggression is the end product of unpleasant experiences (such as frustration, heat, noise) that lead to negative feelings (such as anger) that produces cognitions (angry thoughts and associations, or fearful thoughts and associations), and results in the “fight or flight” response. Aggression is the "fight" part of the response. According to Berkowitz (2012), the cognitive-neoassociation model suggests that investigations of aggression should look more closely into the psychological processes involved in emotion arousal, especially in regard to the interaction of cognitively controlled and more automatic, nonconscious processes.

There was no literature found that linked the application of cognitive-neoassociation theory to aggression in an inpatient mental health setting. The research methodology (e.g., Bushman & Anderson, 2002; Perdeson, Bushman, Vasquez, & Miller, 2008) found in the cognitive-neoassociation theory was based primarily on laboratory conditions through provocation (i.e., rumination while punching bags, shocking of participants, listening to loud music) which would be difficult to generalize to an inpatient mental health setting.

However, research indicates that inpatient hospitals are excessively noisy (Ulrich, Lawson, & Martinez, 2003). Unpleasant surroundings and loud, irritating noises increase the likelihood of violence (Buckley et al., 2003). Hotter temperatures are associated with higher levels of aggression and violence (Anderson et al., 2000). Therefore, inpatient hospitals should maintain comfortable temperatures. This supports the proposal of cognitive-neoassociation theory and the importance of having a theory based aggression

management training program that increases the knowledge of the causes of aggression and violence.

General Aggression Model

Anderson and Bushman's (2002) general aggression model (GAM) is the most recent and broadest theory of aggression to date. The researchers believed that research on human aggression progressed to a point at which a unifying framework was needed. GAM was designed to integrate existing mini-theories of aggression into a unified whole. The GAM is a social-cognitive model that includes situational, individual, and biological factors that interact to produce a variety of cognitive, emotional, physiological and behavioral outcomes. GAM emphasizes three critical stages in understanding a single episodic cycle of aggression: (1) person and situation inputs, (2) present internal states (i.e., cognition, arousal, affect, including brain activity), and (3) outcomes of appraisal and decision-making processes. A feedback loop can influence future cycles of aggression, which can produce a violence escalation cycle (DeWall & Anderson, 2011).

According to DeWall, Anderson, and Bushman, (2011), the first stage emphasizes inputs (person and situation) or risk factors for aggression. Person inputs include personality traits, gender, beliefs, attitudes, values, long-term goals, and scripts; situation inputs include aggressive cues (e.g., presence of weapons), provocation, frustration, pain and discomfort, drugs, and incentives (determined by a cost/benefit analysis). The second stage focuses on interconnected affective arousal, and cognitive routes or mechanisms through which the inputs influence aggressive behavior. Affective routes include mood and emotion and expressive motor tendencies; arousal routes include the strengthening of a dominant action tendency or certain misattribution processes;

cognitive routes include hostile thoughts and scripts. The third stage is the outcomes of the underlying appraisal and decision processes. Individuals are likely to act impulsively when they lack the resources and motivation to alter their immediate appraisal of the situation. If they possess the resources and motivation, however, they may reappraise the situation and act in a more thoughtful fashion.

According to Anderson and Bushman (2002), key features include the ideas that knowledge structures (a) develop out of experience; (b) influence perception at multiple levels, from basic visual patterns to complex behavioral sequences; (c) can become automatized with use; (d) can contain (or are linked to) affective states, behavioral programs, and beliefs; and (e) are used to guide people's interpretations and behavioral responses to their social (and physical) environment. Three particularly relevant subtypes of knowledge structures are (a) perceptual schemata, which are used to identify phenomena as simple as everyday physical objects (chair, person) or as complex as social events (personal insult); (b) person schemata, which include beliefs about a particular person or groups of people; and (c) behavioral scripts, which contain information about how people behave under varying circumstances.

According to Anderson and Bushman (2002), GAM provides direction for creating and testing interventions designed to reduce unnecessary human aggression. There are studies that support GAM as a theoretical base for preventing aggression. Hosie, Gilbert, Simpson, and Daffern (2014) examined the relationships between personality and aggression using the GAM and five factor models (FFMs), revised Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness Personality Inventory (NEO-PI-R) and the NEO Five-Factor Inventory

(NEO-FFI). Specifically, the authors examined criticisms that the GAM has questionable validity in clinical populations and disproportionately focuses on aggression-related knowledge structures to the detriment of other inputs, specifically personality variables.

Fifty-five male offenders attending a community forensic mental health service for pre-sentence psychiatric and/or psychological evaluation were assessed for aggressive script rehearsal, aggression-supportive normative beliefs, FFM personality traits, trait anger and past aggressive behavior. With regard to relationships between five factor variables and aggression, results suggested that only agreeableness and conscientiousness were related to aggression. However, these relationships were: (a) weak in comparison with those between script rehearsal, normative beliefs and trait anger with aggression and (b) were not statistically significant predictors in hierarchical regression analysis. When all of the significant univariate predictors, including GAM-specified variables were regressed onto life history of aggression, normative beliefs supporting aggression, aggressive script rehearsal, and trait anger were significantly related to aggression in this regression analysis. The researchers suggested that the results of this study provide further support for the application of the GAM to aggressive populations.

Gilbert, Daffern, Taleyski, and Ogloff (2015) examined the contention that the application of the GAM may assist in elucidating the personality disorder–aggression relationship. For this study, 87 participants referred to a community forensic mental health service (for presentence psychological or psychiatric evaluation between June 2009 and December 2010) were assessed for a personality disorder (PD) and psychopathy, aggression, and three constructs delineated by the GAM: scripts, normative beliefs, and anger. Participants ranged in age from 19 to 64 years (M = 33.4, SD = 10.7);

78 of the participants were male (90%), and 9 were female (10%). Over half of the sample had either pleaded guilty or had been found guilty of a violent offense (n = 47, 54%), most commonly assault or recklessly or intentionally causing injury, with the remainder having been convicted of nonviolent offenses (n = 40, 46%) such as theft or drug offenses. Regression analyses were undertaken to examine the relative contributions of these variables to aggression. The results upheld a relationship between several PDs and aggression, and suggested that for these PDs, the consideration of scripts, beliefs supportive of aggression, and anger facilitated an improved understanding of aggressiveness. Overall, the findings indicated that the GAM offers valuable insight into the psychological features that characterize individuals with PD who are prone to aggression.

Dewall et al. (2011) suggested how the application of GAM can be used to inform interventions aimed at reducing aggression to reduce aggression in various forms such as: (a) intimate partner violence; (b) aggression between groups; (c) global warming effects on violence; and (d) suicide. The researchers stated that GAM directed intervention is the only theoretical framework of aggression and violence that explicitly incorporates biological, personality development, social processes, basic cognitive processes, short-term and long-term processes, and decision processes. The researchers further stated that GAM addresses most if not all of the factors that can influence aggression and violence. This study concluded that when grappling to understand the causes of aggression, researchers and lay persons can use GAM to provide a glimpse into why a person or group behaved aggressively and how that aggression can be reduced.

In summary, the etiology of aggressive behavior has been studied for several decades (McEllistrem, 2004). There is a body of knowledge about the factors within people and from the environment that increase the likelihood of aggression, along with a more detailed understanding of the processes that occur in the mind and brain during an instance of aggression (Warburton & Anderson, 2001). Theories of aggression can not only assist in explaining aggressive and violent acts but also assist in creating aggression management training to reduce aggressive and violent acts.

Therefore, the aim of this review was to explore an existing theoretical framework for aggressive behavior and to offer insights into understanding specific reasons why people behave aggressively. The sequence of the theories reviewed, beginning with social learning theory (aggressive behavior is learned through observation of other people), to cognitive- neoassociation theory (unpleasant feelings can influence thought, memory, and action) and ending with the general aggression model (inputs, routes, and outcomes of interaction with people and situation leads to aggression) all present an understanding of and possible basis for preventing and reducing aggression and violence. Cognitive-social theorists believe that the roots of aggressive behavior lie in social rewards, punishments and cognitive processes such as observational learning (Bandura, 2001; Berkowitz, 1989). The general aggression model states that person variables interact with situational inputs to determine aggressive output. It also states that the capacity for aggression appears to be innate, but the activation and inhibition of aggression also depends on culture, scripts and learning (Anderson & Bushman, 2002). These theories attempt to explain the origin of aggression but from very different perspectives. Comparatively, the theories presented, frame a foundation of behavior modeling that can be useful in

providing theoretically based interventions for aggression management training programs.

Types of Aggression

Aggressive behaviors can be divided into two categories: reactive and proactive (Nouvion, 2007). Reactive aggression is the more emotionally charged form of aggression and is usually paired with feelings of anger and frustration. It is also referred to as impulsive aggression because it involves a decreased ability to control one's affect, leading to aggressive behaviors. Reactive behaviors include expressions of anger, temper tantrums, and vengeful hostility. Proactive aggression usually occurs in order to achieve a goal or positive outcome. Proactive aggressive acts are deliberate, planned, involve low autonomic arousal, are carried out with a high degree of behavioral control and are directed toward a goal, such as external reinforcers (money-oriented) or intimidation (person-oriented; Hubbard, Cillessen, Dodge, Coie, & Schwartz, 2001). This type includes forms of aggression such as bullying, name-calling, coercion, and the breaking of rules (Price & Dodge, 1989).

Research has observed notable differences in the subtypes of aggression. Cornell et al. (1996) found instrumental offenses were more planned, more goal-oriented, less provoked, and less emotional than were reactive offenses. Thus, the primary defining characteristics which distinguish instrumental and reactive aggression include (a) the goal of aggressive behavior, (b) presence of emotion, (c) the degree of planning, and (d) provocation. The goal of reactive aggression is to cause harm or injury, whereas the goal of instrumental aggression typically extends beyond the harm or injury of another. Reactive aggression is described as emotional, impulsive, “hot-blooded” aggression

(Walters, 2005), but instrumental aggression is viewed as planned and "cold-blooded" (Bushman & Anderson, 2001). The presence of premeditation or malice is more dominant in reactive aggression than proactive aggression (Cornell et al., 1996). Reactive aggression is thought of as the result of previous provocation, whereas the proactive aggression requires no such instigation (Bushman and Anderson, 2001).

According to Quanbeck et al., (2007), inpatient aggression incidents can be identified on the bases of their functions (i.e., reactive versus instrumental). The authors also stated that a better understanding of the types of assaults occurring in psychiatric facilities can be useful in developing more specific interventions for their reduction. The researchers examined the factors motivating inpatient aggression in a sample of chronically assaultive state hospital patients. Inpatients who had committed three or more assaults over a one-year period were identified by using an incident report database. Aggressive episodes were categorized as impulsive, organized, or psychotic by using a procedure for classifying assaultive acts based on record review. Each assault type was further subcategorized. The relationship between assault type, victim (staff or patient), and legal status of the assaulter was also assessed.

A total of 839 assaults committed by 88 chronically aggressive patients were reviewed. Although most patients had a primary psychotic disorder, the most common type of assault was impulsive (54%) or reactive aggression, rather than psychotic or organized. Staff were most often victimized by impulsive assaults in situations involving attempts to change a patient's unwanted behavior and refusal of a patient request. Organized and psychotic assaults occurred less frequently (29% and 17%, respectively) and were more likely to target other patient's. Organized assaults (proactive aggression)

were most often motivated by a desire to seek revenge. Psychotic assaults were most often committed by an assailant acting under the influence of paranoid ideations. Civilly committed patients were overrepresented in the sample. Criminally committed patients committed more acts of organized aggression, although this finding did not reach a level of statistical significance.

The researchers indicated that assaultive behavior among state hospital inpatients is complex and heterogeneous. Because each type of assault requires a different management approach, characterizing aggressive behavior may be important in determining which institutional programs and treatment-plan interventions to implement when addressing inpatient aggression.

The classification of reactive and proactive aggression is not without controversy, as research indicates that these types of aggression are highly correlated and often occur within the same individual and/or aggressive act (Walters, 2005). Reactive aggression frequently occurs in the absence of proactive aggression. It is less common to find proactively aggressive individuals with no history of reactive aggression (Cornell et al. 1996). Exploratory and confirmatory factor analyses have consistently demonstrated that aggression is more adequately represented by a two-factor model (typically described in terms of proactive and reactive aggression) versus a single-factor (Ramirez and Andreu, 2006).

In summary, aggressive behavior has been examined from two perspectives by providing both a narrow and overlapping view. Reactive aggression is emotionally charged, and proactive aggression acts has a low autonomic arousal. However, McGuire (2008) suggested that the distinction between reactive and proactive aggression appears

vital when allocating individuals to intervention programs, given the importance of linking interventions to a functional understanding of violence motivation.

Mental Illness: Aggression and Violence

Throughout history and in all known societies, people have believed that mental disorder and violence were equated (Monahan, 1992). Growing empirical studies implicate psychiatric disorders as a risk factor for aggressive and violent behaviors across the life span of the individual (Arsenault et al., 2000; Nestor, 2002). Due to the innate nature of the conditions encircling aggressive mentally ill patients, research into the link between mental illness and aggression has been extensive but the findings contradictory. There are studies that present robust evidence of the association between mental illness and aggression. Conversely, there are studies suggesting that not all individuals diagnosed with mental illness are aggressive and violent.

Steadman et al., (1998) concluded that epidemiologic evidence showed an increased risk for aggression in a subgroup of potentially dangerous patients with a high risk for violence, making it difficult to reduce the stigma associated with mental disorders. Douglas, Guy, and Hart (2009) conducted a quantitative review (meta-analysis) of research on the association between psychotic disorders and violence. Relevant studies were located by stems of the following identifier: mental illness/disorder, psychopathology, schizophrenia, hallucination, delusion, affective disorders, mood disorders, violent/aggressive behavior, aggression, homicide, assault, crime, and criminal. Studies were coded for the meta-analysis if they met two inclusion criteria. First, they needed to present data on the association between psychotic disorders and violent behavior. Disorders characterized as a psychotic disorder were included (e.g.,

any schizophrenia-spectrum disorder, bipolar disorder, depression with psychotic features) so long as the assessment was not based solely on a self-report measure of personality or psychopathology. A total of 885 effect sizes (odds ratios) were calculated or estimated from 204 studies on the basis of 166 independent data sets. The central tendency (median) of the effect sizes indicated that psychosis was significantly associated with a 49%–68% increase in the odds of violence. However, in a study in New York, researchers assessed 60 severely mentally ill men (e.g., psychotic disorders, major affective disorder with psychotic features or a comorbid diagnosis of alcohol/substance use/abuse) who had been charged with violent crimes. The researchers reported that medication noncompliance and lack of awareness of illness both played significant roles in causing the men's violent behavior (Alia-Klein, O'Rourke, Goldstein, & Malaspina, 2007).

A more accurate and less biased assessment of the risk of violence perpetrated by the mentally ill comes from epidemiologic studies of community samples best known as the NIMH's Epidemiologic Catchment Area study (U.S. Department of Human Services, 1994). This study examined the rates of various psychiatric disorders in a representative sample of 17,803 subjects in five United States communities. Although this study was not initially designed to assess the prevalence of violent behavior, data on violence was collected for about 7000 of the subjects. It was concluded that patients with serious mental illness (schizophrenia, major depression, or bipolar disorder) were two to three times as likely as people without such an illness to be assaultive. The lifetime prevalence of violence among people with serious mental illness was 16%, as compared with 7% among people without mental illness. It was also concluded that although not all types of

psychiatric illness such as anxiety disorders are associated with violence, most patients with schizophrenia, major depression, or bipolar disorder do not commit assaultive acts. The presence of such a disorder is significantly associated with an increased risk of violence.

Stuart (2003) suggested three questions that have framed both the scientific and the public debate surrounding the relationship of violence to mental illness. Are the mentally ill violent? Are they more violent than people without a mental illness? Are they a risk to public safety? In Stuart's study, it was suggested that mental disorders are neither a necessary nor sufficient cause of violence. The major risk factors found for violence were socio-demographic and socio-economic factors such as being young, male, and of lower socio-economic status.

An ongoing problem in the literature is that studies have used different methods to assess rates of violence both in people with mental illness and in control groups used for comparison (Harvard Health Publication, 2011). Some studies rely on "self-reporting," or participants' own recollection of whether they have acted violently toward others. Such studies may underestimate rates of violence for several reasons. Participants may forget what they did in the past, or may be embarrassed about or unwilling to admit to violent behavior (Fazel, Lichtenstein, Grann, Goodwin, & Långström, 2010). However, because higher rates of aggression and violence are now firmly established most prominently for persons with diagnoses of substance-related disorders, followed by personality disorders (e.g., borderline, antisocial) and less frequently in persons with schizophrenia (Johnson et al., 2000), a review of literature will follow that explores these disorders as they relate to aggressive and violent behaviors.

Schizophrenia

The American Psychiatric Association's (2013) *Diagnostic and Statistical Manual of Mental Disorders*, Fifth version (*DSM-5*) defines schizophrenia as abnormalities in one or more of the following domains: delusions, hallucinations, disorganized thinking (speech) grossly disorganized or abnormal motor behavior (including catatonia), and negative symptoms. For a significant portion of the time since the onset of the disturbance, level of functioning in one or more major areas, such as work and interpersonal relation, or self-care, is markedly below the level achieved prior to the onset. According to the National Alliance on Mental Illness (2015b), schizophrenia is a chronic, severe, and disabling mental disorder characterized by deficits in thought content of perceptions and emotional responsiveness. People with schizophrenia may seem like they have lost touch with reality and are more likely to be aggressive than people without a mental illness (Walsh, Buchanan, & Fahy, 2001). Aggressive and impulsive behaviors in individuals diagnosed with schizophrenia pose many clinical challenges in mental health facilities.

In a study conducted by Smith (2000), the researcher studied schizophrenic inpatients with a conviction for a sex offense against women. The Massachusetts Treatment Centre Rapist Typology Version 3 (MTC:R3) was applied to a national sample comprising of 80 inpatient males diagnosed with schizophrenia and resident of any hospital in England and Wales during May 1997. The males had an index conviction for a contact sex offense against women. This offense was committed while the males were psychotic. The primary motivations for sexual offending according to the typology were: sexual (54%); opportunistic (29%); vindictive (11%); pervasively angry (6%). The

sexual, non-sadistic motivational type was significantly over-represented amongst the 18 men who had a specific delusional or hallucinatory drive at the time of their index offences, compared with the 62 men who had no such drive. Significantly more patients who committed sex offenses with low levels of violence had psychotic symptoms that contributed to the aggression. The more sadistic offenses did not show significant differences in the presence of psychotic symptoms motivating the crime.

Over the course of a year, Ketelsen, Zechert, Driessen, & Schulz (2007) investigated aggressive behaviors of 2,210 patients admitted to a psychiatric facility. In this investigation, aggression was defined as verbal, nonverbal, or physical behavior that is threatening or harmful to persons or property. During the one-year period, 171 of these patients (7.7%) displayed aggressive behaviors. Patients who displayed aggressive behaviors were more likely to have a schizophrenia spectrum disorder compared to patients who did not display aggressive behaviors.

Lincoln & Hodgins (2008) examined future aggressive behaviors in patients diagnosed with schizophrenia over a two-year period following discharge from forensic and psychiatric hospitals. The researchers were able to assess 216 patients at discharge. Notably, the sample was disproportionately male (96.7%), and 21.5% of patients also met DSM-IV criteria for antisocial personality disorder. The researchers were able to follow 169 patients over the two-year follow-up period. Nearly 16% of the patients with schizophrenia or schizoaffective disorder (including those with comorbid antisocial personality disorder) exhibited some form of aggressive behavior during the two-year follow up, although given the nature of the setting (i.e., forensic) from which part of the

sample was recruited, some of the subjects had a premorbid history of demonstrating aggressive behavior.

Fazel, Langstrom, Hjern, Grann, & Lichtenstein (2009) concluded that of 8,003 individuals with schizophrenia, 13.2 percent committed at least one violent crime compared with 5.3 percent of the general population. Concurrent abuse of alcohol or drugs accounted for much of the increased rate. In a review of articles on violence and schizophrenia, Walsh et al. (2001) suggested that it is now generally accepted that people with schizophrenia, albeit by virtue of the activity of a small subgroup, are significantly more likely to be violent than members of the general population, but the proportion of societal violence attributable to this group is small. Schizophrenia with comorbid substance abuse increases the risk of violence considerably compared with schizophrenia without comorbidity. The researchers emphasized that the weight of the evidence to date is that although a statistical relationship does exist between schizophrenia and violence, only a small proportion of societal violence can be attributed to persons with schizophrenia, specifically below 10%.

Personality Disorders

A personality disorder is an enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture, is pervasive and flexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress or impairment (American Psychiatric Association, 2013). This pattern is manifested in two (or more) of the following areas: (1) cognition (i.e., ways of perceiving and interpreting self, other people, and events); (2) affectivity (i.e., the range, intensity, lability, and appropriateness of emotional response; (3) interpersonal functioning; and (4)

impulse control. A borderline personality disorder (BPD) is a pervasive pattern of instability of interpersonal relationships, self-image and affect, and marked impulsivity (American Psychiatric Association, 2013). Research has demonstrated that individuals with BPD exhibit higher rates of aggressive behavior (Perez-Rodriguez et al., 2010) compared to other mental disorders

Critchfield, Levy, and Clarkin (2004) conducted a factor analysis of several measures of aggression, impulsivity, and impulsive-aggression in individuals with BPD. They found that impulsive-aggression measures loaded strongly on the same factor as aggression, whereas impulsivity loaded on a different factor that was nearly orthogonal to aggression. Research suggests that aggression and violence are central characteristics of BPD. In particular, the use of more indirect forms of aggression seems to be most characteristic of individuals with BPD.

Carpiniello, Lai, Pirarba, Sardu, and Pinna (2011) conducted a study aimed to evaluate the impact of comorbidity of borderline personality disorder on impulsivity and aggressivity in patients affected by bipolar disorder. A total of 57 patients (male = 20, female = 37) affected by bipolar disorder in clinical stable remission were recruited; 28 patients were affected by bipolar disorder (49.1 %), 18 by bipolar disorder and borderline personality disorder (31.6 %) and 11 by bipolar disorder plus other personality disorders (19.3 %). Scores on scales assessing impulsivity and aggressivity were significantly higher in the group of patients diagnosed with bipolar disorder with comorbid borderline personality disorders than in the other two groups. The researchers concluded that when levels of impulsivity and aggressivity are particularly prominent in the clinical

phenomenology of a bipolar patient, the suspicion of a co-morbid borderline personality disorder may be justified.

González, Igoumenou, Kallis, & Coid (2016) explored independent associations between categorical and dimensional representations of BPD and violence in the general population of England, and differential associations from individual BPD criteria. A representative combined sample of 14,753 men and women was drawn from two British national surveys of adults (≥16 years). BPD was assessed using the Structured Clinical Interview II-Questionnaire (Spitzer, Williams, Gibbon, & First, 1992). The researchers measured self-reported violent behavior in the past 5 years, including severity, victims and locations of incidents. Associations for binary, dimensional and trait-level exposures were performed using weighted logistic regression, adjusted for demography and comorbid psychopathology. Categorical diagnosis of BPD was associated only with intimate partner violence (IPV). Associations with serious violence leading to injuries and repetitive violence were better explained by comorbid substance misuse, anxiety and antisocial personality disorder (ASPD). However, anger and impulsivity BPD items were independently associated with most violent outcomes including severity, repetition and injury; suicidal behaviors and affective instability were not associated with violence. Both trait-level and severity-dimensional analyses showed that BPD symptoms might impact males and females differently in terms of violence. The researchers concluded that for individuals diagnosed with BPD, violence is better explained by comorbidity. However, BPD individual traits show different pathways to violence at the population level. Gender differences in BPD traits and their severity indicate distinct, underlying

mechanisms towards violence. BPD and individual traits should be evaluated in perpetrators of IPV.

