SECLUSION AND RESTRAINT REDUCTION IN A PSYCHIATRIC HOSPITAL

By

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Abstract

The primary research question is as follows: is having an early de-escalation support team readily available a valid option for successfully reducing the frequency of mechanical restraint, physical restraint and seclusion in an Inpatient Psychiatric Hospital setting? For simplicity, this team will be called the Early De-escalation Intervention Team (EDIT). The hospital involved in this study is a large regional psychiatric facility. The hospital's Director of Performance Management created EDIT to bridge the gap between classroom training, application, and experience. Through rigorous coaching and modeling, the hospital believes EDIT has successfully partnered with staff to improve skill sets, increase safety, and dramatically reduce the utilization of mechanical restraint, physical restraint, and seclusion episodes. With the proper utilization of a team like EDIT, mental health staff would be able to work in a safer environment. Greater availability of EDIT staff to provide verbal de-escalation is likely to be associated with lower rates of mechanical restraint, physical restraint, and seclusion. Therefore, this study will examine 350 days of mechanical restraint, physical restraint, and seclusion data after EDIT was initially implemented, as well as 350 days of data before the creation of EDIT. After investigating the duration and frequency of mechanical restraint, physical restraint, and seclusion rates on one of the hospital's most acute adult inpatient units, my hypothesis is that duration and frequency of mechanical restraint, physical restraint, and seclusion use will diminish significantly in the data pulled from the 350 days after implementation of EDIT in comparison to the 350 days of data prior to EDIT.

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Seclusion and Restraint Reduction in a Psychiatric Hospital

Chapter One: Literature Review

The legal use of restraints began in the 1740's (Master, 2017). According to Master (2017), in English towns, vagrancy laws were created to allow the restraint of people who were disturbing the villager's peace. The maladaptive individual would be placed in stocks in the middle of the village square. These laws were legally vindicated because people assumed the restraint intervention would alter the person's negative behaviors effectively.

According to Busch (2005), in the 1700's, it was considered standard practice to restrain psychiatric patients by shackling them to a wall with chains. As stated by Scott (2011), a former seaman from America, named James Norris, was mechanically restrained with a custom device built specially for him. Norris was isolated in those restraints for more than ten years for unspecified lunacy. There were many cases similar to Norris. Over the following 50 years, the use of restraints, in this way, became the central cause for reformation, according to Master (2017).

According to Weiner (1992), in 1794, French psychiatrist Philippe Pinel addressed the Revolutionary Council during the heat of the French Revolution. Pinel argued that psychiatric patients deserved the same rights of liberty and freedom that are established in the 1789 Declaration of the Rights of Man. According to Pinel (1806) and Busch (2005), through his advocacy, Pinel successfully unchained hundreds of mentally ill patients from their iron shackles in two Paris hospitals.

Scott (2011) reports that, during the same period of the 1790's, American Quakers developed the first straitjacket to restrain mentally ill individuals to help them reestablish

control over themselves. These jackets bound the patient from their neck all the way down to their ankles. According to Scott (2011), meanwhile, in Britain, John Conolly, who was the superintendent of an insane asylum, developed the first padded room. This room was used to lock up and seclude violent patients without having to physically restrain them.

As stated by Scott (2011), the British viewed restraint as an evil and criminal act, but they had no moral issues with seclusion. Scott believes this, in part, was due to the highly negative history with restraint episodes that the British had endured during the reformation period. According to Scott, Americans did not hold this perspective because their first state-run mental hospitals were not developed until 1822. Americans had not witnessed events that clearly showed how episodes of restraint were evidence of maltreatment, as the British had. Scott reports that, because of this ignorance, American psychiatrists held the belief that restraint is a powerful and valued therapeutic intervention for safety and behavioral modification. According to Scott, the British, on the other hand, believed that with properly trained mental health workers and sufficiently staffed wards, the use of seclusion and restraint interventions should be rarely necessary.

According to the American Psychiatric Nurses Association (APNA) (2001), throughout the duration of the 1800's, the debate surrounding the moral treatment of the mentally ill continued in this way. England and Europe began to see some successful reduction in the use of these methods, while American psychiatrists firmly concluded that the use of seclusion and restraint could never be abolished from their practices (Fisher, 1994). According to the APNA (2001), American psychiatrists maintained the belief that

utilizing those interventions prevented injuries and reduced the patient's state of aggression.

The APNA (2001) further reports that it was not until the beginning of the 1900's that American mental health staff's views began to shift due to the illuminating perspectives of psychiatric nurses. According to the APNA (2001), these American psychiatric nurses discovered that seclusion and restraint interventions were not reinforcing therapeutic efficiency. Instead, they witnessed how deeply these methods disrupted and controlled the psychiatric patient's behaviors (Sailas & Fenton 2000; Paterson & Duxbury, 2007; Steinert et al. 2010; Scanlan 2010). From this point forward, many regulatory alterations were made in psychiatric facilities (World Health Organization, 2017). Those regulatory changes and studies led to understanding that seclusion and restraint methods are not based on research and are, indeed, not therapeutic for anyone involved: the staff or the patient (World Health Organization, 2017).

However, according to Blum (2011) and Master (2017), some American therapists and psychiatrists maintained the belief that restraint is a beneficial therapeutic tool. Master (2017) believes they held this belief due to misunderstanding Harry Harlow's (1959) research on monkeys. According to Blum (2011), Harlow had emphasized that appropriate attachment was key to successful development. Blum (2011) and Master (2017) believe some viewed this as proof that enforced holding during aggressive episodes was therapeutically beneficial and could be means of successfully treating reactive attachment disorder, especially in those who lacked bonding experiences as a child. According to Master (2017), the therapists and psychiatrists who held this

view overlooked the fact that Harlow also equally emphasized the importance of experiencing independence in one's ability to self-soothe.

According to Weiss, Altimari, Blint, and Megan (1998), over 140 patients died as a result of physical or mechanical restraint in the United States during the 1990's. Weiss et al. (1998) reports that these deaths stimulated the following decade of serious ethical reconsiderations, re-written laws, regulations and administrative changes all in an effort to reduce the use of seclusion and restraint methods. According to Master (2017), during this time, there was a significant increase in the education of psychiatric hospital staff regarding how to avoid the use of seclusion and restraint interventions, how to appropriately monitor restraints, and a noteworthy increase in the data collection regarding seclusion and restraint rates in an effort to further reduce their use. The APNA (2001) claims these efforts provoked mental health staff to give serious consideration to the ethical battle intrinsic to the use of seclusion and restraint interventions. Mental health staff must always weigh their responsibility to prevent harm, while simultaneously carefully considering the patient's right to autonomy (APNA, 2018; Cleary, Hunt, & Walter 2010; Ezeobele, 2014; Mohr, 2010).

Despite these significant advances made over the past two centuries, we have not been able to entirely free psychiatric patients today from the prospect of seclusion and restraint (Busch, 2005). The debate surrounding the reduction or even the elimination of seclusion and restraint for psychiatric patients has been a major area of controversy for centuries.

According to Knox and Holloman (2012), it is common knowledge that physical interventions, as well as chemical interventions, for the purpose of restraint produce both

short-term and long-term complications for the patient, as well as the therapeutic alliance between doctor and patient, that can be quite detrimental. Thus, Knox and Holloman claim that this explains why both regulatory and patient advocacy agencies are constantly pushing for a reduction in the use of seclusion and restraint interventions.

However, according to Knox and Holloman (2012), there are many clinical instances where nonviolent verbal or behavioral intervention techniques are not effective, such as when dealing with a severely psychotic patient. Thus, in order to prevent harm to the patient, other patients, or staff, Knox and Holloman believe there are times when the use of seclusion and/or restraint becomes necessary. In unfortunate circumstances such as this, it is important to recognize seclusion and restraint methods can result in death via asphyxiation, in extreme cases. Weiss et al. (1998) estimate that 50 to 150 patients die annually because of seclusion and restraint interventions in mental health inpatient hospitals in the United States. According to Busch (2005), oftentimes, both patients and staff will describe seclusion and restraint experiences as negative, at best, or as traumatic, at worst.

According to E-Morris et al. (2010), one of the most prominent issues in psychiatric hospitals is the lack of appropriate staffing. E-Morris et al. (2010) believes that, with very few educated and properly trained staff, those working are left vulnerable to injuries by psychotic, violent patients. These staff do not have the support needed to aid them in emergent situations, and it is difficult to maintain structure and calmness on the unit because one escalated patient can quickly lead to multiple violent situations.

Dufresne (2003) explains that when a patient becomes agitated, they begin to escalate and enter four stages of crisis. Stage one is anxiety, which requires active

listening from staff. Stage two is becoming defensive, which requires boundary setting by staff. In stage three, the patient acts out verbally or physically. Finally, stage four is called tension reduction. Oftentimes, it takes one-on-one attention, a calm demeanor and active listening from staff to move the agitated patient into the final stage where they can begin to calm down. This process takes time, and the fewer staff available on the unit, the less time they have to give to escalating patients who require such care.

Definitions and Ethics

Before reviewing the literature surrounding the topic of seclusion and restraint interventions, it is necessary to define the terms of seclusion and restraint. In 2006, the Centers for Medicare and Medicaid Services (CMS) and The Joint Commission (TJC) provide the following definitions relevant to understanding seclusion and restraint (Department of Health and Human Services [DOHHS], 2006). Seclusion is the involuntary quarantine of a psychiatric client who is unaccompanied in a space from which they are prohibited from exiting. According to CMS and TJC, seclusion is legally only allowed to be used for the purpose of managing violent, aggressive, or destructive behaviors. Restraint is any labor-intensive technique, which includes physical restraint, a mechanical device, or any material or equipment that halts or diminishes the patient's ability to move any part of their body freely. CMS and TJC also claim that drugs are considered a chemical form of restraint when used to restrict and manage the psychiatric client's behavior or freedom of movement.

According to DOHHS (2006), the CMS and TJC also outline the ethics regarding the use of seclusion and restraint. Seclusion and restraint must be withdrawn at the soonest possible time. The psychiatric patient must be assessed in-person by a doctor,

other licensed practitioner, registered nurse, or physician assistant, who has met the necessary training requirements, within one hour of the seclusion or restraint episode. Seclusion or restraint is only allowed to be used when less obstructive methods have been determined to be unsuccessful in protecting the psychiatric client, a staff member, or others from maltreatment. Given that authority may be subject to misuse, when seclusion and restraint are the result of coercion, discipline, convenience, or retaliation by staff, the psychiatric patient has the right to be free from that seclusion or restraint. Seclusion or restraint methods are only allowed to be used to ensure the immediate physical protection of the psychiatric client, staff members, or others.

Relevant Potential for Harm

Fisher (1994) concludes that seclusion and restraint intervention methods were proven effective in preventing injury and reducing agitation. Fisher states that it may be near impossible to run any psychiatric program that deals with severely sick patients without the use of such restrictive measures. However, Fisher also admitted that seclusion and restraint interventions will also cause adverse physical and mental effects on both staff and patients. Fisher went on to discuss how nonclinical factors, such as cultural biases, role perceptions, or attitudes, are significant contributors to the frequency of the use of seclusion and restraint methods.

Lam (2002) conducted a study on a randomized sample of 314 nurses. The total percentage of nurses who had been exposed to aggression by patients was 62.1%. Of those nurses, 40% of them experienced psychological distress and 10% experienced moderate to severe depression.

Mohr, Petti, and Mohr (2003) concluded that the utilization of seclusion or restraint interventions does place psychiatric patients at risk for physical injury, possibly death, and can be traumatic for all involved, regardless of the presence of physical injury. Mohr et al. also surmised physical injuries to patients were often produced by various complications from the use of physical restraint.

Frueh et al. (2005) collected data from 142 patients who were surveyed using a questionnaire that was designed to identify the frequency of possibly damaging events and the accompanying psychological distress experienced by the patient. Of those patients, 59% were placed in seclusion and 34% were put in restraints. Consequently, 48% of the seclusion patients and 52% of the restrained patients reported severe distress and trauma experienced from those events.

According to Eastgate (2016), the rate at which mentally ill patients are being secluded and restrained inappropriately is increasing across the United States. Eastgate reports an average of 150 deaths from restraints used in psychiatric hospitals occur every year in the United States. Ball (2013) reports that the overall number of violent incidents, which include any harm done to other patients, themselves or staff and may result in seclusion or restraint, in all state-run hospitals increased by 22% between 2008 and 2012. They also specify the number of incidents in 2008 totaled 2,700, while increasing to 3,300 in 2012. Ball also claimed the number of staff who were injured in psychiatric state-run hospitals increased from 448 in 2008 to 629 in 2012. This is a 40.4% increase over the span of four years.

According to the Substance Abuse and Mental Health Services Administration (SAMHSA) (2010), in general: "There is a common misconception that seclusion and

restraint are used only when absolutely necessary as crisis response techniques. In fact, seclusion and restraint are most commonly used to address loud, disruptive, noncompliant behavior and generally originate from a power struggle between consumer [the patient] and staff" (p. 2). According to SAMHSA (2010), the decision made by mental health staff to utilize seclusion or restraint methods is frequently "arbitrary, idiosyncratic, and generally avoidable" (p. 2). Furthermore, there are multiple studies that indicate seclusion and restraint use produces an increase in and intensification of the behaviors that the mental health staff are endeavoring to regulate or eradicate (Jones & Timbers, 2002; Magee & Ellis, 2001; Natta, Holmbeck, Kupst, Pines, & Schulman, 1990).

In concluding the prevalence of the controversial issue of seclusion and restraint interventions, a National Association of State Mental Health Program Director's document on risk management by Haimowitz, Urff, and Huckshorn (2006) profoundly illuminates the issue with this statement:

> Every episode of restraint or seclusion is harmful to the individual and humiliating to staff members who understand their job responsibilities. The nature of these practices is such that every use of these interventions leaves facilities and staff with significant legal and financial exposure. Public scrutiny of restraint and seclusion is increasing, and legal standards are changing, consistent with growing evidence that the use of these interventions is inherently dangerous, arbitrary, and generally avoidable. Effective risk management requires a proactive strategy focused on reducing the use of these interventions in order to avoid tragedy, media controversy, external mandates, and legal judgments. (p. 36)

Possible Solutions

What can be done to decrease these negative statistics? According to Knox and Holloman (2012), disregarding the use of seclusion and restraint methods all together leaves staff vulnerable and such an extreme resolution is not the answer. Knox and Holloman believe injuries from seclusion and restraint episodes could be avoided if effective ways were available to manage violent patients. Knox and Holloman go on to claim this can happen, but that it will require a change in the attitudes of the clinicians who work with these agitated patients face-to-face. This will also require significant changes in not only staff development training, but in the culture, in general, of the facilities where they practice. SAMHSA (2010) agrees with this theory stating: "The culture must change from one in which seclusion and restraint are viewed as positive and therapeutic to one in which they are regarded as violent acts that result in traumatization to patients, observers, and others" (p. 37).