Substance Use Disorder

According to the *DSM-5* (American Psychiatric Association, 2013), a diagnosis of a substance use disorder occurs when the recurrent use of alcohol and/or drugs causes clinically and functionally significant impairment, such as health problems, disability, and failure to meet major responsibilities at work, school, or home (American Psychiatric Association, 2013). Research has repeatedly linked aggression to substance use. According to Mullen (2006), there is evidence of a higher incidence of violence and aggression when major mental illness and disorder are coupled with substance abuse or dependence, the highest being attributed to people with a personality disorder and co-occurring substance use problems. In a meta-analysis, substance abuse was identified as a critical variable and, notably, is associated with levels of violence that are comparable to rates for individuals with substance abuse in combination with psychosis (Fazel, Langstrom, Hjern, Grann, & Lichtenstein, 2009).

The results of a longitudinal data set representative of the United States population indicated that the incidence of violence was higher for people with severe mental illness, but only significantly so for those with co-occurring substance abuse and/or dependence (Elbogen & Johnson, 2009). McNiel, Eisner and Binder (2003) concluded that violence was significantly predicted by substance related disorders, bipolar disorder, manic episodes, paranoid symptoms, and the absence of depression in a university-based hospital inpatient population. Violence was defined by self-report to include any physical aggression or threat with a weapon in the past two months.

The MacArthur Violence Risk Assessment Study (Monahan, 2002) was one of the first studies to address the design flaws of earlier research by using three sources of information to assess rates of violence. In this study, the researchers interviewed participants on several occasions to assess self-reported violence on an ongoing basis. They verified participants' recollections by checking with family members, case managers, or other people familiar with the participants. The researchers also checked arrest and hospitalization records.

The study found that 31% of people who had both a substance abuse disorder and a psychiatric disorder (a "dual diagnosis") committed at least one act of violence in a year, compared with 18% of people with a psychiatric disorder alone. This confirmed other research that substance abuse is a key contributor to violent behavior. However, when the researchers investigated further comparing rates of violence in one area in Pittsburgh (in order to control for environmental factors as well as substance use) they found no significant difference in the rates of violence among people with mental illness and other people living in the same neighborhood. The researchers concluded that after controlling for substance use, rates of violence reported in the study may reflect factors common to a particular neighborhood rather than the symptoms of a psychiatric disorder.

Van Dorn (2012) found that those with serious mental illness, irrespective of substance abuse status, were significantly more likely to be violent than those with no mental or substance use disorders. Stuart (2003) found substance use to be a major risk factor of violence and found it to be true whether it occurred in the context of a concurrent mental illness or not. Those with substance disorders were major contributors to community violence, perhaps accounting for as much as a third of self-reported violent

acts, and 7 out of every 10 crimes of violence among mentally disordered offenders. The researcher suggested that past research has focused on the person with the mental illness, rather than the nature of the social interchange that led up to the violence.

The studies reviewed in this section suggest that a moderate relationship between a mental illness and aggression and violence may exist. Conversely, the studies maintain that not all individuals with mental illness exhibit aggressive and violent behavior. There are contradictory studies, but research maintains that mental disorders (e.g., schizophrenia, personality disorder, substance use disorder) increase risks for aggression and violence. Elbogen, Mustillo, and Van Dorn (2007) suggest that even more problematic is that individuals with severe mental illness who exhibit aggression and violence are "more likely to deny needing psychiatric treatment" (p. 199).

Research suggests that most acts of violence are committed by individuals who are not being treated, and many such individuals are also abusing alcohol or drugs. For example, Torrey (2006) suggested that violence issues among individuals with schizophrenia is a treatment issue, nothing more nor less. The researcher indicated that in virtually every case it has been found that the individuals responsible for homicides were not taking medication. He concluded that the problem is that approximately half of all individuals with schizophrenia are neurologically impaired and thus unable to perceive their own illness or need for medication and/or treatment. Hence, targeted interventions to improve insight and treatment compliance in this population are warranted (Buckley et al, 2004).

Research on mental disorders and aggression has relied almost exclusively on self-report measures. Future research is needed with inclusion of data provided by

mental health care providers, family members or significant others with whom the individuals interact regularly. The inclusion of this additional data could not only address the question of validity in self-reports but strengthen research by providing a clearer understanding of the relationship between mental illness and aggression.

In summary, research has shown contradictory results in regards to the relationship between mental illness and aggression. Research suggests that individuals who are receiving effective treatment for a mental illness are no more violent or dangerous than others (Torrey, 2006). These individuals have also been found to be more likely to be harmed than to harm others (Stuart, 2003). Research also suggests that there is a higher risk of aggression in individuals with personality disorders and co-occurring disorders (Johnson et al., 2000).

Assessment of Aggression

Assessing the risk of inpatient violence to self, others, or property is a necessity throughout the course of treatment for individuals receiving treatment in behavioral health programs. The increased risk of aggression and violence in behavioral health programs jeopardizes the ability to maintain a safe and therapeutic environment for patients and staff. Aggression assessment tools can assist in identifying the presence of risk factors which can be defined as any variables that increase the likelihood that an individual will be violent and to make predictions about the likelihood of future violence (Day & Daffern, 2013). Despite the need, few risk assessment tools designed for institutional aggression exist (Bjorkly, Hartvig, Heggen, Brauer, & Moger, 2009). For the purpose of this study, a review of literature was conducted to examine the extent to

which violent patients in inpatient settings can be distinguished from nonviolent patients by using assessment tools.

Barry-Walsh (2009) conducted a study to determine whether imminent aggression in psychiatric inpatients can be accurately predicted using a structured risk assessment instrument, the Dynamic Appraisal of Situational Aggression (DASA). This validation study involved risk assessments of patients residing in a psychiatric hospital. Twenty-four hours after the risk assessment, psychiatric nurses documented whether patients had behaved aggressively towards others or if they had deliberately damaged property. They also noted the target of aggression, whether towards staff, patients or property. The predictive validity of the DASA varied according to the type and target of aggression. The prediction of any aggressive behavior, irrespective of type of aggression or target, was significantly greater than chance (AUC = 0.69). The strongest predictive accuracy (AUC = 0.80) was for physical aggression towards staff.

The results suggest that imminent aggression in psychiatric hospitals may be able to be accurately predicted by psychiatric nurses using a structured risk assessment instrument.

In a study examining the ability of a risk assessment algorithm, Neufeld et al. (2012) utilized the Risk of Harm to Others Clinical Assessment Protocol (RHO CAP) to predict inpatient aggression within a mental health and addictions treatment facility. There were 6,425 anonymized patient records that were retrospectively reviewed from 2004 to 2009. Survival analysis using Cox's regression was used to predict time to inpatient aggression using the RHO CAP. Approximately 10% of inpatients were at moderate risk of harm to others, and 2% were considered high risk. The pattern of survival curves revealed that within the first month of admission, approximately 10% of

inpatients at high risk of harm to others displayed physical aggression. Patients at high risk were also two times more likely to display physical aggression. It was determined that clinical teams can use the RHO CAP to implement preventive safety measures, reduce the incidence of inpatient aggression and improve quality of care.

Chu, Thomas, Daffern, and Ogloff (2013) conducted a study comparing the predictive validity of three indices (i.e. mean score, peak score, and most recent single time-point rating) of the DASA for inpatient aggression. Daily risk ratings were completed for 60 psychiatric inpatients (from the acute wards of a forensic psychiatric hospital) for up to 6 months; a total of 1054 DASA ratings were obtained. Results showed that mean and peak scores on the DASA were better predictors of interpersonal violence, verbal threats, and any inpatient aggression than the DASA single time-point most recent ratings. Overall, the results support the use of the prior week's mean and peak scores to aid the prediction of inpatient aggression within inpatient forensic psychiatric settings in the short to medium term. The researcher suggested that the results also have practical implications for clinicians considering risk-management strategies and the scoring of clinically-relevant items on risk-assessment measures.

Vojt, Marshall, and Thomson (2010) examined the efficacy of the Dynamic Appraisal of Situational Aggression –Inpatient Version (DASA-IV) in a high secure psychiatric hospital. There was a maximum of 26 patients on the ward during the study period. The majority of the study sample had been admitted to the state hospital due to their violent index offence (n =18, 69.2%), while the remaining eight patients had been admitted because of aggressive behavior displayed in a less secure setting (n = 6, 23.1%) or due to them posing an increased risk of violence (n = 2, 7.7%). The outcome data

included aggressive incidents recorded on the Staff Observation Aggression Scale – Revised (SOAS-R) and incidents noted on the hospital's online recording tool. All measures were completed by nursing staff as part of their daily clinical routine to ensure ecological validity. The results suggested that patients with a higher DASA-IV score were more likely to be involved in verbal and/or physical aggression post-rating than patients with a lower DASA-IV score. The DASA-IV showed poor predictive power when analysis was conducted on victim categories of aggression (staff vs. fellow patients). The researchers reported that the tool was not developed to identify the likely victim of aggressive incidents. The researchers concluded that while the DASA-IV may be good at predicting aggressive incidents, it is not reliable in predicting the likely recipient of aggression. Validation studies of the DASA-IV have shown the tool to be of excellent predictive power in forensic inpatient settings (Ogloff & Daffern, 2006).

Historically, assessments have been patient-centric and have inadvertently left out what is now understood to be meaningful and contributory information (Cutcliffe & Riahi, 2013). Recent research suggests that assessments for aggression are good predictors for such behaviors (Amore et al., 2008). Assessment tools for aggression may also play an important role in creating more accurate treatment planning. However, research acknowledges that difficulties still exist in the management and prevention of aggressive and violent behavior. Assessment tools are only one piece of the solution. In order to reduce incidences of aggression and violence, assessment tools should be incorporated into a systems approach (therapeutic interventions, behavior management training programs for staff, and biological and environmental factors) of inpatient behavioral health programs.

In summary, assessment of aggression is a necessity in inpatient behavioral health programs. Assessment tools are vital in identifying risk factors that may predict the likelihood of future aggression and violence in an inpatient setting. A multidimensional assessment is the first step in understanding the complexities of patient aggression. Research indicates that the DASA accurately predicts imminent aggression in psychiatric hospitals. The PHO CAP was accurate in predicting patients at high risk of physical aggression. The DASA-IV was shown to predict aggression in patients but was not reliable in predicting victims of aggression.

Aggression Management Training Programs

In the last three decades, management of aggression in inpatient behavioral health programs has undergone revolutionary changes**.** Prior to the nineteenth century, cells or cages were often constructed to detain those with violent behaviors (Grob, 1973) and chains, handcuffs, crib beds, and fixed chairs were common forms of restraint to maintain control over unruly patients (Hall, 1944). At mid-century, patients that exhibited aggressive behaviors in mental health facilities were offered protection from self-inflicted harm by using a five-point restraint, strait-jackets and padded rooms. Later, management of aggression was comprised of electroconvulsive therapy (Citrome, 2007; Fink, 2001), medication (Hirose, Ashby, & Mills, 2001), seclusion and restraint (Colaizzi, 2005; Knox & Holloman, 2012).

Over the years, given the poor therapeutic efficacy and potential for adverse events associated with physical seclusion and restraint, and the potential adverse sequelae of involuntary medications, these interventions grew to be considered last resorts (Hankin, Bronstone, & Koran, 2011). The implementation of these management

strategies was found to possibly precipitate aggression, model aggressive ways of interacting with others, or reinforce aggression (Daffern, 2002). While such traditional interventions still exists today, restraint and seclusion use are highly controversial as they are viewed as either: (1) used against the patient's will; (2) restricting the patient's freedom; and (3) controversial due to numerous well-publicized reports of deaths of psychiatric inpatients while they were in restraint (Cook, Rosen, Laris, & Kim, 2004). Further, the use of pharmaceutical management for aggressive and violent behavior could potentially lead to an increased reliance on pharmaceutical care.

The attention to the use of restraint and seclusion and pharmaceuticals management resulted in a legal and regulatory environment that discouraged their use to manage aggressive and violent behavior. Regulatory agencies began to require that seclusion and restraint be used only for behavior that jeopardizes the immediate physical safety of the patient, a staff member, or others (including other patients) and when less restrictive measures have failed (Centers for Medicaid & Medicare Services, 2008; The Joint Commission, 2015).

In 2008, The Joint Commission issued an alert regarding rude and disruptive behavior in health care settings. The Joint Commission stated that:

> intimidating and disruptive behaviors can foster medical errors, contribute to poor patient satisfaction and to preventable adverse outcomes, increase the cost of care, and cause qualified clinicians, administrators, and managers to seek new positions in more professional environments. Safety and quality of patient care is dependent on more professional environments. Safety and quality of patient care requires teamwork, communication, and a collaborative work environment. To ensure

quality and to promote a culture of safety, health care organizations must address the problem of behavior that threatens the performance of the health care team. (p.1)

Regulatory agencies began to require that their accredited health care organizations have a formal process for managing behavior seen as unacceptable and policies that support zero tolerance for violence (The Joint Commission, 2016). In addition, the OSHA (2004), recommended guidelines for health care facilities to provide education on the management of aggressive behavior. In response to their regulations, mental health facilities began transitioning to a more non-coercive approach of managing aggressive and violent behavior by implementing aggression training programs for their staff. According to Morrison and Love (2003), earlier aggression training programs were developed by applying some type of martial arts defense program and relied almost exclusively on physical techniques of self-defense; newer programs have more depth and breadth, address what is recommended by regulatory agencies, and some include newer theoretical and therapeutic principles.

In present day, training of staff is the essential component of safety programs for the reduction of aggressive and violent behavior. Staff response to aggression and violent behavior that is acquired from training is the key factor in successful management of such behavior. Aggression management training programs specialize in this type of staff training, usually along with other strategies for conflict de-escalation and problem solving. Most training programs are quite similar and contain the same principles: noticing the patient, knowing where the patient is on the continuum of losing control, understanding the meaning of the behavior, knowing what the patient needs, connecting

with the patient and matching the intervention with what he/she needs at the moment (Johnson & Hauser, 2001).

Livingston, Verdun-Jones, Brink, Lussier, and Nicholls (2010) performed an exhaustive review of the literature on all articles published in English between 1990 and 2007 that evaluated aggression management training programs. Twenty-nine studies met the inclusion criteria for a full review and were summarized using a qualitative narrative approach. Aggression management training was proven effective in some areas such as reducing the use of restraint and other coercive control devices. The findings of this study concluded that relying too heavily on aggression management staff training will have limited effect on addressing the range of issues related to patient-perpetrated violence in psychiatric hospitals. The researchers recommended that more methodologically rigorous research was needed to firmly establish whether aggression management training programs were effective in reducing aggression and staff injuries. The researchers suggested that mental healthcare organizations must look beyond staff training if they are to achieve meaningful reductions in aggressive incidents and staff injuries.

Farrell and Katrina (2005) evaluated 28 aggression management programs against 13 major content areas suggested by key industrial and professional organizations such as: (a) orientation to the work-place environment, management policies and grievance procedures; (b) causes of aggression, behavioral theories, disease processes; (c) types of aggression (physical, psychological, verbal abuse); (d) identification of potentially violent situations/risk assessment; (e) communication, therapeutic relationships, diffusion techniques; (f) pharmacological management; (g) assertiveness

training, self-defiance, physical restraint; (h) risks of applying restraint; (i) seclusion; (j) legal and ethical concepts; (k) leadership and management ; (l) debriefing and counseling post a violent incident; and (m) costs of violence.

The results indicated that the majority of the aggression management programs reviewed content areas that addressed causes of aggression (n=23), communication (n=23) and physical techniques, risk assessment and legal issues (n=20). Information on the types of aggression (physical and verbal), dementia, mental health, and disabilities was included in fewer programs (n= 15), as was leadership, team work (n= 14) and debriefing (n= 14).Very few courses appeared to cover orientation such as policies, protocols, and environment (n= 9), pharmacological management of aggression (n= 7), issues around the use of restraint (n= 7), costs associated with aggression (n= 4) or seclusion (n= 4).

The use of restraint, pharmacological management of aggression and seclusion were features of programs specifically addressing the needs of health care staff in mental health settings. Given the number of deaths attributed to the use of restraint, the researchers were surprised that very few programs explicitly included risk of restraint as a content area for aggression management training, and only seven of the programs appeared to include restraint as a major content area. Also, literature suggests that the effects of violence are wide and varied, including increased absenteeism and sick leave, property damage, decreased productivity, security costs, litigation, worker's compensation, reduced job satisfaction and recruitment and retention issues (Farrell & Katrina, 2005). Hence, the researchers found it surprising that the cost of aggression was addressed in only a few programs.

In conclusion, the researchers found that the *Critical Incident Positive Outcome* (CIPO) program covered 11 of the 13 content categories (Farrell & Katrina, 2005). The *INTACT* program covered 10 of the categories with *Aggression Management and Workplace Violence Prevention* and The Mandt System and the *P3 Assault Management Programs* covered 9 out of the 13 categories. The researchers also found that few programs were based on a systematic evaluation of their outcomes.

Morrison and Love (2003) conducted a study to evaluate four widely used aggression management programs: The Mandt System, *Nonviolent Crisis Intervention Training Program* (NCI)*, Professional Assault Response Training* (PART) and *Therapeutic Options* (TO). Their goal was to evaluate the programs for the management of aggressive behavior using a set of predetermined criteria. The five criteria chosen to evaluate the programs were the content, the feasibility, the psychological comfort of the staff, the program's effectiveness, and the cost. A comparison of the overall scores on the programs suggested that TO and PART had the highest scores. The content of these programs was reported as better than the other programs, the staff felt more comfortable using these programs and the cost was lower for the institution.

Although a number of programs have emerged with structured approaches designed to help staff, literature has revealed five which are widely regarded as training and certification programs. For this study, the training content of NCI, PART (which is currently known as *Professional Assault Crisis Training* (Pro-ACT), Aggression *Replacement Training* (ART), TO and The Mandt System programs will be explored in greater depth.

Nonviolent Crisis Intervention Training Program (NCI)

NCI is an aggression management training that is distributed by the *Crisis Prevention Institute* (CPI, 2016). CPI is designed to teach staff safe management of disruptive and assaultive behavior. CPI was established in 1980 for human service professionals to address the need for crisis prevention and intervention training using safe, respectful, noninvasive methods. The philosophy of CPI is to provide a balanced behavior management system while maintaining care, welfare, safety and security. CPI states that the methodology is to provide a holistic system for defusing escalating behavior and safely managing physically aggressive behavior. CPI methods focus on effective communication and an understanding of human physiology during aggressive moments, focused on achieving positive outcomes.

Through CPI, NCI assist facilities to: (1) reduce the risk of injury; (2) comply with legislative mandates; (3) meet regulatory and accreditation standards; (4) improve staff retention; (5) improve staff retention; and (6) minimize exposure to liability. A literature review available from CPI (2006) shows several instances where the Nonviolent Crisis Intervention training program, used as part of systemic improvement initiative, was utilized in a variety of settings to successfully reduce and eliminate the use of seclusion and physical restraint. McCue, Urcuyo, Lilu, Tobias, and Chambers (2004) documented a physical restraint reduction initiative at a public psychiatric inpatient service. The facility implemented six initiatives aimed at changing staff behavior. These initiatives included adding a crisis response team, utilization of debriefing after each incident, daily review of physical restraint use, implementation of an incentive program for staff, stress and anger management training for patients, and staff training in CPI. A

46% reduction in restraint use was recorded as a result of these six initiatives.

Jonikas, Cook, Rosen, Laris, and Kia (2004) introduced a program to reduce physical restraint in three psychiatric units of a university hospital. This program included providing CPI to staff as well as implementing an advanced crisis management program. These initiatives resulted in a 97–99% overall reduction of restraint episodes. According to LaFond (2007), St. Charles Mercy Hospital psychiatric staff's (working the 65-bed psychiatric unit) initial response to angry, disruptive, delusional, or assaultive patients was often seclusion and restraint. The psychiatry department began to investigate the connection between staff and patient injury and the use of seclusion and restraint. Hospital administrators recognized that in order to reduce injuries and the use of seclusion/restraint, an initiative to change the culture of service was needed.

The initiative included the implementation of both an informal and formal debriefing process for every incident of seclusion and/or restraint. Informal debriefing occurred immediately after the incident and before the "all clear" was called. The formal debriefing was scheduled as soon after the event as possible and included all direct care staff and security involved in the incident, nursing and security leadership, and psychiatric administration. In order to make early intervention and treatment much more effective, the hospital improved nursing assessments to include an 18-point assessment to pre-identify patients that could be at risk for a violent episode. Two additional CPI Certified Instructors were selected and trained to provide annual CPI training for staff. Staff also participated in training designed to foster a violence and coercion-free treatment environment. To ensure that efforts at the organization were effectively being

implemented, the following data sets were compiled: (1) seclusion and restraint specific data; (2) employee incident reports; and (3) code violent incidents response data.

In the baseline year of 2002, 83 episodes of seclusion and restraint were documented. The total documented time was 220:03 minutes against 1606 admissions and a total of 16,054 patient days which totaled an annual average of 34.26 minutes per 1000 patient hours. The data showed a reduction in seclusion and restraint time and minutes per 1000 patient days from 2002–2006. During the same period, patient admissions were up 23.4%, and patient days increased over 8.9%. Over the four-year period, 465 incidents of Risk, Security and Safety were reported. The number of incidents as a percentage of total admissions ranged from a low in 2003 of 5.7% to a high in 2004 of 7.7%. The number of incidents that were being reported remained fairly constant as the episodes and time of seclusion and restraint continued to decrease.

Through the initiative, a number of improvements were noted. There was a documented ongoing annual reduction of both the episodes and total time of seclusion and restraint, a documented reduction in violence related incidents from over 5% of total admissions in 2002 to 1.9% of total admissions in 2006, consistently high levels of patient satisfaction, and improved compliance with internal departmental seclusion and restraint protocols.

In another study, Ferguson and Leno-Gordon (2010) reported that in early 2007, a multidisciplinary committee was formed at Coney Island Hospital (located in Brooklyn, New York) with a mission to develop a program that would provide a more therapeutic, compassionate, and safe approach to prevent incidents of escalating, agitated behavior that culminates in crisis and often violence. A psychiatric crisis prevention team called

Code Grey was developed as a response to handle violence, potential violence, escalating behavior, and/or aggression through the safest, least restrictive means possible on the Coney Island Behavioral Health Inpatient Units.

The Code Grey Team was comprised predominantly of inpatient nursing staff. However, other key members involved were clinical administrators, inpatient therapists, psychiatrists, and hospital police. During the planning phase of this initiative, several staff were selected to attend CPI's four-day certification program to become Nonviolent Crisis Intervention Certified Instructors. All staff assigned to the team received formal Nonviolent Crisis Intervention training by attending an eight hour program. Since the introduction of Code Grey, the author reported that there were a number of positive trends that emerged over the course of a year such as an increase of: (1) staff interest to continue to learn about crisis prevention, and staff motivation to attend trainings not only as students, but also as instructors, (2) communication (during debriefing of incidents) which provided an opportunity for the exchange of information and staff learning from each other; (3) empowerment of staff and patients with greater collaboration, and (4) overall improvement in patient and staff satisfaction relating to treatment.