Forster, Cavness, and Phelps (1999) conducted a study where they compared the rates of seclusion and restraint in an urban psychiatric hospital. They examined data from the 12-month period before and the 12-month period after the enactment of a multidisciplinary quality improvement team (MQIT). The MQIT is a group who works to reduce the hospital's utilization of seclusion and restraint methods. Interventions used by the MQIT included mandatory staff training sessions regarding the management of assaultive behavior, weekly team discussions on each unit to assess the progression, and public, hospital-wide documentation of the progress made. In the training sessions, Forster and colleagues focused their efforts on increasing staff awareness of factors that lead to patient's agitation and violent behaviors. They also focused on teaching staff less

restrictive interventions, as well as the practice of safe reactions toward patient violence. The results of this study included a 13.8% drop in the annual rates of restraint use, an 18.8% decrease in staff injuries, and a 54.6% decrease in the average duration of restraints per admission.

Donat (2003) examined numerous initiatives designed to reduce seclusion and restraint interventions during a 5-year period at a public psychiatric hospital. These factors included alterations in the standards for administrative evaluation of seclusion and restraint episodes, modifications in the structure of the case review committee, formation of a behavioral consultation team, improvement of the standards for behavioral assessments and treatment plans, and enhancements in the overall staff–to-patient ratio. Donat utilized a multiple regression analysis to examine the results. He found that the most substantial factor that lead to a 75% reduction in use of seclusion and restraint methods were alterations in the procedure for identifying critical cases (before violent incidents took place) and introducing a clinical and administrative case review into the hospital's post-incident functions. Donat discovered that, in the review of seclusion and restraint episodes, a necessary component was including feedback to and from staff regarding the incident. Donat also notes the importance of establishing a quality assessment framework to evaluate the effect of the interventions applied or when examining the lack of impact and why. Beyond that, Donat noted that, in general, institutional changes in the culture and attitudes of both administration and staff are significant factors in reducing the occurrence of seclusion and restraint episode in acute settings. Donat believes these key resources and tools (outlined above) are necessary

when establishing quality improvement programs that are designed to reduce seclusion and restraint incidents, as well as the use of as-needed medications.

Jonikas, Cook, Rosen, Laris, and Kim (2004) designed a program to reduce the use of seclusion and restraint interventions on three psychiatric units at a university hospital. The program had two main components. The first part was interviewing patients, either during their intake or within 24 hours of their admission, to discuss and identify their stress triggers. During this interview, the patient's personal crisis management strategies and calming techniques would also be discussed at length. Jonikas et al. believed it was crucial to understand the crisis management techniques that work best for that patient because all patients are unique. After this part of the interview, patients would then discuss their restraint histories, as well as their medication preferences in case of crisis. The information gathered from this interview was compiled into a distinct crisis management plan for each patient. One copy of the plan was given to the patient, while another copy was stored in the patient's chart for ease of access. Each plan was reviewed and assessed weekly. Any necessary changes to be made to the plan were updated during this weekly review. The second part of this program was training staff in de-escalation and non-violent intervention techniques. According to Jonikas et al., this training component was created by the Crisis Prevention Institute in Brookfield, Wisconsin. The training is designed to teach staff how to recognize physical and behavioral cues that might precipitate a crisis. Staff from all three units studied a comprehensive training manual and reviewed a 90-minute training video. Staff were also provided with and trained to use a seclusion and restraint reduction toolkit.

According to Jonikas et al. (2004), to assess the effectiveness of this program, seclusion and restraint data was gathered between July 2000 and December 2002 from the hospital's quality improvement department. The results from this study showed the following percentage decreases in the rate of seclusion and restraints after the staff training had occurred: 48% after one quarter on the adolescent unit, 98% after two quarters on the adolescent unit, 85% after one quarter on the adult units, and 99% after two quarters on the adult units. After these first two quarters, the seclusion and restraint rates remained low (at zero) for the final two quarters. For Jonikas et al., this was proof that the program they had designed was highly effective in reducing the rate of seclusion and restraint use. Beyond these positive results, Jonikas et al. also notes the expression of high satisfaction from both staff and patients regarding the ease of use of this program.

Between 1990 and 2000, Smith et al. (2005) conducted a large study across nine Pennsylvania state hospitals during the 11-year period. According to the study report:

> The rate of seclusion decreased from 4.2 to 0.3 episodes per 1,000 patient-days. The average duration of seclusion decreased from 10.8 to 1.3 hours. The rate of restraint decreased from 3.5 to 1.2 episodes per 1,000 patient-days. The average duration of restraint decreased from 11.9 to 1.9 hours. (p. 1115)

During the study, one of the nine hospitals even went two years without utilizing any seclusion or restraint interventions. Since 2005, the nine-hospital system holistically had utilized seclusion method 19 times and restraints interventions 143 times for a total of 160 hours. Also, during this study, data regarding staff injury showed that staff were not at any increased risk of assault. The major factors Smith et al. believed contributed to these positive results were the significant changes in attitude, culture, and environment

within each of the nine hospitals. Smith et al. claimed that the success of this study is primarily due to the hospital administration recognizing that: "seclusion and restraint are not treatment modalities but are treatment failures" (p. 1121). Even though eradicating seclusion and restraint interventions all together may appear radical or unrealistic, the Pennsylvania nine-state hospital system study illuminates how this goal may very well be possible. This study shows that the use of seclusion and restraint methods can be significantly reduced.

Sharfstein (2008) provides a commentary on how seclusion and restraint interventions have been successfully reduced at one of their psychiatric hospitals in Baltimore. Sharfstein attributes a major part of this to increasing the staff's awareness and ability to recognize, anticipate, and then prevent aggression and violent patient behavior. In this Baltimore hospital, there has been a significant perspective shift that has altered the culture of that hospital's functions. In shifting away from stressing proper seclusion and restraint use and instead emphasizing reducing their use in general, they have created tools and techniques to avert incidents of aggression from ever intensifying to the degree of necessitating the use of seclusion or restraint interventions. Sharfstein's theory is based on this simple concept: "Reducing violence and aggression will reduce restraint and seclusion" (p. 197). This theory has proven to be a great success for this hospital in that it has not only enhanced the overall safety of the units, but has also greatly improved the treatment experience for both the patients and their families. Sharfstein warns that this is not a simple task to accomplish. It requires durable leadership, constantly tracking data involved, and even going so far as hiring previous patients (the consumers of the treatment) to aid in the training and debriefing procedures.

It also requires innovative ways of hiring, orienting, training, and evaluating staff. These factors require ongoing, continuous attention to even the most finite of details. According to Sharfstein, it is imperative for psychiatric hospitals to thoroughly review every seclusion and restraint episode to gather data on what can be learned and/or changed to prevent future similar incidents. This type of in-depth review requires a team devoted solely to this purpose.

Another commentary provided by Ashcraft and Anthony (2008) supports the theories of Sharfstein (2008). Ashcraft and Anthony (2008) believe that effective seclusion and restraint reduction programs are based on five major factors. These factors include: robust leadership direction, policy and procedural alterations, thorough staff training, consumer (patient) debriefings, and constant, on-going feedback from all parties involved.

Between January 2005 and June 2008, Borckardt et al. (2011) design a model to reduce the rate of seclusion and restraint use in a large state-funded hospital in the southeastern part of the United States. This study was conducted in five inpatient units over a 3.5-year span of time, which included a total of 89,783 patient-days. The Borckardt et al. model included the following components: trauma-informed care training for staff, alterations to the unit's rules and the language used by staff, changes to the physical features of the therapeutic milieu, and greater patient involvement in their treatment planning. The rate of seclusion and restraint interventions used (per patient day) was tracked continuously and assessed. As a result of this study, by the end of the 3.5 years, there was an 82.3% decrease in the rate of seclusion and restraint use. Out of all the factors utilized in the Borckardt et al. model, the changes to the physical features

of the unit was the only factor uniquely linked to the significant reduction in the rate of seclusion and restraint use. This study suggests that considerable reductions in use of seclusion and restraint methods are possible. This study also advocates for alterations to the physical features of the therapeutic milieu because of how significantly that factor may affect the reduction of seclusion and restraint use.

Knox and Holloman (2012) examined a seclusion and restraint reduction program called Project BETA, which is an acronym for EDIT practices in Evaluation and Treatment of Agitation. According to Knox and Holloman, BETA is a successful noncoercive de-escalation intervention technique used to manage acute agitation and threatening behaviors. Project BETA believes the first step to success in this arena is that the culture promoting the use of seclusion and restraint interventions must be changed. According to Knox and Holloman, it is important for clinicians to shift perspectives to understanding that seclusion and restraint are, in fact, a treatment failure.

Beyond this cultural change, Knox and Holloman (2012) claim other factors involved in successful seclusion and restraint reduction programs, such as Project BETA, include the implementation of administrative quality management review procedures that work to positively enhance the management of aggressive behavior, regular, on-going staff feedback, and training staff to identify aggressive behavioral cues early on, as well as to intervene first with verbal de-escalation techniques. According to Knox and Holloman, such staff training should be required annually, at minimum. The review of recording from the hospital's security cameras in the clinical areas should also be utilized by clinical staff to not only monitor the milieu, but also for the sake of training, learning, and instruction. Analyzing the recordings of seclusion or restraint incidents will help

identify less abrasive interventions that could have been utilized. Debriefings with both staff and patients regarding the seclusion and restraint incident is another valuable factor that provide a powerful learning opportunity for both parties. Debriefings can also become therapeutic when utilized to articulate and process feelings surrounding the incident.

The APNA (2018) board of directors released an article regarding the research they have gathered about how seclusion and restraint can be successfully reduced in inpatient settings. The first point they make is that there must be a stronger presence of staff on each unit. It is also suggested that staff recognize the situation and intervene early on before the situation gets out of hand. Part of this intervention should include verbal de-escalation techniques, as well as the as-needed medications to help the patient begin to calm down. To maintain a safe unit, the APNA places strong emphasis on the need for an atmosphere of structure, calmness, and collaboration rather than one of harsh control.

Another reason to increase staffing and ensure proper care for patients is the potential burnout rate of staff. Happell and Koehn (2011) administered numerous questionnaires to nurses employed in psychiatric hospitals to measure their attitudes associated with the use of seclusion and restraints. The highest correlation they found was nurses who scored high in optimism and low in emotional exhaustion (burnout) were less likely to justify and use seclusion and restraint methods. The more staff who are on the unit, the less nurses will experience this type of burnout, and thus, will result in better patient care, as well as reduced seclusion and restraint methods. This may be due to the fact that when nurses simply are not as exhausted, their overall judgement may be enhanced, and they have the ability to cope with volatile patient situations.

Another research article by Jones (2013) recognizes the shortage of psychiatrists, nurses, and therapists in the United States. Because of the severe shortage, providing healthcare is quite challenging and limited. Throughout her research, Jones realized, to successfully alter this issue, a change in the culture and way of thinking in mental health care must also change. She claims this type of change can only happen with "great intention, staff education and the dedication of resources" (p. 24). This dedication of resources primarily includes staffing, in the context of Jones' statement. Thus, to provide excellent mental health services, a significant increase in the number of staff and resources must be provided.

According to LeBel and Goldstein (2005), in general, programs that have successfully reduced or eradicated seclusion and restraint use have produced many significant positive outcomes. Some of these beneficial results include less staff injuries, reduced staff turnover rates, increased report of staff and patient satisfaction, reduced lengths of patient stay, maintained mental health success in the community after discharge, and substantial savings in overall costs.

In conclusion, based on the research studies detailed above, there are three key components to reducing the frequency of seclusion and restraint utilization. All three factors pertain to reducing aggression in the patient. First, there must be consistent presence of core staff who are efficiently trained to identify early warning signs of aggression (Johnson & Delaney, 2007; Taylor, Mammen, Barnett, Hayat, & Gross, 2012; Ward, Keeley, & Warr, 2011). Once staff recognize those hostile behavioral cues, the second vital factor to successfully reducing seclusion and restraint are early interventions that include, but are not limited to, verbal de-escalation techniques, reducing stimulation

in the environment, empathetic listening, deflective methods, setting behavioral limitations, providing alternative options to replace negative behaviors, and the integration of psychotropic medications, as needed (Bak, Brandt-Christensen, Sestoft, & Zoffmann, 2012; Bostwick & Hallman, 2012; Bowers et al., 2012; Chalmers, Harrison, Mollison, Molloy, & Gray, 2012; Sivak, 2012). The third and final crucial component includes training staff to maintain a general attitude and belief that calmness, structure and collaboration will create a safer working environment than one that is built on authority and control (Bowen, Privitera, & Bowie, 2011; Jones, 2013; Kontio et al., 2012).

In summary, while it may not be possible to eliminate incidents of seclusion and restraint in inpatient settings, there is a great deal of proof that more can be done to reduce the current rates of these episodes (Knox & Holloman, 2012). According to Knox and Holloman (2012), it is important for clinicians to empathetically understand that the patients they are providing care for may be at their lowest point of functioning. Knox and Holloman go on to say their perceptions may be distorted to such a degree that their sense of reality is grossly impaired. Patients who are admitted to inpatient settings involuntarily may feel forced into treatment and may act impulsively or irrationally. Knox and Holloman believe it is in these moments that clinicians must learn how to make the most of a highly unpleasant experience for the patient by striving to make their experience as therapeutic as possible. The primary goal of clinicians who work in inpatient setting should be to help that patient better understand the need for ongoing psychiatric treatment in their life and to curtail the prospect of future decompensation and the need for future emergency setting encounters.

Research Question and Hypothesis

For the purpose of building upon the studies discussed above, the primary research question is as follows: is having an early de-escalation support team readily available a valid option for successfully reducing the duration and frequency of mechanical restraint, physical restraint, and seclusion that occurs in an Inpatient Psychiatric Hospital setting? For simplicity, this team will be called the Early De-escalation Intervention Team (EDIT). The hospital involved in this study is a large regional psychiatric facility. The hospital's Director of Performance Management created EDIT to bridge the gap between classroom training (which includes handle with care training, verbal de-escalation training, and multiple skills labs), application, and experience (Personal Communication, April 30th, 2018).

Through rigorous coaching and modeling, the hospital's Director of Performance Management believes EDIT has successfully partnered with staff to improve skill sets, increase safety, and reduce the utilization of mechanical restraint, physical restraint, and seclusion episodes (Personal Communication, April 30th, 2018). The hospital's Director of Performance Management claims that about a year and a half after this hospital began implementation of the EDIT, codes have become more infrequent than before the team was created. Administration believes the majority of the hospital's behavioral issues can be resolved by EDIT before situations escalate to the degree of necessitating the use of mechanical restraint, physical restraint, and seclusion methods. This hospital also believes their culture has shifted and their staff's skill sets have grown immensely since the creation of EDIT. This study is aimed at validating those claims to success.