The use of Code Grey also resulted in an immediate improvement in decreasing the use of restraint and seclusion as evidenced by the 8.3 quarterly average of restraint and seclusion decreasing to 2.5 per quarter in 2009. Similarly, the total number of patient/staff injuries resulting from agitation-related incidents on the inpatient units decreased from 0.1per month in 2008 to 0.016 per month in 2009. The Code Grey 2009 data indicated a trend for staff intervention to occur prior to the patient exhibiting

dangerous behavior. This was supported by the total number of Code Greys (136), resulting in only 10 episodes of restraint or seclusion for the year.

Professional Assault Crisis Training (Pro-ACT)

The foundation of what has become Pro-ACT was laid in the early 70s by psychologist Paul Smith's PART. Psychologist Smith became concerned about the assaultive behavior he witnessed in his workplace. That concern prompted the creation of the PART program that was intended to reduce assaults and show patients the respect and dignity he believed all people deserved. The first class was taught in 1975. As Paul's training evolved, first to PART and then to Pro-ACT, he partnered with a select group of professionals involved in healthcare, behavioral health, education, and residential programs, each committed to reducing restraint and improving safety (Pro-ACT, 2016).

The Pro-ACT philosophy is based upon a set of principles that focus on maintaining client dignity while keeping clients and staff safe. With a focus on offering professionals the skills needed to reduce or avoid restraint, the Pro-ACT curriculum provides train-the-trainer programming as well as employees in-service training designed to: (1) respect client rights; (2) build a non-coercive treatment environment; (3) minimize the risks associated with emergency response to assaultive behavior; (4) emphasize the role of supervision of employee behavior; (5) support continuous upgrading of skills and knowledge; (6) be free of gender bias; (7) emphasize team skills; and (8) provide experience in problem solving.

A literature search could not identify any research which examined the efficacy of Pro-ACT. This intervention appears to not have been addressed for educational research studies.

Aggression Replacement Training

Development of ART began in earnest in 1984, under the auspices of Arnold Goldstein. Goldstein and Glick (1987) noted that the juvenile crime rate increased 167% in the 1960s and 1970s, compared to a 67% increase in overall crime during the same period. Citing multiple research studies, Goldstein noted that juvenile delinquents shared common personality characteristics that, by themselves, as well as in combination with each other, contributed to delinquent behavior. First, their social skills were insufficiently developed resulting in an inappropriate response to more challenging social situations. Second, they lacked the ability to contain their anger impulses. Third, their sense of moral reasoning reflected on self-centered and concrete beliefs rather than on more advanced concepts such as the good of the community. Of course, youth had other characteristics in common, but these three traits seemed to be the most dominant; and, as these characteristics were remediated, the improvement had a positive impact on other deficiencies.

ART, a research-based, proven-effective cognitive behavioral intervention approach for working with challenging youth, (Goldstein, Glick, & Gibbs, 1998) centers on three interrelated components, all of which come together to promote a comprehensive aggression-reduction curriculum. The components are structured learning training, anger control training, and moral reasoning. Each component focuses on a specific prosocial behavioral technique which includes action, affective/emotional, or thought/values.

The structured learning training (action component) is intended to teach social skills through social interaction and is disseminated using direct instruction, role-play, practice, and performance feedback. This is intended to give participants the opportunity

to practice prosocial responses to potentially difficult situations such as responding to failure, dealing with an accusation, and responding to the feelings of others.

The anger control (affective/emotional) component is intended to help youths recognize their external and internal triggers for aggression, aggression signals, and how to control anger using various techniques. Participating youths must bring to each session one or more descriptions of recent anger-arousing experiences (hassles), and over the duration of the program they are trained to use specific skills to better control their angry impulses.

The moral reasoning (thought and values) component is intended to address the reasoning aspect of aggressive behavior, and is specifically designed to enhance values of morality in aggressive youths. Techniques in this component allow participants to learn to reason in a more advanced manner in regard to moral and ethical dilemmas, and provide youths with opportunities to discuss their responses to problem situations, taking into account perspectives other than their own.

The program specifically targets chronically aggressive children and adolescents ages 12-17. ART has been implemented in schools, juvenile delinquency programs and mental health settings across the United States and throughout the world. The program consists of 10 weeks (30 sessions) of intervention training. Clients attend a one-hour session in each of the three components each week. Incremental learning, reinforcement techniques, and guided group discussions enhance skill acquisition and reinforce the lessons in the curriculum.

Goldstein, Glick, Reiner, Zimmerman, and Coultry (1986) studied the efficacy of ART at a maximum security facility for male juveniles, ages 13 to 21 (N=51) with youth

who had committed serious crimes such as murder, manslaughter, assault and rape. Results indicated significant increases in pro-social skills. The number of overt, antisocial behaviors was not reduced in comparison to a no treatment group. This may have been due to the diminished opportunity to participate in overt behaviors because of the locked facility. In another study Goldstein and Glick (1994) examined ART with youth (N=84) on post-release, community living bases who were randomly divided into three groups: ART for adolescents and their family members; ART only for the adolescents, and a no-ART control group. The two ART groups evidenced significant decreases in anger levels and increases in skill levels, as indicated by self-reports. Recidivism resulting in rearrests was lower overall in each of the ART condition groups as compared to the no-ART group (i.e., 6 % vs. 14 %, respectfully).

A study conducted by Hatcher et al., (2008) presented the findings of an evaluation of ART regarding the reconviction of male violent offenders in the English and Welsh Probation Service. This study employed a quasi-experimental design which utilized one-to-one matching on key criminogenic variables between an experimental group and a comparison group. The experimental group was comprised of convicted violent offenders who had been allocated to the program by probation staff, while the comparison group was sampled from a larger pool of individuals who had been convicted of a violent offence, and subsequently received a community sentence, but were not allocated to the program. Outcome data were analyzed using both the intention to treat and treatment received methodologies. The latter methodology allowed comparison of the naturally occurring groups of completers and non-completers with their matched comparisons and each other. The phi effect size correlations indicated a 13.3% decrease

in reconviction in the experimental group as compared to the matched comparison group. Additionally, program non-completers were more likely to be reconvicted than their matched comparisons and program completers.

The ART program was implemented at Uniting Networks for Youth, a SAMHSA-funded project administered through Ramsey County Juvenile Probation from 2001 to 2004. Through this agency, 283 youth, aged 12 to 18, received ART at one of four different sites: a residential program, a school-based program, and two community-based programs. All youth were on probation. Three months after discharge from the program, follow-ups with youth and their parents indicated that 80% of youth reported no additional arrests. Seventy-nine percent (79%) of parents and 75% of youth reported that the program helped youth improve relationships with teachers at least a little; and 80% of parents and 92% of youth felt that ART helped the youth become more responsible (Hosley, 2005).

Brännström, Kaunitz, Andershed, South, and Smedslund (2016) searched published and unpublished literature to identify randomized and non-randomized studies comparing ART for adults and youth with usual care, other interventions, or no intervention. Primary outcomes included recidivism in antisocial behavior, while secondary outcomes were related to social skills, anger management and moral reasoning. Their review identified 16 studies with considerable clinical and methodological diversity. The methodological quality and the post-intervention follow-up of the studies were limited. Almost half of the studies were conducted by researchers who had vested interests in the intervention. It was concluded that there was an insufficient evidence-base to substantiate the hypothesis that ART has a positive impact on

recidivism, self-control, social skills or moral development in adolescents and adults. Further research is warranted by independent investigators exploring the effects of ART on clearly-defined target groups using high standard evaluation designs.

Therapeutic Options (TO)

According to Partie (2016), TO is a comprehensive and sensible approach to reducing violence and the use of restraint and seclusion in behavioral health care, health care, habilitation, and education settings. The program provides the tools to keep people safe while maintaining their commitment to positive approaches in serving individuals whose behavior sometimes poses danger to themselves or others. The curriculum is person centered by providing support of individuals' needs, interests, preferences, and goals as they move toward increased independence or recovery.

Through relationship driven, TO stresses the vital importance of the helping relationship as the vehicle through which services are provided. The program employs a public health model, emphasizing global primary prevention strategies as well as secondary and tertiary prevention in the form of communication-based de-escalation and emergency management skills. The curriculum is also trauma informed. It incorporates insights from research on the widespread incidence and neuro-behavioral consequences of trauma in people receiving mental health and developmental services.

According to TO (2016), their program provides staff with an array of effective violence containment skills that are designed to: (1) prevent injury to staff and people receiving services; and (2) preserve the helping alliance. All the physical skills have been extensively field tested and proven to be both safe and effective. Because the training details the body mechanics and attack dynamics present in violent encounters,

participants acquire meaningful personal protection and physical control skills in an efficient way. This program is designed to be used in virtually any setting where aggression or violence places people at risk. TO is being used by staff in group homes, hospitals, classrooms, habilitation centers, and in community settings. The curriculum can be easily tailored to meet the specific needs of particular setting.

A literature search could not identify any research which examined the efficacy of Therapeutic Options. This intervention appears to not have been addressed in educational research studies.

The Mandt System

According to The Mandt System (2015b) training manual, training courses are based upon the philosophy that all people have a right to be treated with dignity and respect, the right to personal identity, the right to normalization and the right to the least restrictive and most appropriate environment. It is a relationally based program that uses a continuous learning and development approach to prevent, de-escalate, and if necessary, intervene in behavioral interactions that could become aggressive. The Mandt System (2015) integrated the relational process with trauma informed services and positive behavior interventions and supports (PBIS).

According to the National Center for Trauma-Informed Care (2016), trauma informed services focuses on understanding the whole individual and context of his or her life experience through trauma-informed care. Trauma-informed care is an approach to engaging people with histories of trauma that recognize the presence of trauma symptoms and acknowledge the role that trauma has played in their lives. The principles of a trauma-informed approach and trauma-specific interventions are designed to address

the consequences of trauma in the individual and to facilitate growth, resilience and healing, and focus on trust and safety. It is designed to minimize the possibilities of victimization and re-victimization.

Positive behavior interventions and supports focus on altering the antecedents or triggers of behavior, in order to reduce the likelihood that a specific behavior will be repeated in the presence of the antecedent. PBIS uses quality of life as both an intervention and an outcome measure and achieves reduction in targeted behaviors as a secondary by-product of quality of life for the individual (Horner et al., 1990). Research has shown the value of using a multi-tiered framework modeled upon PBIS, an incentive-based behavior modification system that teaches and strengthens appropriate behaviors and reduces challenging behaviors (Scheuermann & Hall, 2012). The model is designed to prevent the development of new problem behaviors, the triggering of occurrences of problem behaviors, and the exacerbation of existing problem behaviors. Johnson et al. (2013) suggest that while PBIS is typically applied to classroom settings, research supports its effectiveness with students of all ages and in all types of settings, including in secure juvenile facilities. The Mandt System fully integrates the learning and development of both Trauma Informed Services and PBIS into its training.

McClean and Grey (2012) conducted a study examining the PBIS. PBIS emphasizes multi-component interventions by natural intervention agents to help people overcome challenging behaviors. The researchers investigated which components are most effective and which factors might mediate effectiveness. Sixty-one staff working with individuals with intellectual disabilities and challenging behaviors completed longitudinal competency-based training in PBIS. Each staff participant conducted a

functional assessment and developed and implemented a PBIS plan for one prioritized individual. A total of 1,272 interventions were available for analysis. Measures of challenging behavior were taken at baseline, after 6 months, and at an average of 26 months follow-up. The results indicated that there was a significant reduction in the frequency, management difficulty, and episodic severity of challenging behaviors over the duration of the study. Escape was identified by staff as the most common function, accounting for 77% of challenging behaviors. The most commonly implemented components of intervention were setting event changes and quality-of-life-based interventions. Only treatment acceptability was found to be related to decreases in behavioral frequency. There was no single intervention component of PBIS found to have a greater association with reduction of challenging behaviors.

The primary goals of The Mandt System (2011) are to build healthy workplace relationships between the staff of the organization to create a culture of safety; build healthy relationships between the staff and the service recipients and their families to build upon the culture of safety; and increase the physical, psychological, and emotional safety of all people. The overall focus of The Mandt System is on building healthy relationships between all the stakeholders in human service settings in order to facilitate the development of an organizational culture that provides the emotional, psychological, and physical safety needed in order to teach new behaviors to replace the behaviors that are labeled "challenging".

The Mandt System's (2015b) training manual addresses three essential components known as the "RCT" (Relational, Conceptual and Technical) program. The relational skills chapters focus on building healthy relationships by teaching what the

components of healthy relationships are and how they can be built and maintained. The conceptual skills chapters address trauma-informed services, positive behavior interventions and support, liability/legal issues and medical risk factors. The technical skills chapters address specific physical skills to provide safety for caregivers and people to whom they provide care by assisting and supporting the foundation for all the physical skills taught in The Mandt System. These chapters explore technical skills to escort people away from danger and towards safety, separating skills needed to address situation in which service recipients may grab others, and restraint training to provide restraint with the service recipient in a standing position.

The Mandt System includes training in the use of three models interactively (Maslow's Hierarchy of Needs, RADAR and The Crisis Cycle). In regards to Maslow's Hierarchy of Needs, The Mandt System supports that when people have basic needs met, and feel safe physically, psychologically, and emotionally, they are able to build healthy relationships and will want to achieve (The Mandt System, 2015b).

RADAR shows how to interact with people so that interactions remain interactions and do not escalate into incidents. RADAR assists in building an understanding of how people maintain their safety in a world that a sometimes becomes threatening. Using this concept, The Mandt System (2015b) trains staff to always keep their RADAR on which means to recognize, assess, decide, act and review result at all times. Staff are taught to always: assess themselves first, other people and their surroundings; recognize other person's action and the environment; decide what will they do after they have recognized and assessed; act using a verbal response or non-verbal

response; and review the results by comparing the outcome achieved with the outcome desired.

The Crisis Cycle illustrates a understanding of how people respond to stress through various stages such as the baseline, stimulus, stabilization, escalation/de-escalation and the crisis phase. The Mandt System (2015b) training emphasizes that the more that you know about the person's baseline behaviors, the more you will be able to support them as they escalate. By removing the stimulus, staff can direct the person to the stabilization phase. If removing the stimulus does not work and the behavior escalates, then staff will need to interrupt the behavior chain and have the person respond to options. According to The Mandt System (2015b) if the incident rises to the point of a crisis, staff will need to respond with the least amount of interaction necessary for safety.

According to Wale, Belkin, and Moon (2011), The Mandt System was utilized as one of the strategies in a Seclusion and Restraint Reduction Initiative implemented by New York City Health and Hospitals Corporation (HHC). The Seclusion and Restraint Reduction Initiative was an intensive series of interventions and strategies that assisted the hospital to transition to a culture change which included toward a more patient-centered and safe system of psychiatric emergency and adult inpatient care. HHC managed 11 facilities that provided psychiatric emergency services/inpatient psychiatric services with 1117 adult inpatient psychiatric beds. During the implementation phase of the initiative, there were three sessions of two-day corporate culture change training. Participants were introduced to six core strategies that have been proven to reduce seclusion and restraint use (primary and secondary prevention, leadership roles and

responsibilities, trauma-informed care systems, environmental factors, post-event debriefing, and consumer/family roles in the inpatient setting).

There were 11 facility-specific consultations to assist facilities to develop their work plans and to identify opportunities and strategies for improvement. The primary focus was on the adult inpatient units of each facility. At each site, the consultants met with the facility's behavioral health leadership team, quality-improvement staff, nursing leadership, and frontline staff to get a thorough picture of the facilities efforts to reduce the use of seclusion and restraint. The consultants also reviewed seclusion and restraint documentation in a random sample of facility records. At the conclusion of the consultations, summary reports were prepared that indicated the facilities strengths and priority areas recommended for improvement.

HHC then implemented train-the-trainer models for crisis prevention and management at the facilities. Sixteen highly interactive The Mandt System training sessions were provided for groups of behavioral health staff to help them develop crisis de-escalation skills. HHC also used the CPI train-the-trainer model of crisis management and de-escalation. CPI trained staff members. Sensory modulation experts were hired to train and educate HHC staff on how to utilize sensory modulation approaches and how to reduce seclusion and restraint episodes. Sensory modulation equipment was purchased for each inpatient psychiatric unit operated by the corporation such as a rocker, weighted blankets, and vests. As part of the training, staff were able to view and rehearse use of the equipment.

In the final phase of the initiative, the HHC facilities were asked to submit seclusion and restraint data before the project was officially announced so that a baseline

could be analyzed and shared. This data was reviewed monthly at each of the 11 acute care facilities. The frequency of seclusion and restraint use per 1000 patients dropped markedly during the project. The total duration of restraint episodes rate per 1000 patient hours dropped by 28%, and the total duration of seclusion episodes decreased 27%. In addition, there was a decrease in patient injuries in by 56%. The duration per episode of restraint went from a mean of 246.81 minutes to 57.62 minutes between 2007 to June 30, 2009, a 77% reduction; and the mean duration per episode of seclusion decreased from 88.78 minutes to 50.50 minutes, a 43% reduction. The results of a one-way analysis of variance (ANOVA) suggested that there was a substantial decline in HHC's overall rate of seclusion and restraint incidents in inpatient units. The more substantial impact was in the reduced overall time spent in seclusion and restraint, the reduced frequency of use of S/R, and the reduced likelihood of patient injury from seclusion and restraint use.

In a study conducted by Huckshorn et al. (2009) at Delaware Psychiatric Center, the researchers implemented a pilot program that utilized The Mandt System as one of the strategies aimed to reduce the utilization of seclusion and restraint. The pilot program's six core strategies included: (1) leadership towards organizational change by revision of the mission statement to incorporate trauma informed and recovery principles; (2) data utilization to inform practice that comprehensively documented each incident and set goals to reduce the number of incidents, and reported trends; (3) workforce development that provided staff training with The Mandt System for alternative methods to deal with aggressive and agitated patients; (4) updated environment that created comfort rooms for patients and removal of security from the frontlines; (5) patient oriented services that empowered peer specialists to be involved in the care and support

of patients; and (6) rigorous debriefing techniques that obligatory discussed events that led to the incident and determine whether staff's response were appropriate or needed refinement.

Rates of seclusion and restraint and associated adverse effects were recorded from year 2009-2011. The results indicated that seclusion and restraint episodes decreased significantly over a four year period at Delaware Psychiatric Center. However, the rates of injuries related to agitation and aggressive behavior remained consistent in this time period. The researchers concluded that the successful implementation of this program reaffirmed research demonstrating the feasibility and practicability of a program geared towards the reduction of seclusion and restraint. The researchers suggested that future research was needed to analyze differences between incidences when seclusion and restraint are utilized and not utilized (i.e. in terms of clinical presentation, patient's characteristics, etc.).

In 2009, the Hogg Foundation's Study of Texas school districts was conducted comparing 11 independent school districts using The Mandt System with the statewide average of schools in Texas (The Mandt System, 2008). The averages for those schools in Texas that use The Mandt System was 84% lower when measured as a percentage of restraints for the disability population, and 93% lower when measured as a percentage of restraints compared to the total student population. When restraints were reduced, schools saved money in a variety of ways, increased instructional time with students and improved overall morale of staff.

In summary, management of aggression has evolved from cells or cages, handcuffs, and fixed chairs, five-point restraints, electroconvulsive therapy,

pharmaceutical management, seclusion/restraints to training and educating staff in skills needed to reduce such behavior. This review of aggression management training programs sets out both to offer a clear understanding of content and delivery of such programs and to assess the efficacy of the programs.

CPI focuses on effective communication and understanding of human physiology during aggressive moments. PRO-ACT is based upon a set of principles that focus on maintaining patient dignity while keeping clients and staff safe. Through structured learning, anger control and moral reasoning, ART interrelates three components to promote an aggression-reduction curriculum. TO provides skills for staff to support individuals' needs, interests, preferences, and goals as they move toward increased independence or recovery. The Mandt System is based upon building healthy relationships between staff and patients to build upon a culture of safety, and increase their physical, psychological, and emotional safety.

Overall, this review of literature suggests that aggression management training programs are effective in the reduction of aggression. However, given the number of aggression management training programs, there are no clear systematic evaluations of their effectiveness. This review corroborates findings of reviews on aggression management training programs which point to a lack of quality research examining their effectiveness. Although the majority of the literature that was discussed supports aggression management training programs as avenues to reduce incidences of aggressive and violent acts, clinical outcome literature is relatively small and limited to a few therapeutic approaches.

Management of Aggression in Behavioral Health Programs

Training of staff to manage aggression and violence has been deemed as an important aspect of a workplace safety and prevention programs. Many agencies consult with commercial companies that specialize in managing aggression and violence to assist in training their staff. As aggression and violence apply to both adults and children in various settings, this section will explore the efficacy of various training programs utilized in various behavioral health programs.

Mental Health Facilities

The National Alliance on Mental Illness (NAMI, 2015) reported that approximately 1 in 5 adults in the United States (43.8 million or 18.5%) experience serious mental illness (SMI) in a given year. In 2014, among adults with a SMI, 62.9% received mental health services (Substance Abuse and Mental Health Service Administration, 2014). Amid those who received mental health services, many were admitted to mental health facilities due to aggression and violent behavior (risk of suicide or homicide, harmful acts to self or others, or greatly impaired self-care; Sharfstein & Dickerson, 2009).

Research suggests that a history of violence is the most significant predictor of future violence (Milton et al., 2001; Monahan & Steadman, 1983). Thus, it should be of no surprise that patients admitted to mental health facilities due to their aggression and violent behavior often do not succeed in controlling those behaviors once they are placed on the ward. Consequently, exposure to these type of behaviors becomes highly prevalent for mental health staff and other patients receiving services.

Laker, Gray, and Flach (2010) explored whether de-escalation and physical intervention training was effective in reducing incidents and incident severity on a psychiatric intensive care unit (PICU) and to consider the cost impact. Poisson regression analysis was used to compare the number and severity of incidents on a PICU before and after de-escalation and restraint training. The pre- and post-training groups were similar by the characteristics analyzed.

The incident rates after training were not significantly lower than before training (IRR = 0.986, 95% CI = 0.75–1.29, P = 0.920). The odds of a severe incident were not significantly lower after training than before training (Odds Ratio = 0.58, 95% CI 0.32–1.03, P = 0.064). Adjustment for demographics made no difference with the results and had little impact on the estimates.

The researchers indicated that objective assessment in the evaluation of interventions to improve the safety of the inpatient services is difficult when data is recorded inconsistently or inaccurately. The severity of incidents needs to be defined more fully to allow accurate measurement of the efficiency of techniques employed to resolve violence. The data showed that incidents were either inadequately described or individual staff members showed considerable variability in interpreting the degree of severity of the incident and consequently the proportionality of the response. The cost impact of training in the management of violence in relation to the benefits remains unclear in the absence of accurate data being recorded. Therefore, the researchers concluded that the efficacy of the training in helping staff to manage more serious incidents also requires further consideration.

Ching, Daffern, Martin, and Thomas, (2010) examined the impact of a suite of interventions designed to reduce the use of seclusion in a forensic psychiatric hospital. These interventions included a review of existing seclusion practices and staff training in the management of aggression as well as the implementation of evidence-based alternatives. Evaluation occurred via pre- and post-measurements of (1) therapeutic climate, (2) staff attitudes towards seclusion, (3) staff confidence to manage aggression, (4) the frequency and duration of seclusion episodes, and (5) the frequency of aggression. The results revealed a significant reduction in the use and duration of seclusion episodes. Although staff appeared to use seclusion less frequently to manage a similar number of aggressive incidents, there was neither deterioration in staff perceptions of personal safety nor any change in staff confidence to manage aggressive patients. There was also no change to the therapeutic climate or staff attitudes towards seclusion.