Chapter Two: Quantitative Methodology

Program Origin

According to the hospital's Director of Performance Management (Personal Communication, June 12th, 2016), the EDIT program began development in late 2015. EDIT began with five approved positions outside of the hospital's general matrix. The program officially began on June 16th, 2016. EDIT was initially created to bridge the gap between classroom training, application, and experience (Personal Communication, April 30th, 2018).

Program Purpose

The hospital's Director of Performance Management (Personal Communication, June 12th, 2016) designed EDIT to provide 24/7 early intervention and pro-active de-escalation support for all units via training staff. EDIT was comprised of five experienced Mental Health Technicians (MHTs) who demonstrated expertise in crisis management, de-escalation techniques and coaching abilities. There was at least one EDIT member available to this hospital every day and every shift. Staff around the hospital were trained to call on EDIT members early and often before possible "hot spots" (or patients who are acting out) escalated into code situations. EDIT members "rounded" (or checked on the wellbeing of both staff and patients) on all units to identify these hot spots at the start of each shift and prioritized intervention methods based on the needs of each unique situation.

The primary objective of EDIT, according to the hospital's Director of Performance Management (Personal Communication, June 12th, 2016), was to coach and develop individual MHT's skills and habits. EDIT members taught MHTs how to

communicate more effectively, how to respond to situations of questionable patient or employee safety, how to proactively prevent situations from becoming a safety risk, and how to identify factors that potentially jeopardized patient or employee safety. Once EDIT members felt MHTs were equipped, they would step back and allow MHTs to handle escalating events in order to facilitate further coaching and empower MHTs to be confident in their own capabilities. However, EDIT members were also trained to recognize the appropriate time to step in and intervene. In general, EDIT was designed to create a culture and knowledge base within the units of this hospital to conduct pro-active assessment and intervention.

Program Goals

According to the hospital's Director of Performance Management (Personal Communication, June 12th, 2016), the EDIT program was intended to be a temporary resource to increase overall MHT competencies. The program was evaluated internally by the hospital at 9 months and again at 11 months to determine the continued length of time needed for the program and the best approach to discontinue the program. The program tenure was expected to be less than 18 months.

Upon creation of EDIT, the hospital's Director of Performance Management (Personal Communication, June 12th, 2016) established program goals. The program was expected to reduce MHT staff turnover rates to below 60% within 6 months. The program aimed to reduce 1:1 staffing by 25% within 6 months and by 50% within 12 months. The program was also expected to reduce the overall use of mechanical restraint, physical restraint, and seclusion interventions by 15% within 12 months. Lastly, EDIT aimed to decrease the overall incidence of patient and staff injuries.

EDIT Member Criteria

EDIT members were required by the hospital's Director of Performance Management (Personal Communication, June 12th, 2016) to sign a form to confirm they met EDIT member criteria. Candidates had at least one and a half years of general behavioral health experience. They had at least nine months of experience at this specific hospital. They were in good standing with no active personnel performance improvement plans. They demonstrated a high level of professionalism and leadership in the following areas: attendance, appearance, cell phone and social media policies, general training compliance, communication skills, milieu assessment and management, patient assessment (which included pro-active identification and prioritization of threats to safety), code leadership, de-escalation and handle with care tactics, knowledge of regulatory requirements, collaborative skills, willingness and a strong desire to be trained in and practice expert coaching. Each of these skill sets were assessed and taught during the two-day training all EDIT members received.

According to the hospital's Director of Performance Management (Personal Communication, June 12th, 2016), members of EDIT also completed verbal de-escalation instructor training, handle with care instructor training, attended quarterly EDIT meetings, and maintained ongoing compliance with all hospital policies. EDIT members were responsible for house rounds (on all units) each shift to assess acuity and prioritize interventions. They coached staff in early assessment and early intervention, used and completed crisis intervention plans with patients when appropriate, responded immediately to codes, coached staff through code leadership, led codes when necessary for safety, coached staff through the patient and staff debriefing process, coached staff on

the completion of intervention documentation, completed MHT coaching and competencies, and completed EDIT report and team hand-off each shift.

EDIT Training

All members of EDIT went through two 8-hour days of training with the hospital's Director of Performance Management (Personal Communication, June 12th, 2016). According to the director, day one included introductions to what the team is (origin, goals, metrics, and timeline), review of hospital policies, detailed explanation of job duties, scheduling for the position, how data on the team was tracked, reporting tools, how to properly hand-off, definitions of seclusions and restraints, the art of knowing when and how to intervene, competency reviews, how to fill out incident reports, how to fill out seclusions and restraint paperwork, seclusion and restraint video reviews, and a review on proper restraint use. Day two included specific training on communicating in a crisis (proxemics, paraverbals, and nonverbals), a crisis escalation continuum, working styles, MHT growth plans and competencies (specifically on leading groups, milieu management, how to develop rapport, and crisis management), and coaching. At the end of the two-day training, EDIT members were also assigned a reading by Eric E. Vogt titled *The Art and Architecture of Powerful Questions*.

In addition to this, EDIT members also received a second reading on feedback loops from the hospital's Director of Performance Management (Personal Communication, June 12th, 2016). The following is a summary of what EDIT members were taught about feedback loops: The feedback loop works under the premise that by providing people with information about their actions in real time and giving them an opportunity and motivation to change those actions, you can often lead people to better

behaviors. A feedback loop consists of four basic stages: evidence stage (data), relevance stage (data processing), consequence stage (data defining), and action stage (data usage). In summary, one must measure behaviors and relay data in relevant context to consumers so they can understand the consequences of their behaviors and engage in a desired action to lend more behaviors to be measured.

In their training by the hospital's Director of Performance Management (Personal Communication, June 12th, 2016), EDIT members were taught to maximize MHT's potential for performance. Members of EDIT were trained by the director to be collaborative, solution-focused, result-orientated and systematic in their processes. They were taught to enable other MHTs to make conscious, intentional, well-thought-through decisions, while also empowering MHTs to become leaders in their own lives. EDIT affiliates were trained to model confidence, ownership, collaboration, creativity and optimism to instill this type of empowerment in MHTs. Members of EDIT were also trained by the director to recognize and reward successes of other staff in order to reinforce their ability to continue creating safer environments. In their training, EDIT members practiced body posture, facial expressions and tones of voice. The director taught that communication is not just words; instead, communication is 7% words, 38% vocal elements, and 55% body posture and facial expressions. EDIT personnel were taught how to provide meaningful input and feedback. They were also taught how to utilize socratic questioning to help both patients and other staff. They were taught how this method might diffuse situations where a power-struggle might take place or retrospectively, after a power-struggle has occurred. EDIT members had live opportunities during training to practice their timing in the execution of these skills.

Members of EDIT were taught how to manage resistance in the moment, as well as how to enhance their own patience to allow more space for thought and experience.

EDIT affiliates were taught by the hospital's Director of Performance Management (Personal Communication, June 12th, 2016) to anticipate possible future outcomes from current behavior, how to encourage modification of that behavior if the desired outcomes are not likely, how to set the stage by designing a realistic and successful behavioral plan, how to open possibilities, be engaging, and provide simple key messaging. EDIT members were taught by the director to state their focus and purpose, provide respect to the individual in question, to be transparent and build trust, how to simply treat patients as humans and not as diagnoses, and how to come to agreements, even if they were temporary.