Lehmann, McCormick, and Kizer (1999) distributed surveys to Veteran Administration (VA) medical centers and freestanding clinics asking for cumulative data for one fiscal year (October 1990 through September 1991). Data were obtained on number, types, and locations of physical assaults and other assaultive behavior such as: (1) types of staff assaulted and number of workdays lost due to injuries; (2) diagnoses of perpetrators; (3) recommendations made after the incidents were reviewed; (4) training in prevention and management of assaultive behavior; and (5) the impact of training on rates of assaultive behavior. During the survey year, 166 VA facilities reported 24,219 incidents of assaultive behavior and 8,552 incidents of battery or physical assault. Weapon possession by perpetrators was common (8.5% of incidents), and weapons were used in 130 assaults (1.5% of assaults). Assaults occurred most frequently in psychiatric

units (43.1%), followed by long-term-care units (18.5%) and admitting or triage areas (13.4%). Assault-related injuries were most common among nursing personnel. Perpetrators of assaults were most typically diagnosed as having psychoses, substance use disorders, or dementia. Further, on inpatient psychiatry units, an inverse correlation was found between expenditures on staffing and the frequency of assaultive incidents. Staff training on management of assaultive behavior varied widely. However, the researcher concluded that assaultive behavior is a significant problem for health care workers. There is a need for staff in all clinical areas to be prepared to deal with assaultive patients. And more research is needed on staff training and interventions for preventing and limiting assaults.

Fernandes et al. (2002) conducted a study to examine the efficacy of an educational aggression management training entitled *Prevention and Management of Aggressive Behavior Program* (PMABP). One hundred and ninety-five emergency department staff completed a baseline survey pretest at 3 months and a follow-up posttest at 6 months. The staff attended (in groups of 40) a 4-hour training on PMABP. The educational training significantly decreased the number of verbal (from 154 to 58) and physical assaults (from 49 to 19) at the 3-month post-test. Violent incidents increased by the 6-month post-test (verbal from 58 to 69; physical from 19 to 46) but still below the original level.

Calabro, Mackey and Williams (2002) studied an aggression training program designed to prevent and manage violent and aggressive patients in 12 inpatient units of an acute psychiatric hospitals. The aim was to evaluate the course in the areas of "knowledge, attitudes, self-efficacy and behavioral intention" (p. 2). Hospital staff

(N=180) completed an evaluation pre and post-training to measure changes in knowledge. A 5-point Likert scale was used to evaluate the areas of attitude, self-efficacy and behavioral intention. All outcomes showed a significant improvement immediately after the 1 ½ day course. The researchers suggested that participants were more likely to engage with aggressive patients and felt more confident and willing to utilize the skills taught. They commented that the absence of a comparison group was a limitation. A further limitation was that there was no measurement of skills transfer to the clinical environment post intervention. This study recommended that more research be conducted in the evaluation of programs that teach mental health care staff to manage potential patient violence.

In a research project by Bowers et al., (2006), three United Kingdom hospitals with 14 acute mental health inpatient units included a retrospective analysis of *Prevention and Management of Violence and Aggression* (PMVA) programs and examined violence incidence rates and training course attendance. The results showed that during the two and a half year period, 684 violent incidents took place for 5,384 admissions and 312 attendances at PMVA training courses. Findings indicated that post-training showed an increase in the number of reported violent incidents and the willingness of less experienced staff to engage aggressive patients. The authors suggested that reporting of incidents may have increased after training because reporting mechanisms and reasons for reporting were addressed in the theoretical components of the course. Another possibility suggested by the researchers for increased incidence was that some of the wards over the period experienced staff shortages and high vacancy rates; this, rather than the training course may have caused the increased incidence of violence. Also considered

was the concept that participants felt more confident in engaging and confronting aggressive patients, so if de-escalation does not achieve a positive outcome, a violent or aggressive incident ensues. In conclusion, the authors advised further research to evaluate the PMVA training programs to determine the best course content to reduce violence and aggression.

Flannery (1991) evaluated *The Assaulted Staff Action Program* (ASAP), a voluntary, peer crisis intervention program that includes pre-incident training, acute care services and post-incident assistance for victims. The ASAP program showed an association with sharp reductions in facility levels of violence. During the first two years prior to the fielding of the first ASAP team in a state mental hospital, there were 24 staff turnovers directly related to patient violence. During the next two years, after ASAP was initiated, there was only one staff turnover related to patient violence. In addition to less staff turnover, there was less injury, less violence in general, improved morale, and sustained productivity.

In a controlled prospective one year study, Arnetz and Arnetz (2000) evaluated the effectiveness of an intervention project. The aim was to implement and evaluate a program designed to assist staff to deal with patient violence. The study's population was 1500 health care staff at 47 health care work places. Compared to the control group, the intervention group (at a specified 0.05 significance level) reported better awareness of perceived risky situations for violence, ways to avoid potentially dangerous situations or risk discernment, and how to handle aggressive patients.. The evaluation demonstrated that the structured feedback program improved staff knowledge of risks for violence in the intervention group.

Intellectual Developmental Disability Facilities

Aggressive behavior displayed by individuals with an intellectual disability (ID) can represent a serious burden on caregivers and pose important obstacles to their social, vocational and educational integration (Cooper et al., 2009). Given that a significant minority of people with intellectual disabilities present with aggressive behavior, it is likely that services will be needed to provide treatment for those whose offenses involve aggressive behaviors.

Crocker, Prokić, Morin, and Reyes (2014) aimed to identify the associations between different types of aggressive behavior and various types of physical and mental health problems. These associations were explored through a cross-sectional study of 296 adult men and women with mild or moderate ID living in the community and receiving ID services. Information was gathered through interviews with ID participants, case managers and file reviews. In order to identify the associations between the types of aggressive behavior and specific types of mental and physical problems, the researchers performed logistic regressions on four dependent categorical variables (aggression types) and several independent categorical variables (type of mental health problem, type of physical problem, and type of medical condition), while controlling for sex and the level of IQ. The results of this study concluded that individuals with ID who had more mental and physical health problems had higher odds of displaying aggressive behavior than those with fewer and less severe physical health problems.

In a multiple baseline design across a set of group homes, Singh et al. (2006) provided group home staff with behavioral training and later with mindfulness training to assess the impact on aggressive behavior and the number of learning objectives mastered

by individuals in their care. Outcomes such as activities engaged in by the individuals, use of restraint by staff, and measures of satisfaction were accessed. The effect of varying staff-resident ratios was evaluated on all measures. When compared to baseline, the number of staff interventions for aggression showed some reduction following behavioral training, but decreased substantially only following mindfulness training. There was also some increase in the number of learning objectives mastered by the individuals following behavioral training, but greater and more consistent increases were obtained only after mindfulness training.

Improvements also occurred on the other measures assessed after behavioral training, but these were always greater and more consistent following mindfulness training. In addition, consistent gains followed behavioral training only with a high staff-resident ratio whereas the larger gains after mindfulness training occurred with both medium and low staff-resident ratios. The results suggested that the addition of mindfulness training considerably enhanced the ability of the group home staff to effectively manage the aggressive behavior and learning of the individuals.

In summary, the prevalence of aggression and violence within behavioral health programs varies substantially as different timings, settings, behaviors, and diagnoses are involved. The training of staff in these specific populations on the principles and application of aggression management training, and in particular, the successful application of these principles is a complicated but not an impossible task. This review suggests that aggression management programs may be beneficial in training staff to manage aggression in both mental health and intellectual developmental disability facilities.

This review also suggests that staff training in the management of aggression resulted in a reduction in the use and duration of seclusion/restrain episodes, verbal/physical assaults, an increase in the number of reported violent incidents and the willingness of les experienced staff to engage aggressive patients. Yet, not all aggression management training programs are empirically supported.

Overview of East Mississippi State Hospital

In 1882, the Mississippi State Legislature approved enabling legislation to establish the East Mississippi State Insane Asylum (EMSH, 2016). The city of Meridian purchased and donated 560 acres of land for the construction of the facility. The asylum opened its doors for service in January of 1885, with a 19 year old man from Meridian as the first patient. The name of the institution was changed from East Mississippi State Insane Asylum to East Mississippi Insane Hospital in 1898. In reaction to nationwide changes in attitudes toward mental illness, the Insane Hospital was renamed East Mississippi State Hospital (EMSH) in the early 1930s. During the early years, the hospital was almost self-sufficient with farming facilities, a hog farm, a cattle farm, a dairy barn, a poultry plant, and orchards of peach, apple, pear and pecan trees. A canning plant was built to process the produce (EMSH, 2016).

In the mid-1950s, the hospital began progressing toward becoming a modern psychiatric hospital. Since its beginning, the hospital had provided for only custodial purposes, but during the 1950s it began to develop treatment services for the patients. During the 1960's, the admission rate for adolescent patients increased, and the hospital began providing active treatment to younger residents of the state. It was also during this period that one of the buildings was converted into a skilled level nursing facility in order

to provide nursing home services for those patients who no longer required psychiatric care but were in need of more medical and nursing services. This decade saw an increase in the number of admissions to state hospitals, but a decrease in the number of long-term patients as community based programs developed statewide (EMSH, 2016).

In the 1970's, an Alcohol Rehabilitation Center was established which was later named a Chemical Dependency Unit. Also, a 96-bed intermediate nursing facility was licensed. To provide opportunities for employee training and advancement, the hospital established a series of in-service education courses to better prepare the psychiatric direct care workers for their duties. A deinstitutionalization program was reinstated with special emphasis on discharge planning and treatment programs. The Amenity Center Halfway House was established in the community to provide former patients the opportunities to develop and exercise independent living skills to live independently on their own in the community (EMSH, 2016).

During the 1980's, a Community Services Division was created to implement a treatment team model to prepare long-term residents for discharge. The treatment model provided patients with an active treatment intervention to facilitate return to the community and to reduce the number of patients in extended treatment services. In this division, a case management system, respite program and the Friendship Center (day treatment program) were developed to divert readmissions to the hospital and most importantly provide psychosocial community based day treatment. Programming was expanded in existing community programs. Additionally, efforts were made to promote community awareness and support. Group homes were established in the community, and

supervised apartments became available to provide alternative living arrangements for former patients (EMSH, 2016).

The 1990s brought an expansion of the parameters of patient care. Additional full-time staff was hired to offer a broader spectrum of services to the patients. Affiliations with medical hospitals and consultant physicians were added to the range of medical services available. These changes improved treatment by increasing the staff-patient ratio. During this time period, emphasis was placed on training and educating all staff. Continuing in-service education was mandated for medical and other professionals. An academic linkage agreement was also established with state colleges and universities to provide supervised clinical experiences for students at the facility (EMSH, 2016).

In 1993, one of the hospital buildings was renovated to meet nursing home requirements and opened as the Reginald P. White Nursing Facility 303. EMSH adolescent school was officially named Magnolia Grove School and organized as a separate department with the appointment of a chief administrative officer. An internal school board was appointed to serve as governing body. In 1995, Magnolia Grove School completed all requirements to be certified as a special school with full accreditation from the State Department of Education.

Opening of new facilities have marked the beginning of the twenty-first century. Two new group homes were opened in DeKalb, MS in 2001. These group homes provide residence for ten men and ten women in a homelike setting. The Bradley A. Sanders Adolescent Complex was dedicated in 2002. Named after a longtime Department of Mental Health employee, the 50-bed complex was built on 63 acres of land near the

hospital's main campus to replace the existing adolescent unit located in one of the hospital's older buildings.

A groundbreaking ceremony was held in 2003, for construction of a new R.P. White Nursing Facility. It is a state-of-the-art facility consisting of two 120-bed single story buildings which were built on a beautiful eighteen-acre tract of EMSH property located in Northwest Lauderdale County. This nursing facility opened in 2006. Today, EMSH provides inpatient services for adults and adolescents requiring psychiatric or substance use disorder treatment, nursing home services as well as community based group home services (EMSH, 2016).

What was once referred to as an asylum, EMSH is now deemed an inpatient behavioral health program, and patients are now referred to as individuals receiving treatment. EMSH is one of four behavioral health programs in the state of Mississippi. And most importantly, the city of Meridian, which seemed distant from the hospital a century ago, has surrounded EMSH as a part of a growing area of schools, recreational areas, and special support services for the community (EMSH, 2016).

Today, the mission of EMSH is to provide behavioral health, chemical dependency and nursing home services in a caring and compassionate environment. Through this mission, EMSH provide services through following programs:

1. Inpatient Services

   (a) Adult Inpatient Service Units - provide short term, intensive inpatient psychiatric treatment to individuals 18 years and older that are admitted from mental health regions within the hospital catchment area. EMSH has six adult inpatient units with a bed capacity of 20 for each unit. There are 4 males units and 1 female unit. Programming is comprised of three stages:

      (i) Observation & stabilization.

      (ii) Therapy processes & dual diagnosis.

      (iii) Discharge planning & community awareness.

   (b) Adult Male Chemical Dependency Unit (CDU) - is 28 day detoxification, stabilization and psycho-educational treatment program for males 18 years of age and above who have a substantial substance abuse/dependence disorder. CDU has a bed capacity of 25.

   (c) Adolescent Complex which is comprised of two units, provides acute psychiatric services and chemical dependency services to adolescent males ranging in age from 12 to 17. Both the psychiatric unit and the chemical dependency unit have a bed capacity of 25.

2. Nursing Home Division

   The Reginald P. White and James P. Champion Nursing Facilities compose the Nursing Home Division of East Mississippi State Hospital.

Each is a 120 bed facility and offers all levels of care to individuals who are in need of long-term care. Long-term care is provided using an interdisciplinary approach to each resident's care that is specific to the individual and seeks to maintain the individual's highest level of physical, mental, and psychosocial well-being.

3. Community Services Division

The Community Services Division is comprised of two group homes that provide supervised living in a home-like setting. The residents have the support of staff to improve their daily living and psychosocial skills with the objective of living independently on their own upon discharge. Each group home has a bed capacity of 10 (East Mississippi State Hospital, 2016).

At this point, it is imperative to mention that in 2015, all of EMSH's programs earned *The Joint Commission's Gold Seal of Approval*. The Joint Commission's accreditation and certification is recognized nationwide as a symbol of quality that reflects an organization's commitment to meeting certain performance standards. EMSH gained this accreditation by demonstrating compliance with The Joint Commission's national standards for health care quality and safety in hospitals (The Joint Commission, 2016). For the purpose of this study, a set of standards of particular importance in regard to management of aggression and violence in mental health settings would be that of the Joint Commission's Leadership Chapter.

The Leadership Chapter states that leaders create and maintain a culture of safety and quality throughout the (organization) by: (1) developing a code of conduct that defines acceptable behavior and behaviors that undermine a culture of safety; and (2) creating and implementing a process for managing behaviors that undermine a culture of safety (The Joint Commission, 2016) . Therefore, it is imperative that EMSH's administration ensures that the hospital's aggression management training is effective in creating such a culture.

Average Monthly Census

In 2007, EMSH Inpatient Services was comprised of 125 adult acute psychiatric beds (60 male, 65 female), 92 continuing care psychiatric beds (52 male, 40 female), 40 male psychiatric adolescent beds, 10 adolescent chemical dependency beds, 25 adult male chemical dependency beds, 36 immediate care beds and seven medical care beds for a total 335 beds. The average monthly census in 2007 was 330. In the following years, the average monthly census was 332 for year 2008, 311 for 2009, 315 for 2010 and 311 for 2011.

In 2012, due to dilapidation, the buildings with the 92 continuing care psychiatric beds and the 36 immediate care beds were closed. The adult inpatient service beds were increased to 180 beds, leaving a total of 262 beds. The average monthly census for year 2012 was 248. In 2013, the adult acute psychiatric beds were reduced to 120 beds. The adolescent psychiatric unit beds were reduced to 25, and the adolescent chemical dependency unit beds were increased to 25. The adult male chemical dependency beds remained at 25 beds, and the medical care beds remained at seven. This resulted in a 202 bed capacity for Inpatient Services and a monthly census of 195.

History of Aggression Management at East Mississippi State Hospital

Techniques for the Management of Aggressive Behavior (TMAB)

In response to regulations of both state and federal regulatory agencies, in 1986, the Mississippi Department of Mental Health (MDMH) established the TMAB committee to analyze the need for training in the management of aggressive and violent behavior in its facilities. The TMAB Committee found that it was essential that the staff of MDMH mental health and regional facilities obtain training and recommended that effective alternatives were needed to control aggressive and violent outbursts. From there, the TMAB Committee began the formulation of the TMAB Policy Manual as guidance to ensure safe management of hostile, aggressive behavior of patients in facilities within the Mississippi Department of Mental Health. With assistance from Dr. C. Edward Taylor of the South Carolina Department of Mental Health, vital information from his *Prevention and Management of Aggressive Behavior* program was incorporated into the TMAB manual (MDMH, 1986).

The philosophy of TMAB training was to increase the knowledge and skill level of mental health professionals and paraprofessional in managing hostile and aggressive clients/patients appropriately, safely, and effectively. The training was based on the "ABC" operant conditioning paradigm created by psychologist Burrhus Frederic Skinner (1938). In this paradigm, "A" refers to antecedent (what happens before behavior occurs); "B" refers to behavior (what the individual does); and "C" refers to consequence (what happens after the behavior occurs). Instead of focusing internal thoughts and motivations of behavior, Skinner believed that one should focus on the external, observable causes of

behavior. According to this model, behavior may be changed by modifying either the conditions preceding it or its consequences.

Mastery of the content presented in the training program was required of all designated staff. TMAB was comprised of five sections: (a) policies and procedures provided the purpose of the TMAB training, description and use of the manual, guidelines for implementation of the training, personnel and trainee requirements and quality assurance guidelines; (b) management of inappropriate behavior- explained the need for training in the management of aggressive behavior and intervention, defined aggressive behavior and causes of aggressive behavior, how to detect early warning signs, responses to a crisis situation with de-escalation procedures and inappropriate techniques; (c) defensive techniques-included instructional recommendations for various defensive techniques that may be used to intervene with the hostile or aggressive client/patient when preventive measures fail; (d) take-downs and restraints- demonstrated instructional recommendations for various physical take-downs and restraints to achieve control of the client/patient without causing injury; (e) transports-demonstrated instructional recommendation for relocating a hostile and aggressive patient to another area (MDMH, 1986).

Upon completion of training, a staff member should have mastered: (a) defining aggressive behavior; (b) identifying the signs of a developing behavioral crisis; (c) using techniques which may inhibit the development of hostile or aggressive action; (d) employing techniques used to calm an individual; (e) using appropriate methods of physical intervention in cases of inevitable or spontaneous physical aggression; (f) demonstrating both management and intervention strategies in a way that ensures

maximum protection of dignity, self-respect, and safety of the staff members and the clients/patients; (g) implementing interventions/programs designed to improve inappropriate behavior; and (h) using physical intervention techniques as a method of treatment rather than punishment (MDMH, 1986). MDMH made it mandatory that all facilities train current staff and new hires in a four day TMAB orientation training program and annually thereafter. Each facility included a minimum of twenty (20) hours of training in its orientation program with the inclusion of the defensive and management techniques provided in the TMAB manual. In 1986, EMSH implemented TMAB at the facility to assist staff in managing aggression.

In 2010, under the directive of regulatory agencies, MDMH began a transition from TMAB to The Mandt System. The transition was because TMAB was an in house training implemented by MDMH. It could not be replicated for use outside of the state's facilities. It was recommended that MDMH transition their facilities to a more uniform system of training throughout all facilities. In addition, The Mandt System was perceived by the TMAB Committee to offer more alternatives to manage aggression as opposed to the physical interventions of TMAB. Beginning in 2010, EMSH implemented The Mandt System to current staff and in new hire orientation. Retraining was conducted annually and thereafter for all essential staff.

Summary of the Literature Reviewed

The review of literature revealed several major findings. First, aggressive and violent behavior has been examined from various theoretical perspectives, often providing a narrow view and overlapping views. However, in order to manage this

behavior safely and effectively, there is a need for a consistent understanding of what it entails.

Second, there are two types of aggression: reactive and proactive. Reactive is a more emotionally charged form of aggression whereas proactive aggression usually occurs in order to achieve a goal or positive outcome. Distinctions between the two are vital when working with patients through intervention programs, given the importance of linking interventions to a functional understanding of violence motivation.

Third, there are various mental disorders associated with aggression and violence, leading to the question of Rueve and Welton (2008)- Are violence and mental illness synonymous, connected, or just coincidental phenomena? Also, there are studies that suggest a link between mental illnesses and violence. However, the contribution of people with mental illnesses to overall rates of violence is small. Further, the magnitude of the relationship is greatly exaggerated in the minds of the general population (Institute of Medicine, 2006). Even so, researchers are in an agreement that individuals with mental disorders and aggression/violent presentations present major challenges to healthcare providers in inpatient behavioral settings.

Fourth, EMSH responded to regulations of both state and federal regulatory agencies, in 1986, to train staff in the management of aggression and violence through TMAB, an in house training developed by the MDMH. After TMAB was considered to be non-replicable outside of Mississippi facilities, this training was replaced by The Mandt System in 2010.

Fifth, The Mandt System is a training that is based on establishing a healthy relationship between staff and patients. This training places emphasis on staff building

relational skills as opposed to the use of physical interventions and coercive measures. As a result, quality care is provided in a safer environment with less injures to staff and patients.

Sixth, establishing an understanding of aggression and violent behavior in behavioral health programs leads to a better understanding of the necessity of aggression management training programs to reduce such behaviors. While there is a relative paucity of well-designed evaluation studies focused on the effectiveness of aggression management training programs using clinical outcomes, the literature suggests a major point. It is that effective and timely management of aggressive behavior is a prerequisite for high quality inpatient care (Dean, Duke, George, & Scott, 2007). Therefore, it would be beneficial to develop a national data bank comprised of a methodical process to collect, monitor, and analyze clinical outcome data amongst behavioral programs utilizing aggression management training. This process could assist in improving and developing training that is effective in managing acts of aggression and violence in behavioral health settings.

CHAPTER III

METHODOLOGY

In this chapter, the methodology utilized in this study is presented. The following areas are discussed: (a) research design; (b) research site; (c) data set; (d) procedures; (e) data analysis; and binomial tests.

Research Design

A quantitative research design was selected in order to explore the efficacy of The Mandt System in an inpatient behavioral health program. Quantitative research deals in numbers, logic, and an objective stance (Babbie, 2010). A quantitative research design was selected, because this design will determine the effect of an independent variable on the dependent variables.

For this study, a quantitative research design analyzed archival data (incident reports, and seclusion/restraint reports). Archival data are considered useful for identifying problem areas, assessing levels of problems, and evaluation of interventions (Nygaard, Bright, Saltz, & McGaffigan, 2007). Archival data are any data that are collected prior to the beginning of the research study. Archival data are often kept because of legal requirements, for reference, or as an internal record. It is the result of completed activities. The use of archival data is beneficial in investigations of questions that would be difficult to study in any other way. Also, archival data are not subject to change and are therefore sometimes known as fixed data (KU Work Group for

Community Health and Development, 2015). The archival data set for this study consisted of the number of incidents of aggression and violence identified through incident reports. These incident reports were submitted over a six-year period to a QA database.

The dependent variables were the incident reports comprised of archival data. Incident reports consisted of four categories: aggression and violent incident reports (patient to patient and patient to staff), seclusion and restraint incident reports. The independent variables were pre-training (TMAB) used at the facility from 2007 to 2009 and post-training (The Mandt System) which was utilized from 2011 to 2013.

Research Site

The site of this study was East Mississippi State Hospital (EMSH), an inpatient behavioral health program located in Meridian, Mississippi. Operating under the direction of the MDMH, EMSH is the second largest employer in Meridian, MS. EMSH serves individuals from 31 counties of the state by providing psychiatric and substance use disorder treatment for both adults and adolescents.

In response to regulations of both state and federal regulatory agencies, in 1986, the MDMH established the TMAB committee to analyze the need for training in the management of aggressive and violent behavior in its facilities. The TMAB Committee found that it was essential that the staff of MDMH mental health and regional facilities obtain training and recommended that effective alternatives were needed to control aggressive and violent outbursts. From there, the TMAB Committee began the formulation of the TMAB Policy Manual as guidance to ensure safe management of hostile, aggressive behavior of patients in facilities within the Mississippi Department of

Mental Health. With the assistance of Dr. C. Edward Taylor of the South Carolina Department of Mental Health, vital information from his Prevention and Management of Aggressive Behavior program was incorporated into the TMAB manual (MDMH, 1986).

Up until 2010, EMSH utilized TMAB to train staff in managing aggressive and violent behaviors. In 2010, The Mandt System replaced TMAB which was considered to be non-replicable outside of the state facilities in Mississippi. In accordance with the Centers for Medicaid and Medicare Services and The Joint Commission standards and guidelines, staff members at the EMSH began to receive The Mandt System training through the Professional Development Department. The Mandt System is a training that is based on establishing a healthy relationship between staff and patients. This training places emphasis on staff building relational skills as opposed to the use of physical interventions and coercive measures. As a result, quality care is provided in a safer environment with less injures to staff and patients.

Data Set

The quantitative data included archival data sets of incidents reported from the Inpatient Service Units. In an effort to improve performance outcomes and maintain an environment in which individuals obtain quality care in a least restrictive setting, incident reports (patient to patient, patient to staff, seclusion and restraint) are submitted daily to EMSH Quality Assurance (QA) Department from EMSH Inpatient Service Units. Data from incident reports are submitted in QA Department dashboards to generate monthly reports. The monthly incident reports and seclusion/restraint reports are presented monthly to the EMSH Quality Assurance Committee and the EMSH Internal Governing

board. These same reports are also presented quarterly to the EMSH Human Rights Advocacy Committee and the MDMH.

Incident reports are among other quality indicators at EMSH that are monitored, tracked and assessed. However, this researcher only extracted archival data from QA Department dashboards. This data included the number of reported patient to patient incidents, patient to staff incidents and seclusion and restraint episodes from EMSH Inpatient Service Units. Quantitative data sets extracted by the researcher were from 2007 to 2009 and 2011 to 2013. The researcher did not extract archival data from 2010 because this is the year that the The Mandt System was implemented at the facility. The researcher compiled the data into two categories: pre-training (2007 to 2009) and post-training (2011-2013). The researcher analyzed the data utilizing four binomial tests.

Procedures

The researcher contacted The Mandt System administration via telephone to request permission to use the information from their training manual. The researcher was then directed by an administrative assistant of The Mandt System to send an email to request written permission from the company (Appendix A). The researcher sent a request for permission via email to Tim Geels, The Mandt System*s*', Senior Vice President of Organizational Development. Permission was granted to the researcher by Mr. Geels (Appendix B).

After obtaining permission from Mr. Geels, the researcher submitted an application to EMSH Internal Research Board for approval of the research and to utilize archival data from the QA Department. Permission was granted by this committee (Appendix C). The researcher then submitted an application to conduct this research

study to the Office of Research Compliance (IRB) at Mississippi State University. The application to conduct this research study was approved (Appendix D).

The researcher then began to extract data from QA Dashboards for the time period of interest for this study (2007-2009 and 2011-2013). Then the researcher analyzed the data utilizing binomial tests.

Data Analysis

The researcher used binomial tests to explore the efficacy of The Mandt System. For the statistical significance tests, the chosen alpha level was .05. The independent variables (an in house training utilized at the facility from 2007 to 2009 and The Mandt System from 2011 to 2012) were analyzed using dependent variables (patient to patient incidents, patient to staff incidents, seclusion and restraint incidents). Descriptive statistics (median for each quarter) were collected for each variable. Binomial tests were utilized to answer the following research questions:

Research Question 1: What is the effect of the implementation of The Mandt System on the rate of patient to patient incidents related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Research Question 2: What is the effect of the implementation of The Mandt System on the rate of patient to staff incidents related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Research Question 3: What is the effect of the implementation of The Mandt System on the rate of seclusions related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Research Question 4: What is the effect of the implementation of The Mandt System on the rate of restraints related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Binomial Test

The binomial test is an exact test of the statistical significance of deviations from a theoretically expected distribution of observations into two categories (Howell, 2007). For this study, binomial tests were selected to test whether proportion of successes on a two-level categorical dependent variable significantly differs from a hypothesized value. Binomial data identifies the two categories as A and B and identifies the probability associated with each category as p and q. A binomial test also uses sample data to evaluate hypotheses about the values of p and q for a population consisting of binomial data. Binomial data exists whenever the measurement scale consists of exactly two different categories. Each individual observation in a sample is classified in only one of the two categories, and sample data consists of the frequency or number of individuals in each category.

For this study, the binomial tests included archival data of incidents of aggression and violence, seclusion and restraint collected over a period of six years, three years prior to the implementation of The Mandt System training (2007 to 2009) and three years after the implementation of the training (2011 to 2013). Data from year 2010 were not analyzed because that was the year when The Mandt System was implemented. The researcher conducted four binomial tests utilizing a .05 significance level to address the following hypotheses:

$H_0$1: There is no statistically significant effect of the implementation of The Mandt System on the rate of the patient to patient incidents.

$H_0$2: There is no statistically significant effect of the implementation of The Mandt System on the rate of the patient to staff incidents.

$H_0$3: There is no statistically significant effect of the implementation of The Mandt System on the rate of seclusions.

$H_0$4: There is no statistically significant effect of the implementation of The Mandt System on the rate of restraints.

CHAPTER IV

RESULTS & DISCUSSION

In this chapter, the results of the data analysis are presented and discussed. The purpose of this study was to examine the efficacy of The Mandt System (an aggression management training program) on aggression and violence in an acute inpatient behavioral health program. For this study, the researcher posited that the independent variables (pre-training and post-training) would influence patient aggression and the use of coercive measures.

The dependent variables were incident reports retrieved from archival data of EMSH QA dashboards. The incident reports were comprised of incidences of aggression and violence (patient to patient and patient to staff) and rates of coercive measures (seclusion and restraint episodes). The independent variables were pre-training (TMAB) used at the EMSH from 2007 to 2009 and post-training (The Mandt System) used from 2011 to 2013. This study sought to determine the influence of each independent variable on the four categories of the dependent variable. A .05 level of significance was used for all tests of significance for the data analysis. Binomial tests were used to examine the effect of the independent variables on the dependent variables. The four research questions and results are as follows:

Binomial Test 1

Research Question 1: What is the effect of the implementation of The Mandt System on the rate of patient to patient incidents related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Binomial Test 1 results revealed a median value of 3.23 was found in the rates of the patient to patient incident dataset (Table 1). Results also revealed that the observed proportion of the rate of patient to patient incidents above the median was 8 of 12 or .667 for the pre-training data window and 3 of 12 or .250 for the post-training data window (Figure1). The *z* statistic of 2.25 and associated *p*-value of .0241 indicated that the rate of patient to patient incidents in pre-training was significantly higher than the rate in post-training.

Table 1

Quarterly Reported Patient to Patient Incidents by Median of the Sample

Pre-Training		Incidents	AMC	Rate	Post-Training		Incidents	AMC	Rate
Q1	2007	18	330	5.45*	Q1	2011	3	311	.96
Q2	2007	17	330	5.15*	Q2	2011	9	311	2.89
Q3	2007	16	330	4.85*	Q3	2011	2	311	.64
Q4	2007	27	330	8.18*	Q4	2011	7	311	2.25
Q1	2008	13	332	3.92*	Q1	2012	0	248	0
Q2	2008	12	332	3.61*	Q2	2012	8	248	3.23
Q3	2008	13	332	3.92*	Q3	2012	8	248	3.23
Q4	2008	4	332	1.20	Q4	2012	11	248	4.44*
Q1	2009	25	311	8.04*	Q1	2013	6	195	3.08
Q2	2009	8	311	2.57	Q2	2013	4	195	2.05
Q3	2009	7	311	2.25	Q3	2013	12	195	6.15*
Q4	2009	9	311	2.89	Q4	2013	10	195	5.13*
Total		169					80		

Note: *Mdn*=3.23 *= rate above median Q=quarter AMC=average monthly census

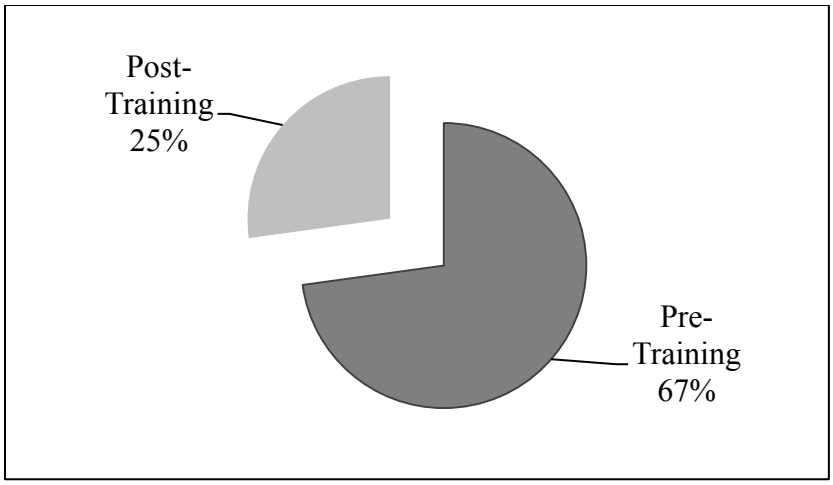

Figure 1. Proportion of calendar quarters in which the rates of patient to patient incidents exceeded the median value

Binomial Test 2

Research Question 2: What is the effect of the implementation of The Mandt System on the rate of patient to staff incidents related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Binomial Test 2 results revealed a median value of 4.82 was found in the rates of patient to staff incidents dataset (Table 2). Results also revealed that the observed proportion of the rates of patient to staff incidents above the median was 5 of 12 or .420 for the pre-training variable, and 6 of 12 or .500 for the post-training variable (Figure 2). The *z* statistic of -0.411 and associated *p*-value of 0.6810 indicated that the rate of patient to staff incidents in pre-training was not significantly higher than the rate in post-training.

Table 2

Quarterly Reported Patient to Staff Incidents by Median of the Sample

Pre-Training		Incidents	AMC	Rate	Post-Training		Incidents	AMC	Rate
Q1	2007	11	330	3.33	Q1	2011	13	311	4.18
Q2	2007	26	330	7.88	Q2	2011	15	311	4.82
Q3	2007	21	330	6.36	Q3	2011	23	311	7.40
Q4	2007	11	330	3.33	Q4	2011	17	311	5.47
Q1	2008	13	332	3.92	Q1	2012	9	248	3.63
Q2	2008	15	332	4.52	Q2	2012	1	248	.40
Q3	2008	18	332	5.42	Q3	2012	14	248	5.65
Q4	2008	16	332	4.82	Q4	2012	16	248	6.45
Q1	2009	19	311	6.11	Q1	2013	14	195	7.18
Q2	2009	16	311	5.14	Q2	2013	4	195	2.05
Q3	2009	15	311	4.82	Q3	2013	12	195	6.15
Q4	2009	19	311	6.11	Q4	2013	5	195	2.56
Total		200					143		

Note: *Mdn* = 4.82 *= rate above median Q=quarter AMC=average monthly census

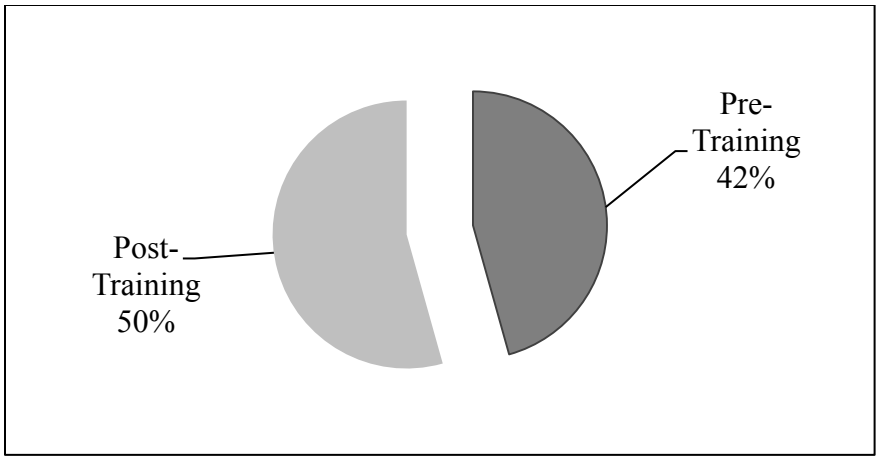

Figure 2. Proportion of calendar quarters in which the rates of patient to staff incidents exceeded the median value

Binomial Test 3

Research Question 3: What is the effect of the implementation of The Mandt System on the rate of seclusions related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Binomial Test 3 results revealed a median value of 70.74 was found in the rates of seclusion episodes dataset (Table 3). Results also revealed that the observed proportion of the rate of seclusion episodes above the median was 11 of 12 or 0.917 for the pre-training variable, and 1 of 12 or .0833 for the post-training variable (Figure 3). The z statistic of 7.39 and associated p-value < .001 indicated that the rate of seclusion episodes in pre-training was significantly higher than the rate in post-training.

Table 3

Quarterly Reported Seclusions Episodes by Median of the Sample

Pre-Training		Incidents	AMC	Rate	Post-Training		Incidents	AMC	Rate
Q1	2007	573	330	173.64*	Q1	2011	146	311	46.95
Q2	2007	302	330	91.32*	Q2	2011	144	311	46.30
Q3	2007	252	330	76.36*	Q3	2011	221	311	71.06*
Q4	2007	289	330	87.58*	Q4	2011	184	311	59.16
Q1	2008	253	332	76.20*	Q1	2012	90	248	36.29
Q2	2008	316	332	95.18*	Q2	2012	31	248	12.50
Q3	2008	317	332	95.48*	Q3	2012	55	248	20.16
Q4	2008	273	332	82.23*	Q4	2012	69	248	27.82
Q1	2009	290	311	93.25*	Q1	2013	22	195	11.28
Q2	2009	245	311	78.78*	Q2	2013	64	195	32.82
Q3	2009	287	311	92.28*	Q3	2013	34	195	17.44
Q4	2009	219	311	70.42	Q4	2013	38	195	19.49
Total		3616					1098		

Note: Mdn= 70.74 *=rate above median Q=quarter AMC=average monthly census

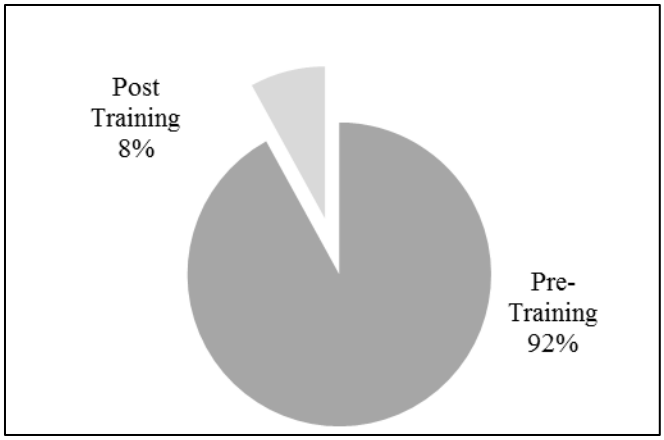

Figure 3. Proportion of calendar quarters in which the rate of seclusion episodes exceeded the median value

Binomial Test 4

Research Question 4: What is the effect of the implementation of The Mandt System on the rate of restraints related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program?

Binomial Test 4 results revealed a median value of 16.38 was found in the rates of restraint episodes dataset (Table 4). Results also revealed that the observed proportion of the rate of restraint episodes above the median was 11 of 12 or 0.917 for the pre-training variable, and 1 of 11 or .0833 for the post-training variable (Figure 4). The z statistic of 7.39 and associated p-value < .001 indicated that the rate of restraints in pre-training was significantly higher than the rate in post-training.

Table 4

Quarterly Reported Restraints Episodes by Median of the Sample

Pre-Training		Incidents	AMC	Rates	Post-Training		Incidents	AMC	Rates
Q1	2007	101	330	30.61*	Q1	2011	63	311	20.26*
Q2	2007	121	330	36.67*	Q2	2011	27	311	8.68
Q3	2007	55	330	16.67*	Q3	2011	31	311	9.97
Q4	2007	67	330	20.30*	Q4	2011	25	311	8.04
Q1	2008	70	332	21.08*	Q1	2012	7	248	2.82
Q2	2008	108	332	32.53*	Q2	2012	25	248	10.08
Q3	2008	67	332	20.18*	Q3	2012	25	248	10.08
Q4	2008	73	332	21.99*	Q4	2012	4	248	1.61
Q1	2009	60	311	19.29*	Q1	2013	3	195	1.54
Q2	2009	88	311	28.30*	Q2	2013	10	195	5.13
Q3	2009	78	311	25.08*	Q3	2013	5	195	2.56
Q4	2009	50	311	16.08	Q4	2013	0	195	0
Total		938					225		

Note: *Mdn*= 16.38 *= rate above median Q=quarter AMC=average monthly census

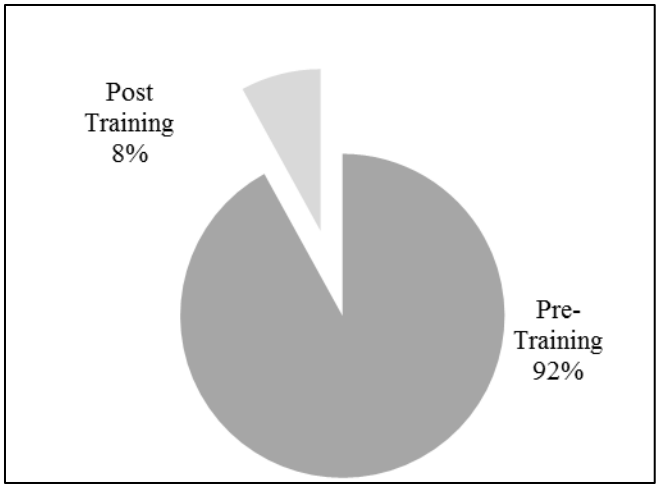

Figure 4. Proportion of calendar quarters in which the rate of restraint episodes exceeded the median value

Data by Year

Table 5 shows the data of the number of patient to patient incidents, patient to staff incidents and seclusions and restraint episodes by year. These data were utilized in Figure 5 to show the overall data by each category during the pre-training and post-training. The data imply that the overall number of incidents during pre-training (2007-2009) was significantly higher when compared to the post-training years (2011-2013). This indicates that there was a downward trend from 2007 to 2013 in the overall data after the implementation of The Mandt System. There is sufficient evidence, at $\alpha = .05$ level that The Mandt System had a statistically significant impact on the rates of patient to patient incidents, seclusion episodes and restraint episodes at EMSH. The Mandt System did not have a statistically significant impact on the rates of patient to staff incidents.

Table 5

Total Reported Incidents by Year

	Pre-Training				Post-Training			
	2007	2008	2009	Total	2011	2012	2013	Total
Patient to Patient	78	42	49	169	21	27	32	80
Patient to Staff	69	62	69	200	68	40	35	143
Seclusions	1416	1159	1041	3616	689	245	158	1098
Restraints	344	318	276	938	146	59	18	225

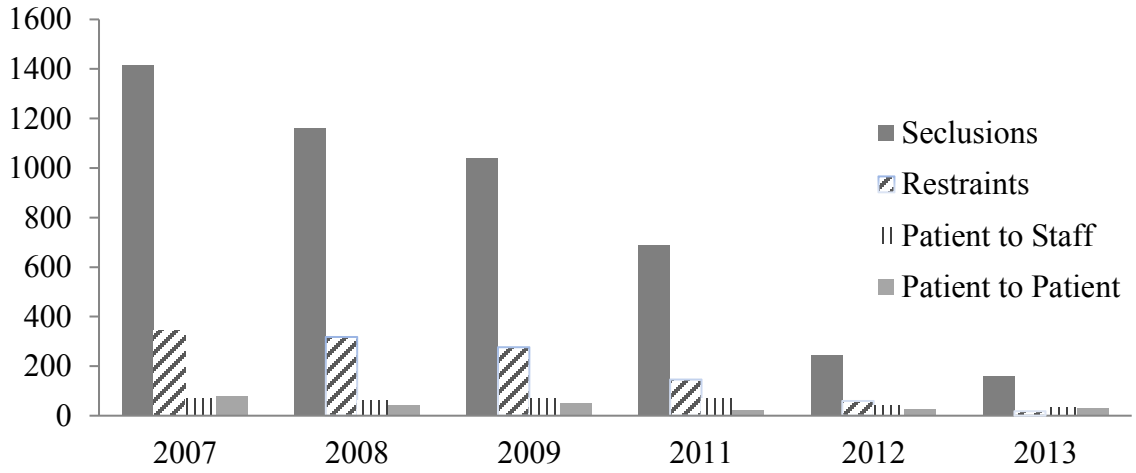

Figure 5. Overall data by categories

Discussion of Results

Research Question 1

What is the effect of the implementation of The Mandt System on the rate of patient to patient incidents related to aggression and violence in an acute inpatient

psychiatric setting within a behavioral health program? A binomial test was used to evaluate the differences between the rate of patient to patient incidents in pre-training and post-training. Based on the results, the proportion of the rates of patient to patient incidents in pre-training (67%) was significantly higher than the proportion of the rate of patient to patient incidents in post-training (25%). Over the six year period, aggressive behaviors in patients decreased, and patient to patient incidents (169-80) became less frequent (Table 1). This is consistent with already existing literature. Fernandes et al. (2002) conducted a study to examine the efficacy of aggression management training and concluded that training significantly decreased the number of verbal and physical assaults among patients. Although, the violent incidents increased by the 6-month post-test, the incidents remained below the original level.

A study by Davidson (2005) indicated that the number of aggressive and violent incidents in mental healthcare settings can be reduced by the appropriate, therapeutic and effective use of the full range of interventions. Results of a study conducted by McClean and Grey (2012) examining the efficacy of an aggression management program indicated that there was a significant reduction in the frequency, management difficulty, and episodic severity of challenging behaviors over the duration of the study.

Research Question 2

What is the effect of the implementation of The Mandt System on the rate of patient to staff incidents related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program? A binomial test was used to evaluate the differences between the rate of patient to staff incidents in pre-training and post-training. Based on the results, the proportion of the rates of patient to staff incidents

in pre-training (42%) was not significantly higher than the proportion of the rates of patient to staff incidents in post training (50%). The results of this study indicate that The Mandt System training was not beneficial in decreasing the rate of patient to staff incidents through building healthy relationships. This is inconsistent with literature that states the quality of the relationships between staff and patients has been found to be an important situational-interactional factor related to inpatient aggression and violence (Duxbury, 2002). The building of a caring relationship has been likened to the building of a bridge between staff and the patient (Halldorsdottir, 2008).