EDIT Program Internal Evaluation Results

On the eleventh month after implementation, the hospital's Director of Performance Management (Personal Communication, May 9th, 2017) conducted a simple evaluation of the EDIT program. By that time, EDIT had completed two sets of competency assessments for all MHTs at the hospital. The competency assessment was rated on a 5-point scale.

Table 1

Mean Scores of MHTs

Area of Focus	Fall 2016	Spring 2017
Crisis Management	3.8	3.7
Milieu Management	3.6	4.0
Rapport Building	4.0	4.0

According to the hospital's Director of Performance Management (Personal Communication, May 9th, 2017), EDIT was able to improve general milieu management staff competency by 11.2% from Fall 2016 to Spring 2017 (see Table 1). In addition, the director provided multiple gains in other less tangible measures that EDIT was able to accomplish. From the hospital's internal review, EDIT developed a belongings competency that guided MHTs how to properly sort through, store, document, and then return all patient belongings to the patient once discharged. EDIT developed job aides for how to properly conduct a 1:1 observation, as well as how to manage self-harming behavior more effectively. EDIT was also able to complete monthly night shift round audits. EDIT generally improved staff morale by making connections with all shifts and providing an extra level of support in crisis situations. According to the hospital's Director of Performance Management (Personal Communication, May 9th, 2017), EDIT was viewed by hospital employees as an investment from leadership and administration. EDIT provided a testing ground for new leaders. EDIT allowed for an added level of accountability by conducting regular employee check-ins. Lastly, EDIT was able to aid in all seclusion and restraint audits to make documentation more efficient and well-tracked.

Need for Validation Study

Because the hospital's internal evaluation of the EDIT program may have been difficult to empirically measure with statistical significance, there was a need for statistical validation of the EDIT program. In order to truly evaluate the impact EDIT had on restrictive interventions used during code situations, mechanical restraints, physical restraints, and seclusions, there was need for a study that could analyze these variables. Thus, the decision was made to create a condition as the independent, predictor variable

that would be used as a measure of success for this program. Specifically, the condition would be 350 days before and 350 day after EDIT was implemented. Doing this would allow for a controlled comparison of how much impact EDIT really had on that independent variable, condition.

According to Jones (2013), with the proper utilization of a team like the EDIT, mental health staff would be able to work in a safer environment. Jones believes having a team, like EDIT, provides more time for staff to individually work with escalating patients. Jones also believes a team, such as EDIT, could provide higher quality care by utilizing verbal de-escalation techniques. Thus, greater availability of a team like EDIT, who models and teaches verbal de-escalation techniques, is likely to be associated with lower rates of mechanical restraint, physical restraints, and seclusion.

General Study Description

Therefore, this study examined mechanical restraint, physical restraints, and seclusion data 351 days after and 350 days before EDIT was initially implemented. I hypothesized that both duration and frequency of mechanical restraints, physical restraints, and seclusions would diminish after implementation of EDIT. Thus, I investigated how EDIT could have a positive impact on the duration and frequency of mechanical restraints, physical restraints, and seclusions by significantly lowering their overall duration in minutes and rates of frequency.

Sample

This study was conducted at a large regional psychiatric facility. Psychiatric hospitals are institutions that are designated for the care of those who are suffering from mental illness by means of crisis stabilization, re-evaluation of medications through

continuous observation, and treatment provided primarily through therapeutic groups and psychosocial interventions (Sharfstein, 2008). Psychiatric patients who are hospitalized are either a danger to themselves, others around them or are deemed gravely disabled and in need of hospitalization by Designated Mental Health Professionals (DMHPs), also now known as Designated Crisis Responders (DCRs), in specific counties.

According to the hospital's Director of Performance Management, the population of patients at the large regional psychiatric facility are adults over the age of 18 (Personal Communication, April 30th, 2018). The patients at this hospital span all genders, as well as have varying degrees of acuity in psychiatric illness. Some patients are lower functioning and cannot perform simple daily tasks such as hygiene maintenance, while others are very high functioning individuals. On average, patients only remain hospitalized on these units for about two weeks.

Measures

Duration of events. Intervention duration was defined as the number of minutes of the duration of mechanical restraints, physical restraints, and seclusions.

Frequency of events. Frequency of events was defined as the total number of patient-hours in each intervention, divided by the number of patient-days. Patient-days were defined as the daily patient census summed for all days in each condition (before and after EDIT). This number was then multiplied by 24 (for the total number of hours in each day) and then by 1,000. Using the hospital's daily census of the adult psychiatric unit, I accounted for 1,000 patient days by totaling the sum of all patients on the unit for each day of the total twenty-three months' worth of data and then dividing by 1,000. In

accordance with the literature (Jonikas et al., 2004; Smith et al., 2005), the data was evaluated per 1,000 patient days.

Independent variables. The independent variable was the condition: before and after EDIT. This was the central predicting factor of this study.

Covariates.

Staff-to-patient ratios. Staff-to-patient ratios were defined as the ratio of available staff to patients for any given day.

Shift. The working shift was operationalized trichotomously as day, evening, and night. Day shift is from 7:00 a.m. until 3:00 p.m. Evening shift is from 3:00 p.m. until 11:00 p.m. Night shift is from 11:00 p.m. until 7:00 a.m.

Period of the week. Period of the week was categorized as weekdays or weekends.

Data Collection

Archival data was pulled from patient records between the dates of July 2015 through May 2017. Each of the variables outlined above regarding the archival mechanical restraint, physical restraint, and seclusion data was recorded in monthly segments after being gathered from each administrative staff's set of archival data. All data was anonymized. These figures were directly used in data analyses for this study.

Ethical Considerations (Protection of Human Subjects)

I gained approval to gather this study's data from the hospital's Chief Operations Officer, the Director of Performance Management, the Quality and Risk Assessment Manager, and the Staffing Manager. To enhance compliance with all state and federal regulations regarding confidentiality, including the Health Insurance Portability and

Accountability Act (HIPAA), all data used in this study remained anonymous. None of the patient's names or identifying information were necessary for this study. The identity of the hospital used in this study also remained anonymous.

Chapter Three: Results

Data Analysis: Preparation

Data set up. Two separate Microsoft Excel Spreadsheets with the hospital's archival data were generated for analyses. The first spreadsheet included 701 rows of the hospital's daily census on the adult unit. The second spreadsheet included 214 rows of data from each mechanical restraint, physical restraint, and seclusion that occurred during the study time frame. This second spreadsheet included intervention type, date incident occurred, intervention duration, day of the week, shift, and the number of staff working at the time of the incident.

Data cleaning. Data was cleaned in several ways. First, due to major hospital construction during the month of June 2015, disruptions to the location of patients occurred. Patients on certain units were dispersed throughout other units of the hospital. Because of this, the discreteness of each unit was altered. For that reason, the data for the month of June 2015 was omitted. To ensure that there was an equal amount of time before and after EDIT, the month of June 2017 was also omitted. This left data spanning eleven and a half months for each condition (before EDIT and after EDIT), totaling to a span of twenty-three months (or exactly 701 days) in whole for this study.

Second, in the second spreadsheet of initial archival data, the minimum reported duration of any mechanical restraint, physical restraint, or seclusion was one minute in length. In the data set, there were a total of twenty-seven incidents, out of the two hundred and fourteen incidents, (which is 12.62% of the total data set) reported that were one minute in duration. It seems unlikely, but possible, that any mechanical restraint, physical restraint, or seclusion event could only last the duration of one minute. However,

it does depend on how staff were defining the start and stop times of each intervention. The staff's definitions of these start and stop times, therefore, are subject to individual variability.

Outlier analysis. After examining the data, there were a few outliers for the duration variable. However, because removing the outliers would create problems for transparency and decision rules (e.g. data snooping), the archival data was taken and analyzed without the removal of outliers. Nevertheless, removing outliers produced identical results from the regression analyses.

Analytic Strategy

Analyses were produced using the Statistical Package for Social Sciences (SPSS), Statistics 22 by International Business Machines. First, I conducted a preliminary analysis to determine intercorrelations among the variables of interest, which included the interventions (mechanical restraints, physical restraints, and seclusion), the dependent variables (duration in minutes and frequency), the independent variable: condition (before to after EDIT), and the selected covariates (staff-to-patient ratios, night shift, and weekend). Next, the primary analysis analyzed duration and frequency in separate regression models to assess differences in condition on seclusion and restraint for each dependent variable. Note that these correlation matrices are derived from separate data sets and thus, for simplicity, are represented separately.

Preliminary Analyses

Duration correlations. The dependent measure (duration) and the independent variables (condition, staff-to-patient ratio, night shift, and weekend) were correlated. Correlations involving categorical variables represent point biserial correlations. For

simplicity, I will discuss only the significant correlations. See Table 2 for the full correlation matrix.

First, there was a significant correlation between night shift and duration, $r = .27$, $p < .001$, such that night shifts were associated with longer durations. Second, there was a significant correlation between night shift and staff-to-patient ratios, $r = -.28$, $p < .01$, such that night shifts were associated with lower staff-to-patient ratios. Third, there was a significant correlation between night shift and the condition, $r = -.15$, $p < .05$, such that there were, on average, fewer night shift mechanical restraint, physical restraint, and seclusion episodes post EDIT.

Table 2

Correlations for Duration (in Minutes) of Interventions

Variable	1.	2.	3.	4.
1. Duration				
2. Condition	-.05			
3. Staff-to-patient ratio	.01	-.11		
4. Night Shift	.27***	-.15**	-.28***	
5. Weekend	.00	-.02	.02	.04

Note. N (total number of interventions used) = 214. **$p < .05$, ***$p < .01$

Frequency correlations. Next, I correlated the condition variable with the frequencies of each of the intervention types (mechanical restraint, physical restraint, and seclusion). Correlations involving categorical variables (e.g., condition) represent point biserial correlations. I, again, discuss only significant correlations. See Table 3 for the full correlation matrix.

First, there was a significant correlation between condition and physical restraints frequency, $r = .15$, $p < .01$, such that there tended to be more physical restraints after EDIT. Second, there was a significant correlation between condition and seclusions,

$r = .08$, $p < .05$, such that there tended to be more seclusions after EDIT. Third, there was a significant correlation between physical restraint frequency and mechanical restraint frequency, $r = .18$, $p < .01$, such that more physical restraints were associated with more mechanical restraints. Fourth, there was a significant correlation between physical restraint frequency and seclusion frequency, $r = .39$, $p < .01$, such that more physical restraints were associated with more seclusions. Fifth, there was a significant correlation between seclusions and mechanical restraint frequency, $r = .13$, $p < .01$, such that more seclusions corresponded with more mechanical restraints.

Table 3

Correlations for Frequency of Interventions

Variable	1.	2.	3.
1. Condition			
2. Mechanical restraints	-.06		
3. Physical restraints	.15***	.18***	
4. Seclusions	.08**	.13***	.39***

Note. N (total number of days) = 701. **$p < .05$, ***$p < .01$

Primary Analyses: Effect of Condition

Duration. The primary analysis investigating duration of each intervention type (mechanical restraints, physical restraints, and seclusions) was a regression analysis that included the following independent variables: condition (0 = before EDIT, 1 = after EDIT), staff-to-patient ratios, night shift (0 = non-night, 1 = night), and weekend (0 = weekday, 1 = weekend). Preliminary analyses were performed to ensure there was no violation of the assumption of normality, linearity and multicollinearity. For descriptive statistics associated with each analysis, see Table 4.

Table 4

Duration (Minutes) by Intervention

Intervention	Condition	N	Mean	Std. Deviation	95% CI
Mechanical Restraint					[-207.13, 184.65]
	Before	14	125.36	185.95	
	After	5	136.60	150.34	
Physical Restraint					[-6.55, 0.30]
	Before	46	6.30	6.07	
	After	109	9.43	11.05	
Seclusion					[-93.38, 21.81]
	Before	12	53.50	40.91	
	After	28	89.29	94.27	

Note. *N* = total number of interventions.

Mechanical restraint. Condition did not significantly predict mechanical restraint duration, $t(19) = -.15$, $p = .88$, suggesting that the implementation of EDIT did not produce a decrease in seclusion duration. No other variable in the model were statistically significant (see Table 5).

Physical restraint. Condition did not significantly predict physical restraint duration, $t(155) = 1.88$, $p = .062$, suggesting that the implementation of EDIT did not produce a decrease in physical restraint duration. No other variables in the model were statistically significant, though the effect of night shift was marginally significant (see Table 5).

Seclusion. Condition did not significantly predict seclusion duration, $t(40) = -1.51$, $p = .14$, suggesting that the implementation of EDIT did not produce a decrease in seclusion duration. No other variables in the model were statistically significant, though the effect of weekend was marginally significant (see Table 5).

Table 5

Regression Analysis Predicting Duration in Minutes for Each Intervention

Variable	*t*	*p*	β	*F*	df	*p*	R^2
Mechanical Restraint				0.81	4	.54	.19
Condition	-.15	.88	-14.58				
Staff-to-patient ratio	1.06	.31	782.12				
Night shift	1.56	.14	147.85				
Weekend	-1.20	.25	-131.39				
Physical Restraint				3.28	4	.013**	.08
Condition	1.88	.062*	3.27				
Staff-to-patient ratio	-1.45	.15	-22.56				
Night shift	1.97	.051*	4.40				
Weekend	1.12	.27	1.92				
Seclusion				2.22	4	.087*	.20
Condition	1.51	.14	41.14				
Staff-to-patient ratio	.24	.81	47.32				
Night shift	1.46	.15	40.59				
Weekend	1.83	.075*	55.91				

Note. *$p < .10$, **$p < .05$

Frequency. The primary analysis investigating frequency of each intervention type (mechanical restraints, physical restraints, and seclusions) was a simple regression analysis with condition (before and after EDIT) as the independent variable. For the descriptive statistics associated with each analysis, see Table 6.

Mechanical restraint. Condition did not significantly predict the frequency of mechanical restraints, $t(701) = -1.45$, $p = .15$, $R^2 = .003$.

Physical restraint. Condition significantly predicted the frequency of physical restraints, $t(701) = 3.89$, $p < .001$, $R^2 = .021$, such that physical restraints were more common after EDIT implementation.

Seclusion. Condition significantly predicted the frequency of seclusions, $t(701) = 2.21$, $p = .027$, $R^2 = .007$, such that seclusions were more common after EDIT implementation.

Table 6

Average Event Frequencies per 1,000 Patient Days

Condition	PR Mean (SD)	MR Mean (SD)	S Mean (SD)	N
Before	5.68 (18.36)	1.58 (9.74)	1.48 (8.68)	351
After	12.64 (28.06)	0.67 (6.50)	3.32 (12.93)	350

Note. *PR* = physical restraint; *MR* = mechanical restraint. *N* = total number of days.