These results are also inconsistent with a study conducted by Ferguson and Leno-Gordon (2010). After implementation of aggression management training based on a therapeutic, compassionate, and safe approach to prevent incidents of escalating agitated behavior, there was reduction in the total number of patient/staff injuries resulting from agitation-related incidents on the inpatient units. In addition, there was an empowerment of staff and patients with greater collaboration, and overall improvement for patient and staff satisfaction relating to treatment.

For this study, while the results indicate that the patient and staff incidents decreased (200 to 143) during the time period of the study, the rates of those incidents occurring did not decrease significantly. A plausible explanation could be that when the most obvious variable, a decreased average monthly census (330 to 195), is taken into account with rates, the implication is that there is no statistically distinguishable impact (Table 2).

Research Question 3

What is the effect of the implementation of The Mandt System on the rate of seclusion episodes related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program? A binomial test was used to evaluate the differences between the rate of seclusion episodes in pre-training and post-training. Based on the results, the proportion of the rates of seclusion episodes in pre-training (92%) was significantly higher than the proportion of the rate of seclusion episodes in post-training (8%). After the implementation of The Mandt System the likelihood of a patient being involved in a seclusion episode decreased.

Results of this study revealed a reduction in the seclusion episodes that occurred without an increase in patient aggressive behavior. This suggests that staff subsequently managed many aggressive acts without relying on seclusion. This is consistent with findings by other researchers. For example, LaFond (2007) found that after the implementation of aggression management training (based on protecting the therapeutic relationship of staff and patients), there was an ongoing annual reduction of seclusion episodes and total time of seclusions.

Ching, Daffern, Martin, and Thomas, (2010) examined the impact of a suite of interventions (i.e., review of existing seclusion practices and staff training in the management of aggression as well as the implementation of evidence-based alternatives) designed to reduce the use of seclusion in a forensic psychiatric hospital. The results revealed a significant reduction in the use and duration of seclusion episodes. Similarly, Huckshorn et al. (2009) concluded that after implementation of aggression management training at a psychiatric facility, seclusion episodes decreased significantly.

Research Question 4

What is the effect of the implementation of The Mandt System on the rate of restraints related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program? A binomial test was used to evaluate the differences between the rates of restraint episodes in pre-training and post-training. Based on the results, the proportion of the rate of restraint episodes in pre-training (92%) was significantly higher than the proportion of the rate of restraint episodes in post-training (8%). After the implementation of The Mandt System, the likelihood of a patient being involved in a restraint episode decreased.

Research suggests that many violence prevention and management training programs have led to a reduction of violence and restraint incidents (Johnson, 2010). A meta-analysis conducted by Livingston et al. (2010) found that aggression management training was proven effective in reducing the use of restraint and other coercive control devices. Jonikas et al. (2004) analysis of administrative data showed significant reductions in the use of restraint after the introduction of a restraint reduction program that included aggression management training. McCue et al. (2004) documented a physical restraint reduction initiative at a public psychiatric inpatient service that included staff training.

Overall, research suggests that hospitals should consider instituting comprehensive staff (Johnson, 2010; McCue et al., 2004). This training should encourage adaptive patient behaviors and nonviolent staff intervention to reduce the physical and mechanical restraint of children and adults in inpatient facilities.

Factors Impacting the Results of This Study

There are several factors that may have influenced the results of this study. They include a decrease in census, incidents counts, change of programming, increased emphasis on prevention of aggressive behavior, and the integrity of the training.

The first factor was that during the time period of interest for the study, there was a decrease in the bed capacity and monthly average census at this inpatient behavioral health program. Due to the demolition of dilapidated buildings over the years, the bed capacity decreased from 335 beds with an average monthly census of 330 to a bed capacity of 202 beds with an average monthly census of 195. A lower census may have impacted the number of aggression incidents and seclusion/ restraint episodes reported during post-training. A lower census may mean that less patients were likely to be involved in an aggression incident and/or a seclusion or restraint episode.

A second factor was that the data did not account for distinct individuals that were involved in the aggression and violent incidents. The data were based on the total number of incidents, seclusions and restraints reported during the time period of interest for the study. For example, one individual receiving services may have been involved in several incidents and/or seclusion/restraint episodes. So an incident and/or episode was counted upon each occurrence. This distinct individual could be considered an outlier of the data set.

A third factor was the change of programming in this inpatient behavioral health program. Prior to 2013, individuals seeking treatment were admitted either to a male or female receiving unit. Over the course of treatment, as an individual's mental health stabilized they were transferred to units based on their acuity levels. Beginning in 2013,

each unit within the inpatient behavioral health program was categorized by level of acuity (low, moderate, severe). Upon admission, patients' acuity levels were assessed and determined by clinical staff to assist in placement on appropriate units based on their acuity level. This resulted in patients receiving treatment being placed on the units that best met their needs and acuity levels. It also resulted in placement of patients on units with like peers. This may have provided a more therapeutic milieu where patients became less aggressive and violent.

The fourth factor was that during the same time period of the implementation of The Mandt System at EMSH, hospital administration simultaneously increased emphasis on preventing behavioral incidents (e.g., patient to patient, patient to staff, seclusions and restraints) through organizational factors such as: (1) establishment of a 20% reduction goal of seclusions and restraints; (2) formulation of strategies by medical providers and other clinical staff to meet the reduction goal; (3) review and revision of EMSH seclusion/restraint policies and procedures; and (4) an initiation of aggregating, tracking, and trending seclusion/restraint data each month to by EMSH Performance Improvement Department in order to ensure hospital wide performance improvement in patient care and outcomes. Through these factors, the hospital administration engendered a change of culture on managing aggression at the facility. A change in culture may have simultaneously assisted in the reduction of patient to patient incidents, seclusion episodes and restraint episodes.

The final factor is that the researcher has no way of ascertaining that The Mandt System training was implemented as intended. The researcher did not attend all the trainings conducted during the time period of the study. The researcher is not a certified

trainer of The Mandt System. It should be taken at face value that the training was delivered with the integrity of which it was designed.

All of the above factors should be taken in consideration. These factors may or may not have impacted or influenced the results and interpretation of the findings of this study.

CHAPTER V

SUMMARY, RECOMMENDATIONS, IMPLICATIONS AND CONCLUSION

In this chapter, an overview of the results is presented. Further, recommendations for mental health administrators and staff, recommendations for future research, implications and conclusions are presented.

Summary

By reason of regulatory compliance, "quality of care in a safe environment" has become the jargon of health care environments. However, aggression and violence continue to be common occurrences in inpatient settings for people with mental health disorders, and resolving aggressive incidents is a key task of staff within those settings (Pulsford et al., 2013). Given the close association between aggression and patients with mental illness, it is important for staff in behavioral health settings to be equipped with adequate, relevant and applicable knowledge in the effective management of aggression and violence in patients with mental illness (Shah et al., 2016). Efficient management of aggressive behavior is a prerequisite for a culture of high quality inpatient care (Dean, Duke, George, & Scott, 2007), and staff training is disputably the best option to preventing such behaviors.

This study was undertaken to examine the efficacy of The Mandt System (an aggression management training program) on aggression and violence in an acute inpatient behavioral health program. The reason for this research was to determine if the

implementation of The Mandt System had an effect on the patient to patient incidents, patient to staff incidents, and seclusion and restraint episodes. The review of existing literature established the following:

1. Aggressive and violent behavior has been examined from various theoretical perspectives, often providing a narrow view and overlapping views. However, in order to manage this behavior safely and effectively, there is a need for a consistent understanding of what it entails.

2. There are two types of aggression: reactive and proactive. Reactive is a more emotionally charged form of aggression, whereas proactive aggression usually occurs in order to achieve a goal or positive outcome. Distinctions between the two are vital when working with patients through intervention programs, given the importance of linking interventions to a functional understanding of violence motivation.

3. Most patients with mental disorders are not aggressive. Those patients who displayed aggressive behaviors were more likely to have co-occurring disorders that include personality disorders and/or substance use disorder.

4. A multidimensional assessment is the first step in understanding the complexities of patient aggression. An assessment should be patient-centered and should identify factors that can place patients at risk for aggressive behavior.

5. Due to regulatory agencies mandating the implementation of aggression management training, management of aggression has evolved from the reduction in the use of coercive measures to the use of preventive measures.

6. Though all aggression management training programs are not empirically supported, a commonalty among the programs is that they focus on prevention measures through de-escalation techniques.

7. Aggression management training may be beneficial in training staff to manage aggression and violent behaviors, while reducing the use of seclusions and restraints.

For this study, the researcher posited that The Mandt System would have an effect on the aggressive and violent behavior of patients in an inpatient behavioral health program. The dependent variables were divided into four categories (patient to patient incidents, staff to patient incidents, seclusion and restraint episodes). The data were archival data collected during a six-year period (2007-2009 and 2011-2013). The dataset was comprised of a proportion of incidents and rates of incidents reported for each calendar quarter in the years of interest for the study. Data from year 2010 were not analyzed because that was the year when The Mandt System was implemented at the inpatient behavioral health program. Binomial tests were used to answer the four research questions.

Research Questions Addressed and Key Results

The research questions addressed and the key results are as follows:

1. What is the effect of the implementation of The Mandt System on the rate of patient to patient incidents related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program? The Mandt System had a statistically significant effect on the rate of patient to patient incidents. During the pre-training there were a total of 169 patient to patient incidents compared to 80 patient to patient incidents in post-training. The z statistic of 2.25 and associated p-value of .0024 indicated that the proportions of the rate of patient to patient incidents in pre-training was significantly higher than the proportions in post-training. Overall, the researcher concluded that The Mandt System assisted in the

reduction of incidents when patients were involved in an incident with their peers.

2. What is the effect of the implementation of The Mandt System on the rate of patient to staff incidents related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program? The Mandt System had a statistically significant effect on the rate of patient to staff incidents. There were a total of 200 patient to staff incidents reported during the pre-training, and 143 patient to staff incidents reported in the post-training. The *z* statistic of -0.411 and associated *p*-value of 0.681 indicated that the proportions of the rate of patient to staff incidents in pre-training was not significantly higher than the proportions in post-training. Overall, the researcher concluded that The Mandt System did not assist in the reduction of patient's aggressive behaviors during the occurrence of a patient to staff incident.

3. What is the effect of the implementation of The Mandt System on the rate of seclusions related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program? The Mandt System had a statistically significant effect on the rate of seclusion episodes. There were a total of 3616 seclusion episodes reported in pre-training compared to 1098 seclusion episodes reported in post-training. The *z* statistic of 7.39 and associated *p*-value < .001 indicated that proportions of the rate of seclusions in pre-training was significantly higher than the proportions in post-training. Overall, the researcher concluded that due to the reduction of seclusion episodes, The Mandt System improved the staff's ability to manage aggressive behavior without the use of seclusion.

4. What is the effect of the implementation of The Mandt System on the rate of restraints related to aggression and violence in an acute inpatient psychiatric setting within a behavioral health program? The Mandt

System had a statistically significant effect on the rate of a restraint episode. There were a total of 938 restraint episodes reported in pre-training compared to 225 restraint episodes reported in post-training. The z statistic of 7.39 and associated p-value < .001 indicated that the proportions of the rate of restraints in pre-training was significantly higher than the proportions in post-training. Overall, the researcher concluded that due to the reduction of restraint episodes, The Mandt System improved the staff's ability to manage aggressive behavior without the use of restraints.

Recommendations Based on Results of this Study

Research overwhelming suggests that health care workers are at a heightened risk of experiencing client violence compared to other helping professions (Hinson & Shapiro, 2003). Research also suggests that that aggression and violence costs are both tangible (e.g., staff injuries and absences, prolonged hospitalizations) and intangible (poor morale, disrupted therapeutic milieu; Nolan, Constance, & Citrome, 2009), which can be a major concern for mental health administrators.

The overall findings of this study are consistent with the existing literature, which indicates that effective staff training programs are needed to provide staff with additional support, and that organizational factors are critically important to the success of staff training in terms of client outcomes (Visser et al., 2008). Research has also shown that interventions such as improved management commitment to an aggression and violence prevention program and employee engagement can lead to enhanced employee perceptions of safety (Lipscomb et al., 2006). According to Morrison (2003), very little literature exists on the topic of training staff for the management of aggressive behavior in psychiatric facilities, which is interesting, considering the importance of the topic. In

light of the results of this study, the researcher provides the following recommendations. They are divided as follows: (1) recommendations for mental health administrators; (2) recommendations for mental health staff; and (3) recommendations for future research.

Recommendations for Mental Health Administrators

1. An evidence base is currently lacking for choosing valid and reliable monitoring and reporting tools for healthcare providers (Campbell, Burg & Gammonley, 2015) to evaluate aggression management training. Researchers and administrators of behavioral health care facilities will not be able to effectively evaluate aggression management training until a set of guidelines is developed to assess these programs. There are a number of aggression management training programs established with no "gold standard" positioned. Therefore, mental health administrators must lobby for mandated guidelines and a robust system for auditing and monitoring aggression management training that identifies the "gold standard" of aggression management training. An accreditation would identify a "gold standard" of extensively needed guidelines to ensure the efficiency and effectiveness of aggression training programs.

2. Establish a centralized databank of accrued evaluative research of aggression management training that is based on clinical outcomes across mental health settings. This will create systematic evaluations that will promote better understanding among mental healthcare providers on what works and what does not work in managing aggression and violence in patients with mental disorders.

3. Build regular evaluations in strategic planning to assist in research to identify trends or patterns, training needs, and/or needs for improvement in management of aggression and violence at the facility. Mental health staff who understand what works in a staff-patient relationship could be more successful at preventing aggression and violence, while building healthy relationships.

4. Promote both staff and patient involvement in an on-going evaluation of aggression management training to authenticate their perceptions of the practicality of the program for review immediately after an incident. This would provide data up front instead of waiting to collect data after a certain time period has expired since the aggression incident.

5. Objective assessment in the evaluation of interventions to improve the safety of the inpatient services is difficult when data is recorded inconsistently or inaccurately. Hence, it is vital for mental health administrators to maintain accurate and complete records of detailed information concerning management of aggression incidents for evaluation purposes.

6. Mental health administrators should ensure that there are clear policies and procedures that outline the expectations of staff upon completion of the training. This will allow mental health administrators to hold their staff accountable, while measuring the effectiveness of the training.

7. It is vital that administrators rely upon evidenced-based decision making when establishing policies and selecting aggression management training programs for their facilities. The training should focus on therapeutic interventions to help identify and prevent patient aggression and violence.

Recommendations for Mental Health Staff

1. Mental health staff should obtain an ongoing understanding of the nature and factors associated with aggression and effective interventions needed to manage this type behavior. Instead of attending aggression training, because it is mandated of employment, staff should be engaged in training and post incident discussions. This would allow for more accurate detection of aggressive behaviors and implementation of appropriate methods while avoiding injuries for both staff and patients.

2. Mental health staff should enrich their relational skills to build and/or maintain healthy relationships while providing services to patients in need of treatment.

3. Mental health staff should obtain a clear understanding of the relationship between mental health disorders and the risk of violence and aggression

4. Mental health staff who work with patients with mental disorders must be aware of the importance of incorporating a therapeutic approach to existing training. This will provide mental health staff with alternative approaches to addressing aggression and violence.

Recommendations for Future Research

Those who undertake future studies of the efficaciousness of The Mandt System on aggression and violence in an inpatient behavioral health program should recognize two things. First, there is a lack of research examining aggression management training programs on incidences of aggression and the use of coercive measures collectively. Secondly, there is absence of transparent, evidence based research derived from clinical outcomes from inpatient behavioral health settings.

Also, results of studies that examine the effectiveness of aggression management training programs vary because not only are researchers evaluating different programs, but the types of studies conducted, the limitations of study designs including small sample sizes and lack of control groups, and the many outcome variables make it difficult to draw tangible conclusions about the success of the training programs in reducing violence. Therefore, the researcher of this study recommends the following for future research:

1. Replicate this study across inpatient behavioral health programs to provide a systematic evaluation process to share aggression management training practices. Such process may not only establish generalizability but assist in improving the overall provision of aggression management training when working with patients with mental disorders.

2. Explore both staff variables (i.e., length of employment, experience, discipline and shift worked) and patient variables (i.e, age, race, gender, length of stay, number of admissions and diagnosis) as it relates to aggression and violent incidents within inpatient behavioral programs. This would provide insight into how these variables may be associated with management of such behaviors.

3. Conduct systematic research across health care settings (i.e., medical, mental, and chemical dependency units, intellectual development disability facilities) to simultaneously assist in training and educating mental health staff while promoting safety in health care settings.

4. Examine the relationship between contributing factors such as predisposing (influences from the past or patient history) or precipitating factors (triggers and environment) on aggression management training.

5. Research on the effectiveness of aggression training was found to be primarily on samples consisting of nursing staff. It is essential that further qualitative research take an interdisciplinary approach when exploring experiences of all mental health staff utilization of aggression management training.

This research study was initially proposed as a mixed method research design to involve an interdisciplinary staff (psychologists, counselors, social workers, nurses, and direct care staff) perspective of the training. The researcher received responses from two nurse practitioners, three nurses and five direct care staff. Therefore, future research is needed that evaluates aggression management training programs, preferably a mixed methods design which includes the perspective of interdisciplinary staff.

6. A longitudinal study is needed to determine if The Mandt System is generalizable, the degree to which each component of the training contributes to improve outcomes and if continuation of the training will further reduce aggression and violence.

Implications and Conclusion

Reducing aggressive and violent behavior of patients receiving treatment in an inpatient behavioral health programs is an ongoing problem that needs to be effectively managed. Given the ethical imperative for treating all patients with dignity, the clinical mandate of finding evidence-based solutions to these mental health challenges, and the legal liability associated with failure to assess and manage violence risk across the treatment continuum, the need for evidence to guide clinical and policy decision making for de-escalating aggressive behavior is critical (Gaynes et al., 2016).

However, the efficacy of aggression management training is difficult to validate

because there is a lack of research that is supported by evidence from randomized controlled studies, and few programs are based on a systematic evaluation of their outcomes. Also, a review of literature revealed that researchers do not give precedence to the study of aggression management training when dealing with aggressive behavior in inpatient behavior health settings. This finding is consistent with Hage, Van Meijel, Fluttert, and Berden (2009) who stated that research on the effectiveness of intervention strategies requires a more complicated study design and involves many methodological and logistical challenges.

The primary aim of this study was to gain an understanding of the efficacy of aggression management training at East Mississippi State Hospital. Variables such as patient to patient incidents, patient to staff incidents, and seclusion and restraint episodes were examined during pre-training and post-training. The pre-training (TMAB) was predominantly based on the use of physical intervention techniques to manage aggression. The post-training (The Mandt System) is based on building healthy relationships between staff and patients through principles and not technique. According to Bob Bowen (2010) the CEO of The Mandt System, rather than "deal" with people who use aggression, this program trains staff to respond, not react, to the aggression of others at a non-physical level and has been demonstrated to increase the safety of both staff and patients. The findings of this study show marked reduction in the proportion of the rate of patient to patient incidents but not patient to staff incidents. In addition, the use of seclusions and restraint improved.

Based on this study, the reduction in the use of seclusion and restraints coincided with a reduction in patient to patient incidents. The results provided support for the idea

that The Mandt System may have played a significant role in reducing patient on patient aggression in an inpatient behavioral health program.

The overall findings also coincide with literature claiming that the implementation of behavioral management led to a significant reduction in the episodes of aggressive behavior and other unwanted outcomes including injuries, use of physical restraint, and duration of seclusion (Dean et al., 2007). Further, Wale et al. (2011) found a substantial decline in patient injuries and rate of seclusion and restraint incidents in inpatient units after the implementation of aggression management training. The results also indicated that there was not a statistically significant decrease in the post-training proportion of patient to staff incidents. During the time period of this study, the patient to staff incidents and the average monthly census simultaneously decreased. When the average monthly census was taken into account with the rate of patient to staff incidents occurring, the implication is that there is no statistically distinguishable impact.

There are many factors that are necessary in order to effectively manage aggression in inpatient mental health facilities. One obvious factor is that mental health staff should be well trained to manage aggressive behavior by picking up early cues that signal mounting aggression in patients. Secondly, early detection should include intervention techniques that place emphasis on supporting patient autonomy and dignity. And most importantly, intervention techniques should include building a caring helping relationship that is based upon honesty, respect and trust (Rask & Brunt, 2007).

Aggression management training programs is one step toward effectively training staff to manage aggressive and violent behaviors. However, further steps are needed to effectively manage aggressive and violent behaviors. Inpatient behavioral health

programs will need to take a comprehensive effort that includes operational changes within their programs. Operational changes that include strong leadership direction, policy and procedural changes, staff training, consumer debriefing, and regular feedback (Ashcraft & Anthony, 2008) will lead to a successful reduction in aggression and violent behaviors as well as seclusion and restraint. All of these factors together will lead to a culture of managing aggression and violence from coercive measures to prevention, intervention, and crisis management.

Granted, this study suggests that training can have a positive effect on clinical outcomes. Much more needs to be done to evaluate the effectiveness of training programs in inpatient behavioral health programs. The findings of this study should motivate hospital administrators to examine their aggression management training programs in order to assist in establishing baseline data to be used in future studies. Without evidenced based research, the efficacy of aggression management training programs will remain a mystery. In the long run, effective training saves time and money. Therefore, this type of research would be beneficial when determining which type is training is more effective in managing aggression and violence.

Finally, findings of this study contribute to a body of growing literature on the importance of effective aggression management training. The findings also provide evidence-based knowledge derived from clinical outcomes that will be useful for both mental health staff and the patients receiving treatment for mental disorders in a safer inpatient behavioral health setting.

REFERENCES

Adams, B. (2014). Riverview nurse hospitalized in attack by angry patient. *Kennebec Journal: Morning Sentinel*. Retrieved from http://www.centralmaine.com/2014/08/18/riverview-nurse-hospitalized-in-attack-by-angry-patient/

Alia-Klein, N., O'Rourke, T. M., Goldstein, R. Z., & Malaspina, D. (2007). Insight into illness and adherence to psychotropic medications are separately associated with violence severity in a forensic sample. *Aggressive Behavior, 33,* 86–96. doi:10.1002/ab.20170

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*. (5th ed.). Washington, DC: Author.

Amore, M., Menchetti, M., Tonti, C., Scarlatti, F., Lundgren, E., Esposito, W., & Berardi, D. (2008). Predictors of violent behavior among acute psychiatric patients: Clinical study. *Psychiatry & Clinical Neurosciences, 62*(3), 247-255. doi:10.1111/j.1440-1819.2008.01790.x

Anderson, A., & West, S. G. (2011). Violence against mental health professionals: When the treater becomes the victim. *Innovations in Clinical Neuroscience, 8*(3), 34–39. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3074201/

Anderson, C. A. & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology, 53*, 27-42. doi:10.1146/annurev.psych.53.100901.13523

Anderson, C. A., Anderson, K. B., Dorr, N., DeNeve, K. M., & Flanagan, M. (2000). Temperature and aggression. In M. Zanna (Ed.), *Advances in experimental social psychology, 32*, 63–133. New York: Academic Press.

Arnetz, J., & Arnetz, B. (2000). Implementation and evaluation of a practical intervention program for dealing with violence towards health care workers. *Journal of Advanced Nursing, 31,* 668-680. doi:10.1046/j.1365-2648.2000.01322.x

Arsenault, L., Moffitt, T. E., Caspi, A., Taylor, P. J., & Silva, P. A. (2000). Mental disorders and violence in a total birth cohort. *Archives of General Psychiatry*, 57, 979–986. doi:10.1001/archpsyc.57.10.979

Ashcraft, L., & Anthony, W. (2008). Eliminating seclusion and restraint in recovery-oriented crisis services. *Psychiatric Services, 59*, 1198–1202. doi: 10.1176/appi.ps.59.10.1198

Babbie, E. R. (2010). *The practice of social research* (12th ed.). Belmont, CA: Wadsworth Cengage.

Bandura, A. (1969). *Principles of behavior modification*. New York, NY: Holt, Rinehart, and Winston, Inc.

Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1977). *Social learning theory*. New York, NY: General Learning Press.

Bandura, A. (1978). Social learning theory of aggression. *Journal of Communication, 5*, 12-29.

Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1-26. doi: 10.1146/annurev.psych.52.1.1

Barker, P., & Buchanan-Barker, P. (2010). The tidal model of mental health recovery and reclamation: Application in acute care settings. *Issues Mental Health Nursing, 31*(3),171-180.

Benedictis, L., Dumais, A., Sieu, N., Mailhot, M.-P., Létourneau, G., Tran, M.-A., … Lesage, A. D., (2011). Staff perceptions and organizational factors as predictors of seclusion and restraint on psychiatric wards. *Psychiatric Services, 62*(5), 484-491. doi/full/10.1176/ps.62.5.pss6205_0484

Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychology Bulletin, 106,* 59-73. doi:10.1.1.321.3829

Berkowitz, L. (2012). A different view of anger: The cognitive-neoassociation conception of the relation of anger to aggression. *Aggressive Behavior, 38*(4), 322-333. doi: 10.1002/ab.21432

Bisconer, S. W., Green, M., Mallon-Czajka, J., & Johnson, J. S. (2006). Managing aggression in a psychiatric hospital using a behavior plan: A case study. *Journal of Psychiatric and Mental Health Nursing*, *13*(5), 515-521. doi:10.1111/j.1365-2850.2006.00973.x

Bowen, B. (2010). *Transforming your organization from 'toxic' to 'welcoming'*. Paper presented at University of West Sydney, Sydney, Australia.

Bowers, L., Nijman, H., Allan, T., Simpson, A., Warren, J., & Turner, L. (2006). Prevention and management of aggression training and violent incidents on United Kingdom acute psychiatric wards. *Psychiatric Services, 57*(7), 1022-1026. doi/full/10.1176/ps.2006.57.7.1022

Brännström, L. Kaunitz, C., Andershed, A. K., South, S., & Smedslund, G. (2016) Aggression replacement training (ART) for reducing antisocial behavior in adolescents and adults: A systematic review. *Aggression and Violent Behavior, 27*, 30–41. doi:10.1016/j.avb.2016.02.006

Buckley, P. E., Hrouda, D. R., Friedman, L., Noffsinger, S.G., Resnick, P. J., & Camlin-Shingler, K. (2004). Insight and its relationship to violent behavior in patients with schizophrenia. *The American Journal of Psychiatry, 161*(9), 1712-1714. http://dx.doi.org/10.1176/appi.ajp.161.9.1712

Buckley, P. F , Noffsinger, S. G., Smith D. A., Hrouda, D. R., & Knoll, J. L. (2003). Treatment of the psychotic patient who is violent. *Psychiatric Clinic of North America, 26*(1)-231- 72.

Bushman, B. J. (2002). Does venting anger feed or extinguish the flame? Catharsis, rumination, distraction, anger, and aggressive responding. *Journal of Society for Personality and Social Psychology, 28*(6), 724-731. doi: 10.1177/0146167202289002

Bushman, B. J., & Anderson, C. A. (2001). Is it time to pull the plug on the hostile versus instrumental aggression dichotomy? *Psychological Review, 108*(1), 273-279. doi: 10.1037//0033-295X.108.1.273

Bushman, B. J., & Anderson, C. A. (2002). Human aggression. *Annual Review*s, *53*, 27–51. doi: 10.1146/annurev.psych.53.100901.135231

Byrnes, J. D. (2000). The aggression continuum: A paradigm shift. *Occupational Health & Safety 69*(2), 70-71.

Calabro, K., Mackey, T. A. & Williams, S. (2002). Evaluation of training designed to prevent and manage patient violence. *Issues in Mental Health Nursing, 23*, 3-15. doi:10.1080/01612840252825446

Campbell, C. L., Burg, M. A., & Gammonley, D. (2015). Measures for incident reporting of patient violence and aggression towards healthcare providers: A systematic review. *Aggression and Violent Behavior, 25*, 314-322. http://dx.doi.org/10.1016/j.avb.2015.09.014

Carpiniello, B., Lai, L., Pirarba, S., Sardu, C., & Pinna, F. (2011). Impulsivity and aggressiveness in bipolar disorder with co-morbid borderline personality disorder. *Psychiatry Research, 188*(1), 40–44.

Centers for Medicare and Medicaid Services. (2008). *State operations manual: Department of health and human services*. Retrieved from https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R37SOMA.pdf

Ching, H., Daffern, M., Martin, T., & Thomas, S. (2010). Reducing the use of seclusion in a forensic psychiatric hospital: Assessing the impact on aggression, therapeutic climate and staff confidence. *Journal of Forensic Psychiatry & Psychology, 21*(5), 737-760. doi:10.1080/14789941003681361

Chu, C. M., Thomas, S. M., Daffern, M., & Ogloff, J. P. (2013). Should clinicians use average or peak scores on a dynamic risk-assessment measure to most accurately predict inpatient aggression? *International Journal of Mental Health Nursing*, *22*(6), 493-499. doi: 10.1111/j.1447-0349.2012.00846.x

Citrome, L. (2007). The psychopharmacology of violence with emphasis on schizophrenia, part 1: Acute treatment. *Journal of Clinical Psychiatry, 68*(1), 163-164.

Colaizzi, J. (2005) Seclusion and restraint: A historical perspective. *Journal of Psychosocial Nursing and Mental Health Services, 43,* 31–37. doi:10.3928/02793695-20050201-07

Cook, J. A., Rosen, C., Laris, A., & Kim, J. B. (2004). A program to reduce use of physical restraint in psychiatric inpatient facilities. *Psychiatric Services, 55*(7), 818-820. Retrieved from http://ps.psychiatryonline.org

Cooper S. A., Smiley E., Jackson A., Finlayson J., Allan, L., & Mantry, D. (2009). Adults with intellectual disabilities: Prevalence, incidence and remission of aggressive behavior and related factors. *Journal of Intellectual Disability Research, 53*, 217–32. doi:10.1111/j.1365-2788.2008.01127.x

Cornell, D. G., Warren, J., Hawk, G., Stafford, E., Oram, G., & Pine, D. (1996). Psychopathy in instrumental and reactive violent offenders. *Journal of Consulting and Clinical Psychology, 64*(4), 783-790. http://dx.doi.org/10.1037/0022-006X.64.4.783

Crisis Prevention Institute. (2006). *Measuring success: Evidence, research and the nonviolent crisis intervention® training program.* Brookfield, WI: Author.

Crisis Prevention Institute. (2016). *Nonviolent crisis intervention training program*. Retrieved from http://www.crisisprevention.com/

Critchfield, K. L., Levy, K. N., & Clarkin, J. F. (2004). The relationship between impulsivity, aggression, and impulsive-aggression in borderline personality disorder: An empirical analysis of self-report measures. *Journal of Personality Disorders, 18*, 555-570. doi: 10.1521/pedi.18.6.555.54795

Crocker, A. G., Prokić, A., Morin, D., & Reyes, A. (2014). Intellectual disability and co-occurring mental health and physical disorders in aggressive behavior. *Journal of Intellectual Disability Research, 58*(11), 1032-1044. doi:10.1111/jir.12080

Cutcliffe, J. R., & Riahi, S. (2013). Systemic perspective of violence and aggression in mental health care: Towards a more comprehensive understanding and conceptualization: Part 2. *International Journal of Mental Health Nursing, 22*(6), 568-78. doi: 10.1111/inm.12028

Daffern, M., & Howells, K. (2002). Psychiatric inpatient aggression: A review of structural and functional assessment approaches. *Aggression and Violent Behavior, 7*(5), 477–497. doi:10.1016/S1359-1789(01)00073-8

Daffern, M., Howells, K., & Ogloff, J. R. P. (2006). What's the point? Towards a methodology for assessing the function of psychiatric inpatient aggression. *Aggression Research and Therapy, 45*(1), 101-111. doi: 10.1016/j.brat.2006.01.011

Day, A., & Daffern, M. (2013). Responding to serious antisocial behavior: The psychological assessment and treatment of aggression and violence. *InPsych: The Bulletin of the Australian Psychological Society Ltd, 35*(3), 8-11. Retrieved from https://www.psychology.org.au/publications/inpsych/2013/june/day/

Dean, A. J., Duke, S. G., George, M., & Scott, J. (2007). Behavioral management leads to reduction in aggression in a child and adolescent psychiatric inpatient unit. *Journal of American Academy of Child and Adolescent Psychiatry, 6*, 711-720. doi:10.1097/chi.0b013e3180465a1a

Department of Health and Human Services: Centers for Medicare and Medicaid. (2006). *Medicare and Medicaid programs: Hospital conditions of participation: Patients' rights (42 CFR 482.13)*, Federal Register Rules and Regulations, 71(236). Retrieved from https://www.cms.gov/Regulations-and-Guidance/Legislation/CFCsAndCoPs/downloads/finalpatientrightsrule.pdf

DeWall, C. N., & Anderson, C. A. (2011). The general aggression model. In M. Mikulincer & P. R. Shaver (Eds.), *Understanding and reducing aggression, violence, and their consequences* (pp.15–33). Washington, DC: American Psychological Association.

DeWall, C. N., Anderson, C. A., & Bushman, B. J. (2011). The general aggression model: Theoretical extensions to violence. *Psychology of Violence, 1*(3), 245–258. doi: 10.1037/a0023842

Douglas, K. S., Guy, L. S., & Hart, S. D. (2009). Psychosis as a risk factor for violence to others: A meta-analysis. *Psychological Bulletin*, *135*, 679–706. doi:10.1371/journal.pone.0055942

Duxbury, J. (2002). An evaluation of staff and patient views and strategies employed to manage inpatient aggression and violence on one mental unit: A pluralist design. *Journal of Psychiatric Nursing, 9*, 325 - 337. doi:10.1046/j.1365-2850.2002.00497.x

Duxbury, J., Hahn, S., Needham, I., & Pulsford, D. (2008). The management of aggression and violence attitude scale (MAVAS): A cross-national comparative study. *Journal of Advanced Nursing, 62*(5), 596-606. doi:10.1111/j.1365-2648.2008.04629.x

East Mississippi State Hospital. (2016). *Serving Mississippians since 1883*. Retrieved from http://www.emsh.state.ms.us/index.html

East Mississippi State Hospital. (2014). *Investigative summary report.* Meridian, MS: Outcome Services Division.

East Mississippi State Hospital (2015). *Policy 111-01:Investigative services.* Meridian, MS: Outcome Services Division.

Elbogen, E. B., & Johnson, S.C. (2009). The intricate link between violence and mental disorder: Results from the national epidemiologic survey on alcohol and related conditions. *Archive of General Psychiatry, 66*, 152-161. doi:10.1001/archgenpsychiatry.2008.537

Elbogen, E. B., Mustillo, S., & Van Dorn, R. (2007). The impact of perceived need for treatment on risk of arrest and violence among people with severe mental illness. *Criminal Justice and Behavior, 34,* 197–210. doi: 10.1177/0093854806290326

Farrell, G., & Cubit, K. (2005). Nurses under treat: A comparison of content of 28 aggression management programs. *International Journal of Mental Health Nursing, 14*(1), 44-53. doi: 10.1111/j.1440-0979.2005.00354.x

Fazel, S., Langstrom, N., Hjern, A., Grann, M., & Lichtenstein, P. (2009). Schizophrenia, substance abuse, and violent crime. *Journal of the American Medical Association*, *301, 2*016–2023. doi:10.1001/jama.2009.675

Fazel, S., Lichtenstein, P., Grann, M., Goodwin, G. M., Långström, N. (2010). Bipolar disorder and violent crime: New evidence from population-based longitudinal studies and systematic review. *Archive General Psychiatry,67*(9), 931-938. doi:10.1001/archgenpsychiatry.2010.97

Ferguson, J., & Leno-Gordon, D. (2010, September). Dial 7788 "Code grey— pip3— male side" "This is the head nurse". *Journal of Safe Management of Disruptive and Assaultive Behavior*, 11-15. Retrieved from http://www.crisisprevention.com/CPI/media/Media/Resources/research/Coney-Island- Hospital.pdf

Fernandes, C. M. B., Raboud, J. M., Christenson, J. M., Bourhilette, F., Bullock L., Ouellet, L., & Moore, C. C. F. (2002). The effect of an education program on violence in the emergency department. *Annals of Emergency Medicine, 39*(1), 47-55. doi:10.1067/mem.2002.121202

Feshir, R. (2015, July 14). Patient assaults staff member at Minnesota security hospital. *Minnesota Public News*. Retrieved from https://www.mprnews.org/story/2015/07/14/patient-assaults-staff-member-at-minnesota-security-hospital-

Findorff, M. J., McGovern, P. M., Wall, M. M., & Gerberich, S. G. (2005). Reporting violence to a health care employer: A cross-sectional study. *AAOHN Journal: Official Journal of the American Association of Occupational Health Nurses, 53*(9), 399–406. doi:10.1016/j.ijnurstu.2012.12.011

Fink, M. (2001). ECT has much to offer our patients: It should not be ignored. *World Journal of Biological Psychiatry, 2*, 1-8. doi:10.3109/15622970109039978

Flannery, R. B., Fulton, P., Tausch, J., & DeLoffi, A.Y. (1991). A program to help staff cope with psychological sequelae of assaults by patients. *Hospital and Community Psychiatry, 42*(9), 935-938. http://dx.doi.org/10.1176/appi.ps.52.9.1175

Gaynes, B. N., Brown, C., Lux, L. J., Brownley, K., Van Dorn, R., Edlund, M., … Lohr, K. N. (2016). *Strategies to de-escalate aggressive behavior in psychiatric patients. Comparative effectiveness review No. 180*. AHRQ Publication No. 16-EHC032-EF. Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from https://effectivehealthcare.ahrq.gov/ehc/products/613/2256/aggression-%20executive-160713.pdf

Gendreau, P. L., & Archer, J. (2005). Subtypes of aggression in humans and animals. In R. E. Tremblay, W. W. Hartup, J. Archer, R. E. Tremblay, W. W. Hartup, & J. Archer (Eds.), *Developmental origins of aggression* (pp. 25-46). New York, NY: Guilford Press.

Gilbert, F., Daffern, M., Talevski, D., & Ogloff, J. P. (2015). Understanding the personality disorder and aggression relationship: An investigation using contemporary aggression theory. *Journal of Personality Disorders, 29*(1), 100-114. doi:10.1521/pedi_2013_27_077

Goldstein, A., & Glick, B. (1987). *Aggression replacement training: A comprehensive intervention for aggressive youth*. Champaign, IL: Research Press.

Goldstein, A. P., & Glick, B. (1994). Aggression replacement training: Curriculum and evaluation. Simulation and Gaming, 25(1), 9-26. doi: 10.1177/1046878194251003

Goldstein, A. P., Glick, B., & Gibbs, J. C. (1998). *Aggression replacement training revised edition: A comprehensive intervention for aggressive youth*. Champaign, IL: Research Press.

Goldstein, A. P., Glick, B., Reiner, S., Zimmerman, D., & Coultry, T. (1986). *Aggression replacement training*. Champaign, IL: Research Press.

González, R. A., Igoumenou, A., Kallis, C., & Coid, J. W. (2016). Borderline personality disorder and violence in the UK population: Categorical and dimensional trait assessment. *BMC Psychiatry, 161*, 1-10. doi:10.1186/s12888-016-0885-7

Grob, G. N. (1973). *Mental institutions in America social policy to 1875*. New York: The Free Press.

Hage, S., Van Meijel, B., Fluttert, F., & Berden, G. G. (2009). Aggressive behavior in adolescent psychiatric settings: What are risk factors, possible interventions and implications for nursing practice? A literature review. *Journal of Psychiatric And Mental Health Nursing, 16*(7), 661-669. doi:10.1111/j.1365-2850.2009.01454.x

Hall, J. K. (Ed.) (1944). *One hundred years of American psychiatry*. New York: Columbia University Press.

Halldorsdottir, S. (2008). The dynamics of the nurse-patient relationship: Introduction of a synthesized theory from the patient's perspective. *Scandinavian Journal of Caring Sciences, 22*(4), 643-652. doi: 10.1111/j.1471-6712.2007.00568.x

Hankin, C. S., Bronstone, A., & Koran, L. M. (2011). Agitation in the inpatient psychiatric setting: A review of clinical presentation, burden, and treatment. *Journal of Psychiatry Practice*, *17*(3), 170-85. doi: 10.1097/01.pra.0000398410.21374.7d

Harvard Health Publications. (2011). *Harvard mental health letter, mental Illness and violence. 27*(7), 1-3. Retrieved from http://www.biblioteca.cij.gob.mx/Archivos/Materiales_de_consulta//Drogas_de_Abuso// Articulos//55984270.pdf

Hatcher, R. M., Palmer, E. J., McGuire, J., Hounsome, J. C., Bilby, C. L., & Hollin, C. R. (2008). Aggression replacement training with adult male offenders within community settings: A reconviction analysis. *Journal of Forensic Psychiatry & Psychology, 19*(4), 517-532. doi:10.1080/14789940801936407

Hirose, S., Ashby, C. R., & Mills, M. J. (2001). Effectiveness of ECT combined with risperidone against aggression in schizophrenia. *Journal of ECT*, *17*(1), 22-26.

Horner, R. L., Dunlap, G., Koegel, R. L., Carr, E. G., Sailor, W., Anderson, J., Albin, R. W., & O'Neill, R. E. (1990). Towards a technology of "Non-aversive" behavior support. *Journal of the American Society of Hypertension, 15*(3), 125-132. doi: 10.1177/154079699001500301

Hosie, J., Gilbert, F., Simpson, K., & Daffern, M. (2014). An examination of the relationship between personality and aggression using the general aggression and five factor models. *Aggressive Behavior, 40*(2), 189-196. doi:10.1002/ab.21510

Hosley, C. (2005). Aggression replacement training uniting networks for youth evaluation highlights 2003-04. *Wilder Research*, 1-2. Retrieved from https://www.wilder.org/Wilder-Research/Publications/Studies/Aggression%20Replacement%20Training/Aggression%20Replacement%20Training%20-%20Uniting%20Networks%20for%20Youth%20Evaluation%20Highlights%202003-04,%20Summary.pdf

Howell, D. C. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson Higher Education.

Hubbard, J. A., Cillessen, A. H. N, Dodge, K. A., Coie, J. D., & Schwartz, D. (2001). The dyadic nature of social information processing in boys' reactive and proactive aggression. *Journal of Personality and Social Psychology, 80,* 268–280. http://dx.doi.org/10.1037/0022-3514.80.2.268

Huckshorn, K. A., Parhami, I., Trimzi, I., Holloway, S. W., Diamond, M., & Gallucci, G. (2009). *Changing cultures of state psychiatric hospitals to reduce client seclusions and restraints*. Dover, Deleware: Delaware Division of Substance Abuse and Mental Health. Retrieved from https://www.researchgate.net/publication/236841934_Changing_Cultures_of_State_Psychiatric_Hospitals_To_Reduce_Client_Seclusions_and_Restraints

Ilkiw-Lavalle, O., Grenyer, B. F., & Graham, L. (2002). Does prior training and staff occupation influence knowledge acquisition from an aggression management training program? *International Journal of Mental Health Nursing, 11*(4), 233. doi:10.1046/j.1440-0979.2002.00254.x

Jansen, G. J., Dassen, T.W., & Groot-Jebbink, G. (2005). Staff attitudes towards aggression in health care: A review of the literature. *Journal of Psychiatric and Mental Health Nursing*, *12*(1), 3-13. doi: 10.1111/j.1365-2850.2004.00772.x

Johnson, J. G., Cohen, P., Smailes, E., Kasen, S., Oldham, J. M., Skodol, A. E., & Brook, J. S. (2000). Adolescent personality disorders associated with violence and criminal behavior during adolescence and early adulthood. *American Journal of Psychiatry, 157*, 1406–1412. http://dx.doi.org/10.1176/appi.ajp.157.9.1406

Johnson, L. E., Wang, E. W., Gilinsky, N., He, Z., Carpenter, C. C., Nelson, M., & Scheuermann, K. (2013). Youth outcomes following implementation of universal SW- PBIS in a secure Texas juvenile facility. *Education & Treatment of Children, 36*(3), 135-145. doi:10.1353/etc.2013.0019

Johnson, M. E. (2010). Violence and restraint reduction efforts on inpatient psychiatric units. *Issues in Mental Health Nursing, 31*(3), 181-197. http://dx.doi.org/10.3109/01612840903276704

Johnson, M. E. & Hauser, P. M. (2001). The practices of expert psychiatric nurses: Accompanying the patient to a calmer personal space. *Issues in Mental Health Nursing, 22*, 651-668. doi/abs/10.1080/01612840117788

Jonikas, J., Cook, J., Rosen, C., Laris, A., & Kia, J. (2004). A program to reduce use of physical restraint in psychiatric inpatient facilities. *Psychiatric Services, 55*(7), 818–820. doi: 10.1176/appi.ps.55.7.818

Ketelsen, R., Zechert, C., Driesen, M., & Schulz, M. (2007). Characteristics of aggression in a German psychiatric hospital and predictors of patients at risk. *Journal of Psychiatric & Mental Health Nursing, 14,* 92-99. doi:10.1111/j.1365-2850.2007.01049.x

Killick, S., & Allen, D. (2005). Training staff in an adolescent inpatient psychiatric unit in positive approaches to managing aggressive and harmful behavior: Does it improve confidence and knowledge? *Child Care in Practice, 11*(3), 323-339. doi:10.1080/13575270500151870

Knox, D. K., & Holloman, G. H. (2012). Use and avoidance of seclusion and restraint: Consensus statement of the American Association for Emergency Psychiatry Project BETA Seclusion and Restraint Workgroup. *Western Journal of Emergency Medicine*, *13*(1), 35–40. Retrieved from http://doi.org/10.5811/westjem.2011.9.6867

KU Work Group for Community Health and Development. (2015). *Chapter 37, Section 7: Collecting and using archival data*. Lawrence, KS: University of Kansas. Retrieved from the Community Tool Box: http://ctb.ku.edu/en/table-of-contents/evaluate/evaluate-community-interventions/archival-data/checklist

Krug, E. G., Mercy, J. A., Dahlberg, L. L., & Zwi, A. B. (2002). World report on violence and health: World Health Organization. *The Lancet,* 360(9339), 1083–1088. http://dx.doi.org/10.1016/S0140-6736(02)11133-0

LaFond, R. (2007). Reducing seclusion and restraint for improved patient and staff safety. *Journal of Safe Management of Disruptive and Assaultive Behavior*, September 2007, 8- 12. Retrieved from http://www.crisisprevention.com/CPI/media/Media/Resources/research/Lafond-from-07- JSM-JOU-002.pdf

Laker, C., Gray, R., & Flach, C. (2010). Case study evaluating the impact of de-escalation and physical intervention training. *Journal of Psychiatric & Mental Health Nursing, 17*(3), 222-228. doi:10.1111/j.1365-2850.2009.01496.x

Lehmann, S., McCormick, R. A., & Kizer, K. W. (1999). A survey of assaultive behavior in veterans health administration facilities. *Psychiatric Services, 50*(3), 384-389. http://dx.doi.org/10.1176/ps.50.3.384

Liberman, R. P. (2011). Commentary: Interventions based on learning principles can supplant seclusions and restraints. *The Journal of the American Academy of Psychiatry and the Law, 39*(4), 80–95. Retrieved from http://jaapl.org/content/39/4/480.long

Lincoln, T. M., & Hodgins, S. (2008). Is lack of insight associated with physically aggressive behavior among people with schizophrenia living in the community? *The Journal of Nervous and Mental Disease, 196,* 62-66. doi: 10.1097/NMD.0b013e31815faa4d

Little, T. D., Jones, S. M., Henrich, C. C., & Hawley, P. H. (2003). Disentangling the ‘‘whys’’ from the ‘‘whats’’ of aggressive behavior. *International Journal of Behavioral Development, 27,* 122-133. doi:10.1080/01650250244000128

Livingston, J. D., Verdun-Jones, S., Brink, J., Lussier, P., & Nicholls, T. (2010). A narrative review of the effectiveness of aggression management training programs for psychiatric hospital staff. *Journal of Forensic Nursing, 6*, 15–28. doi: 10.1111/j.1939-3938.2009.01061.x

McClean, B., & Grey, I. (2012). A component analysis of positive behavior support plans. *Journal of Intellectual & Developmental Disability, 37*(3), 221-231. doi:10.3109/13668250.2012.704981

McCue, R., Urcuyo, L., Lilu, Y., Tobias, T., & Chambers, M. (2004). Reducing restraint use in a public psychiatric inpatient service. *Journal of Behavioral Health Services & Research, 31*(2), 217–224.

McEllistrem, J. E. (2004). Affective and predatory violence: A bimodal classification system of human aggression and violence. *Aggression and Violent Behavior, 10*, 1-30. doi:10.1016/j.avb.2003.06.002

McGuire, J. (2008). A review of effective interventions for reducing aggression and violence. *Philosophical Transactions of the Royal Society, 363*, 2577-2597. doi: 10.1098/rstb.2008.0035

McNiel, D., Eisner, J., & Binder, R. (2003). The relationship between aggressive attributional style and violence by psychiatric patients. *Journal of Consulting and Clinical Psychology, 71*(2), 399-403. doi.org/10.1037/0022-006X.71.2.399

Menditto, A. A. (2002). A social-learning approach to the rehabilitation of individuals with severe mental disorders who reside in forensic clients. *Psychiatric Rehabilitation Skills, 6*, 73-93. doi:10.1080/10973430208408423

Menditto, A. A., Beck, N. C., & Stuve, P. A. (2000). *Social-learning approach to reducing aggressive behavior among chronically hospitalized psychiatric patients, in understanding and treating violent psychiatric patients.* Washington, DC: American Psychiatric Publishing.

Mental illness and violence: Multiple interacting factors contribute to violent behavior. (2011). *Harvard Mental Health Letter*, *27*(7), 1-3.

Milton, J., Amin, S., Singh, S., Harrison, G., Jones, P., Croudace, T., Medley, I., & Brewin, J. (2001). Aggressive incidents in first-episode psychosis. *British Journal of Psychiatry, 178,* 433-440. http://dx.doi.org/10.1192/bjp.178.5.433

Mississippi Department of Mental Health (2016a). Adult services: East Mississippi State Hospital. Retrieved from http://www.dmh.ms.gov/service-options/mental-health/adult- services/

Mississippi Department of Mental Health (2016b). Behavioral health programs. Retrieved from http://www.dmh.ms.gov/who-we-are/psychiatric-hospitals/

Monahan, J. (1992). Mental disorder and violent behavior: Perceptions and evidence. *American Psychologist, 47*(4), 511-521. http://dx.doi.org/10.1037/0003-066X.47.4.511

Monahan, J. (2002). The Macarthur studies of violence risk. *Criminal Behavior and Mental Health, 12*(1), 67–72. doi: 10.1002/cbm.521

Monahan, J., & Steadman, H. (1983). *Crime and mental disorder: An epidemiological approach*. Chicago, IL: University of Chicago Press.

Morrison, E. F., & Carney-Love, C. (2003). An evaluation of four programs for the management of aggression in psychiatric settings. *Archives of Psychiatric Nursing, 17*(4), 146-55. doi:10.1016/S0883-9417(03)00085-2

Mullen, P. E. (2006). Schizophrenia and violence: From correlations to preventive strategies. *Advances in Psychiatric Treatment*, *12*, 239- 248. doi: 10.1192/apt.12.4.239

National Alliance on Mental Illness. (2015a). *Mental health by the numbers*. Available at National Alliance for the Mentally Ill website. Retrieved from https://www.nami.org/Learn-More/Mental-Health-By-the-Numbers

National Alliance on Mental Illness. (2015b). *Mental health conditions*. Available at National Alliance for the Mentally Ill website. Retrieved from https://www.nami.org/Learn-More/Mental-Health-Conditions

National Center for Trauma-Informed Care. (2016). National center for trauma-informed care and alternatives to seclusion and restraint (NCTIC) website, Retrieved from http://www.samhsa.gov/nctic/

Needham, I., Abderhalden, C., Meer, R., Dassent, T., Haug, H. J., Halfens, R.,… & Fischer, J. E. (2004). The effectiveness of two interventions in the management of patient violence in acute mental inpatient settings: Report on a pilot study. *Journal of Psychiatric and Mental Health Nursing, 11,* 595–601. doi: 10.1111/j.1365-2850.2004.00767.x

Nestor, P. G. (2002). Mental disorder and violence: Personality dimensions and clinical features. *American Journal of Psychiatry, 159*, 1973–1978. Retrieved from http://dx.doi.org/10.1176/appi.ajp.159.12.1973

Nolan, K. A., Constance, B. S., & Citrome, L. (2009). Staff and patient views of reasons for aggressive incidents: A prospective, incident-based study. *Psychiatry Quarterly, 80*, 3.

Nouvion, S. M. (2007). Human proactive aggression: association with personality disorders and psychopathy. *Aggressive Behavior, 33*(6), 552-562. doi: 10.1002/ab.20220

Nygaard, P., Bright, K., Saltz, R., & McGaffigan, R. (2007). Archival data: Collection and use in community alcohol projects. *Substance Use & Misuse*, *42*(12/13), 1945-1953.

Occupational Safety and Health Administration (2004). *Guidelines for preventing workplace violence for healthcare and social service workers.* Publication no. OSHA 314801R. Washington, DC:OSHA. Retrieved from https://www.osha.gov/Publications/osha3148.pdf

Occupational and Health Administration. (2015). *Workplace violence in healthcare understanding the challenge.* Publication no. OSHA 3826. OSHA, Washington. Retrieved from https://www.osha.gov/Publications/OSHA3826.pdf

Ogloff, J. R. P., & Daffern, M. (2006). The dynamic appraisal of situational aggression: An instrument to assess risk for imminent aggression in psychiatric inpatients. *Behavioral Sciences and the Law, 24*, 799–813. doi: 10.1002/bsl.741

Partie, M. (2016). *Therapeutic options: Therapeutic options instructor manual.* Newark, DE: Author. Retrieved from: www.therops.com

Paul, G. L., & Lentz, R. J. (1977). *Psychosocial treatment of chronic mental patients: Milieu versus social learning program*. Cambridge, MA: Harvard University Press.

Perez-Rodriquez, M., Weinstein, S., New, A. S, Bevilacqua, L., Yuan, Q., Zhou, Z., … Siever, L. G. (2010). Tryptophan-hydroxylase 2 haplotype association with borderline personality disorder and aggression in a sample of patients with personality disorders and healthy controls. *Journal of Psychiatric Research, 44*(15), 1075-1081. doi: 10.1016/j.jpsychires.2010.03.014

Poyner, B., & Warne, C. (1988). *Preventing violence to staff, health and safety commission.* London: Health and Safety Executive.

Price, J. M., & Dodge, K. A. (1989). Reactive and proactive aggression in childhood: Relations to peer status and social context dimensions. *Journal of Abnormal Child Psychology, 17,* 455-471. doi:10.1007/BF00915038

Pro-Act. (2016). *Professional assault crisis training & certification*. Retrieved from http://www.proacttraining.com/about

Pulsford, D., Crumpton, A., Baker, A., Wilkins, T., Wright, K., & Duxbury, J. (2013). Aggression in a high secure hospital: Staff and patient attitudes. *Journal of Psychiatric Mental Health Nursing, 20*(4), 296-304. doi: 10.1111/j.1365-2850.2012.01908.x

Quanbeck, C., McDermott, B., Lam, J., Eisenstark, H., Sokolov, G., & Scott, C. (2007). Categorization of aggressive acts committed by chronically assaultive state hospital patients. *Psychiatric Services, 58*, 521–528. doi:10.1176/ps.2007.58.4.521

Ramirez, J. M., & Andreu, J. M. (2006). Aggression, and some related psychological constructs (anger, hostility, and impulsivity): Some comments from a research project. *Neuroscience and Biobehavioral Reviews, 30*, 276–291. doi:10.1016/j.neubiorev.2005.04.015

Rask, M., & Brunt, D. (2007). Verbal and social interactions in the nurse-patient relationship in forensic psychiatric nursing care: A model and its philosophical and theoretical foundation. *Nurse Inquiry, 14*(2), 169-176. doi: 10.1111/j.1440-1800.2007.00364.x

Rippon, T. J. (2002). Aggression and violence in health care professions. *Journal of Advanced Nursing, 31*(2), 452-460. doi: 10.1046/j.1365-2648.2000.01284.x

Rosenberg, E. (2015, October 9). Patient accused of attacking employee at state mental hospital. *KMBC News*. Retrieved http://www.kmbc.com/news/patient- accused-of-attacking-employee-at-state-mental-hospital/36131672

Rueve, M. E., & Welton, R. S. (2008). Violence and mental illness. *Psychiatry (Edgmont)*, *5*(5), 34–48. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2686644/

Scheuermann, B. & Hall, J. (2012). *Positive behavioral supports for the classroom.* (2nd ed.) New Jersey: Pearson.

Shah, L., Annamalai, J., Aye, S. N., Xie, H., Pavadai, S. S., Ng, W., … Manickam, M. (2016). Key components and strategies utilized by nurses for de- escalation of aggression in psychiatric in-patients: A systematic review protocol. *JBI Database Systematic Reviews Implementation Report, 14*(12),109-118. doi: 10.11124/JBISRIR-2016-003219

Sharfstein, S., & Dickerson, F. B. (2009). Hospital psychiatry for the twenty-first century. *Health Affairs, 28*(3), 685-688. doi:10.1377/hlthaff.28.3.685

Signorini, R. (2013, October 12). *Woman charged with assault in Derry psychiatric hospital*. Retrieved http://www.wpxi.com/news/news/woman-charged-assault-derry-psychiatric- hospital/nbMcd/

Singh, N. N., Lancioni, G. E., Winton, A. S. W., Curtis, J. W., Wahler, R. G., Sabaawi, M., & McAleavey, K. (2006). Mindful staff increase learning and reduce aggression in adults with developmental disabilities. *Research in Developmental Disabilities, 27*(5), 545–558. doi:10.1016/j.ridd.2005.07.002

Skinner, B.F. (1938). *The behavior of organisms*. New York: Appleton-Century.

Smith, A. (2000). Motivation and psychosis in schizophrenic men who sexually assault women. *The Journal of Forensic Psychiatry, 11*(1), 62-73. doi:10.1080/095851800362364

Spitzer, R. L., Williams, J.B., Gibbon, M., & First, M.B. (1992). The structured clinical interview for *DSM-III-R* (SCID): History, rationale, and description. *Archives of General Psychiatry, 49*(8), 624-629.

Springer, J. R., Sloan, P. A., Benge, J. F., Spence, M., Carlo, I., & Teng, E. J. (2010). From dangerous to discharged: An application of social-learning-based procedures in an acute hospital setting. *Clinical Case Studies, 9*(1), 41-52. doi: 10.1177/1534650109348583

Steadman, H. J., Mulvey, E. P., Monahan, J., Robbins, P. C., Applebaum, P. S., Grisso, T.,…& Silver, E. (1998). Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighborhoods. *Archives of General Psychiatry, 55,* 393–401. doi:10.1001/archpsyc.55.5.393

Stuart, H. (2003). Violence and mental illness: An overview. *World Psychiatry, 2*(2), 121–124.

Stubbs, B., & Dickens, G. (2008). Prevention and management of aggression in mental health: An interdisciplinary discussion. *International Journal of Therapy & Rehabilitation, 15*(8), 351-355. doi: 10.12968/ijtr.2008.15.8.30819

Substance Abuse and Mental Health Services Administration. (2015). *Results from the 2014 National Survey on Drug Use and Health: Mental Health Findings, NSDUH Series H-50,HHS Publication No.* (SMA) 15-4927. Rockville, MD: Author. Retrieved from http://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf

Tenneij, N. H., & Koot, H. M. (2008). Incidence, types and characteristics of aggressive behavior in treatment facilities for adults with mild intellectual disability and severe challenging behavior. *Journal of Intellectual Disability Research*, *52*(2), 114-124. doi:10.1111/j.1365-2788.2007.00968.x

The Joint Commission. (2008). Behaviors that undermine a culture of safety. *Sentinel Event Alert Issue 40.* Retrieved from http://www.jointcommission.org/assets/1/18/SEA_40.PDF

The Joint Commission on Accreditation of Healthcare Organizations. (2015). *Comprehensive accreditation manual for hospitals: The official handbook*. Oakbrook Terrace, IL: Joint Commission Resource.

The Joint Commission. (2016). *What is accreditation*? Retrieved from http://www.jointcommission.org/accreditation/accreditation_main.aspx.

The Mandt System. (2008). *Utilizing a research based continuous learning and development approach.* Retrieved from http://www.mandtsystem.com/wp-content/uploads/EDBrochure-options.pdf

The Mandt System. (2011). *Education*. Retrieved from http://www.mandtsystem.com/masters/sectors/education/

The Mandt System. (2015a). *A comprehensive teacher training for classroom management*. Retrieved from http://www.mandtsystem.com/wp-content/uploads /EDBrochure-options.pdf.

The Mandt System. (2015b). *Instructor training manual: Building healthy relationships since 1975*. Richardson, Texas: Author.

Therapeutic Options. (2016). *Helping the helper through education support and training*. Retrieved from http://www.therops.com/

Torrey, E. F. (2006). Violence and schizophrenia. *Schizophrenia Research, 88*(1-3), 3–4. doi: 10.1016/j.schres.2006.09.010

Ulrich, R. S., Lawson, B., & Martinez, M. (2003). *Exploring the patient environment: An NHS estates workshop*. London, England: The Stationery Office.

U. S. Department of Health and Human Services, National Institutes of Health, National Institute of Mental Health. (1994). *Epidemiologic catchment area study:1980-1985.* [UNITED STATES]. Rockville, MD: Author.

U. S. Department of Health and Human Services, National Institutes of Health, National Institute of Mental Health. (2015). *NIMH Strategic Plan for Research* (NIH Publication No. 02- 2650). Retrieved from http://www.nimh.nih.gov/about/strategic-planning- reports/index.shtml

U.S. Department of Justice, Office of Justice Programs. (2011). *Bureau of justice statistics report, workplace violence, 1993-2009: National crime victimization survey and the census of fatal occupational injuries*. Retrieved from: www.bjs.gov/content/pub/pdf/wv09.pdf

U.S. Department of Labor, & Occupational Safety and Health Administration. (2014). *Guidelines for preventing workplace violence for healthcare and social service workers* (No. OSHA 3148-04R). Washington, DC: Author.

Van Dorn, R., Volavka, J., & Johnson, N. (2012). Mental disorder and violence: Is there a relationship beyond substance use? *Social Psychiatry Psychiatric Epidemiology, 47*(3), 487-503. doi: 10.1007/s00127-011-0356-x

Visser, S.M., McCabe, M.P., Hudgson, C., Buchanan, G., Davison, T.E., & George, K. (2008). Managing behavioral symptoms of dementia: Effectiveness of staff education and peer support. *Aging and Mental Health, 12*, 47–55.

Vojt, G., Marshall, L. A., & Thomson, L. G. (2010). The assessment of imminent inpatient aggression: A validation study of the DASA-IV in Scotland. *Journal of Forensic Psychiatry & Psychology, 21*(5), 789-800. doi:10.1080/14789949.2010.489952

Wale, J. B., Belkin, G. S., & Moon, R. (2011). Reducing the use of seclusion and restraint in psychiatric emergency and adult inpatient services-improving patient-centered care. *The Permanente Journal, 15*(2), 57-62. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21841927

Walsh, E., Buchanan, A., & Fahy, T. (2001). Violence and schizophrenia: Examining the evidence. *British Journal of Psychiatry, 180,* 490–495. doi: 10.1192/bjp.180.6.490

Walters, G. D. (2005). Proactive and reactive aggression: A lifestyle view. In J. P. Morgan (Ed.), *Psychology of aggression*. (pp. 29-43). Hauppauge, NY: Nova Science Publishers.

Warburton, W. A., & Anderson, C. A. (2001). Aggression, social psychology. *Encyclopedia of the Social & Behavioral Sciences, 2*(1), 373-380. http://dx.doi.org/10.1016/B978-0-08- 097086-8.24002-6

APPENDIX A

REQUEST FOR PERMISSION TO USE *THE MANDT SYSTEM*

Yolanda McDade

Subject: FW: Permission to Use Mandt Information

From: Yolanda McDade
Sent: Thursday, November 12, 2015 9:33 AM
To: 'tim@mandtsystems.com'
Subject: Permission to Use Mandt Information

Mr. Tim Geels,

I am contacting you to follow-up on the authorization to use Mandt System information for my dissertation (see below) . Please inform me if this has been approved.

Thanking you in advance,

Yolanda McDade, MS, NCC, LPC-S, LSW, CAT
Director of Outcome Services Division
East Mississippi State Hospital
Phone: (601) 581-7844
Fax: (601) 581-7740
Email: ymcdade@emsh.ms.gov

From: Yolanda McDade
Sent: Tuesday, November 03, 2015 3:15 PM
To: davidd@mandtsystem.com
Subject: Permission to Use The Mandt System Information

Mr. David Mandt,

I am currently a student at Mississippi State University in the Counselor Education Doctoral Program. I have been employed at East Mississippi Hospital for 24 years. I plan to submit a dissertation proposal to my committee titled: "EXAMINING THE EFFECTIVENESS OF MANAGEMENT OF AGGRESSIVE AND VIOLENT BEHAVIOR IN AN ACUTE PSYCHIATRIC HOSPITAL: BUILDING HEALTHY RELATIONSHIPS". I am proposing a quantitative study to explore the effectiveness of a behavior management program previously utilized by Mississippi Department facilities compared to The Mandt System that we currently utilize. I herewith request your official permission to use The Mandt System information for the purpose of dissertation research. If you have any question, I can be reached on my cell phone (601) 479-0148 or in my office.

Thanking you advance,

Yolanda McDade, MS, NCC, LPC-S, CAT
Director of Outcome Services Division
East Mississippi State Hospital
Phone: (601) 581-7844
Fax: (601) 581-7740
Email: ymcdade@emsh.ms.gov

APPENDIX B

RESPONSE FROM THE MANDT SYSTEM REPRESENTATIVE

Yolanda McDade

From: **Timothy Geels tim@mandtsystem.com**
Sent: **Thursday, November 12, 2015 10:39 AM**

Hi Yolanda,

Per our phone conversation early last week, I discussed with the leadership your desire to use The Mandt System information in your dissertation. The use of The Mandt System information would be fine. Please cite all The Mandt System resources used according to your dissertation standards for citation. Also, if you are going to use any of the imagery or graphics used in The Mandt System curriculum, I would ask that you gain separate permission for any of those pieces. Best of luck with your dissertation and I would love to read it when you have finished if that would be a possibility.

Kind regards,
Tim

Tim Geels
Senior Vice President of Organizational Development
The Mandt System
P.O. Box 831790
Richardson, TX 75083-1790

www.mandtsystem.com

Cell Phone 712-204-1091

The Mandt System
Building Healthy Workplace Relationships Since 1975

APPENDIX C

PERMISSION TO USE ARCHIVAL DATA SET

EAST MISSISSIPPI STATE HOSPITAL
P.O. Box 4128, West Station, Meridian, Mississippi 39304-4128

Charles A. Carlisle, Director
Phone: (601) 581-7878 • Fax (601) 581-7890

August 29, 2016

Yolanda McDade
Ph.D. Candidate,
Mississippi State University

Yolanda McDade,

On behalf of East Mississippi State Hospital Research Committee, I would like to inform you that your research proposal was unanimously approved on August 29, 2016. You have been endorsed to proceed in your investigation of data from East Mississippi Hospital Quality Assurance Department involving patient incidents between the years of 2007-2013 and interviews from our mental health staff. Based upon your proposal, the Research Committee understands that your endeavor does not jeopardize any patient information. Your proposal also indicates that there are no serious risks for the mental staff by becoming involved in this study.

Please do not hesitate to contact me for any assistance and as requested by the Research Committee I would like to invite you to present your findings and results to the committee when you have completed your work. Thank you for your application to East Mississippi State Hospital and the best to you in your investigation endeavor.

Sincerely,

James L. Shumate, Ph.D.
Psychology Executive
Chairperson, Research Committee

APPENDIX D

IRB APPROVAL

MISSISSIPPI STATE UNIVERSITY

Office of Research Compliance

Institutional Review Board for the Protection of Human Subjects in Research
P.O. Box 6223
53 Morgan Avenue
Mississippi State, MS 39762
P. 662.325.3294

www.orc.msstate.edu

NOTICE OF APPROVAL FOR HUMAN RESEARCH

DATE:	October 04, 2016
TO:	McDade, Yolanda, MS, Counsel & Ed Psy Startup
FROM:	Roberts, Jodi, HRPP Officer, MSU HRPP
PROTOCOL TITLE:	Effectiveness of The Mandt System Aggression Management Training In An Inpatient Behavioral Health Program
FUNDING SOURCE:	NONE
PROTOCOL NUMBER:	IRB-16-348

This letter is your record of the Human Research Protection Program (HRPP) approval of this study as exempt.

On October 04, 2016, the Mississippi State University Human Research Protection Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The application qualified for exempt review under CFR 46.101(b)(2).

Exempt studies are subject to the ethical principles articulated in the Belmont Report, found at www.hhs.gov/ohrp/regulations-and-policy/belmont-report/#

If you propose to modify your study, you must receive approval from the HRPP prior to implementing any changes. The HRPP may review the exempt status at that time and request an amendment to your application as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so.

The MSU IRB approval for this project will expire on November 30, 2016. If you expect your project to continue beyond this date, you must submit an application for renewal of this HRPP approval. HRPP approval must be maintained for the entire term of your project. Please notify the HRPP when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the HRPP by phone at 325.3994 or email irb@research.msstate.edu. We wish you success in carrying out your research project.

Review Type:	EXEMPT
IRB Number:	IORG0000467

Association for the Accreditation of Human Research Protection Programs, Inc. — Full Accreditation