Summary

In summary, this study exhibited a rising trend in both duration and frequency of interventions used before to after EDIT. The condition was not able to significantly predict mechanical restraint, physical restraint or seclusion duration. Additionally, the condition was not able to significantly predict mechanical restraint frequency, but it was able to significantly predict physical restraint and seclusion frequency; meaning physical restraints and seclusions were more common after EDIT was employed. Therefore, this study was unable to statistically validate the hospital's claims to success regarding the EDIT program. Thus, the original hypotheses for this study was disproven.

Chapter Four: Discussion

Summary

Similar to some past research (e.g., Jonikas et al., 2004), this study was unable to verify that crisis management, rapport building, or general non-violent crisis intervention procedures were used correctly or consistently. Contrary to what was hypothesized, the EDIT implementation was not associated with decreased use of seclusions and restraints. However, the EDIT implementation may have yielded an increase in the average frequency of physical restraints.

Explanation of Findings

Frequency of events. There are many possible reasons for the increase in events post EDIT. First, the uptick may have been due to EDIT members having taught Mental Health Technicians (MHTs) and nursing staff how to record data more efficiently. Therefore, the presence of EDIT may have caused floor staff to increase their general awareness about the use of mechanical restraint, physical restraint and seclusion. Because of this enhanced training after EDIT started, perhaps MHTs and nurses began to gain better understanding that restrictive interventions were truly something that mattered and needed to be well-documented (Jonikas et al., 2004; Smith et al., 2005). Put another way, because more focus and attention was given to the reduction of restrictive interventions, which was the primary objective of EDIT, there may have been more accountability and better documentation that took place after EDIT was implemented. Another possible reason for the incident increase is that the staff had enhanced skills to identify situations and escalating patients due to the training of EDIT. Once the crisis management and

verbal de-escalation tools were provided to MHTs and nurses, perhaps they might have been eager to practice their new learned skills.

Notably however, there was a marginal decrease in the frequency of mechanical restraints. This could be evidence of the EDIT team successfully reducing the use of mechanical restraints by being able to properly intervene earlier on in the escalating event. According to the hospital's Director of Performance Management (Personal Communication, June 12th, 2016), there is an "intervention hierarchy" to the three interventions investigated in the present research: physical restraint, mechanical restraint, and seclusion. Oftentimes, when a patient has escalated to the point of causing harm to themselves, others or they are deemed gravely disabled, physical restraint is the second line of intervention after first line verbal de-escalation has failed. This was taught to EDIT by the hospital's Director of Performance Management. The third line of intervention depends on whether the patient is a harm to themselves or not. If they are a harm to themselves, mechanical restraints would be used to isolate the patient's limbs so they would not be able to harm themselves any longer. If a patient is not a threat to themselves, but may be a harm to others, seclusion (or an isolation room that is locked) would be the third line of intervention to protect others from that escalated patient.

Therefore, this marginal decrease in the frequency of mechanical restraints could mean EDIT was able to utilize verbal de-escalation to prevent codes from going any further up the "intervention hierarchy" than having to physically restrain patients; thus, preventing the situation from getting to that third line intervention of mechanical restraint. However, instead of using mechanical restraints more, they are using seclusions more after EDIT was implemented. Even if EDIT was having to do more physical

restraints than before they were created, at least they have effectively intervened earlier on in the escalating event so it does not end in mechanical restraints. However, the codes do tend to end more often in seclusions instead.

Duration. The increase of average incident duration (see Table 1) may also be due to enhanced training of MHTs and nurses as conducted by EDIT. This could have happened, for example, because staff were starting to slow down their decision-making processes, becoming more patient, careful and intentional, slowing down their reactivity towards the escalating patient, and thus, requiring a greater amount of time and effort towards each type of intervention. Conversely, prior to EDIT, the staff may have been releasing escalated patients too early or in a way that may have been relatively unsafe.

Integration with Current Theories

Summary of key components. According to the literature, there are three key components to reducing the frequency of seclusion and restraint utilization. All three factors pertain to reducing aggression in the patient. First, there must be consistent presence of core staff who are efficiently trained to identify early warning signs of aggression (Johnson & Delaney, 2007; Taylor et al., 2012; Ward et al., 2011). The second vital factor is having early interventions that include, but are not limited to, verbal de-escalation techniques, reducing stimulation in the environment, empathetic listening, deflective methods, setting behavioral limitations, providing alternative options to replace negative behaviors, and the integration of psychotropic medications, as needed (Bak et al., 2012; Bostwick & Hallman, 2012; Bowers et al., 2012; Chalmers et al., 2012; Sivak, 2012). The third and final crucial component includes training staff to maintain a general attitude and belief that calmness, structure and collaboration will create a safer working

environment than one that is built on authority and control (Bowen, Privitera, & Bowie, 2011; Jones, 2013; Kontio et al., 2012). Each of those three key components can only occur successfully after a drastic change in the general culture of the hospital transpires.

Culture shift. The most significant factor predicting successfully reducing restrictive intervention use is a drastic shift in the culture of the hospital (Donat, 2003; Smith et al., 2005; Sharfstein, 2008; SAMHSA, 2010; Knox & Holloman, 2012; Jones, 2013; APNA, 2018). This is not something easily accomplished, but, instead, is a progressive change that occurs over years.

In a psychiatric hospital setting, culture may be defined as the attitudes and beliefs of the staff, as well as their actions and behaviors when interacting with patients (Jensen, 2015). In general, the culture of a hospital are the values and practices of those who serve the facility and its clients. Thus, clearly, culture has a direct influence on patient care and satisfaction.

A culture shift in a psychiatric hospital may be defined as flexibility in attitudes, beliefs and practices of the staff and their ability to adapt as necessary (Jensen, 2015). According to Jensen, hospitals with malleable cultures are, generally, able to outperform other facilities that have rigid and intractable staff attitude and practices. In order for a hospital to develop successful procedures, Jensen claims the employee attitudes and beliefs should align with the hospital's mission statement. This requires a shift in the attitudes, beliefs and behaviors of staff. To obtain buy-in on this change from staff, the hospital employees need to feel valued. According to Jensen, hospital administration may be able to accomplish this is via seeking direct input from employees and by rewarding

employee honesty. This will set the precedent for a relationship of trust between hospital administration and employees.

Effectively managing violent patients requires a change in the attitudes of the clinicians who work with these agitated patients face-to-face (Knox & Holloman, 2012). SAMHSA (2010) agrees, stating how restrictive interventions should not be regarded as positive or therapeutic modalities and instead should be viewed by hospital staff as violent last resorts that often retraumatize patients. Likewise, institutional changes in the culture and attitudes of both administration and staff may be important factors for reducing the occurrence of seclusion and restraint episodes (Donat, 2003; Jones, 2013). Smith et al. (2005) claim the success of their study is primarily due to the hospital administration recognizing that restrictive interventions are not methods of treatment but are treatment downfalls. To maintain a safe unit, APNA (2018) places strong emphasis on the need for an atmosphere of structure, calmness, and collaboration rather than one of harsh control. This, again, requires a culture shift. By shifting away from stressing proper seclusion and restraint use and instead emphasizing reducing their use in general, one may be able to avert incidents of aggression from ever intensifying to the degree of necessitating the use of seclusion or restraint interventions (Sharfstein, 2008).

It is possible that this type of culture change is the major component lacking in the implementation of the EDIT program. Culture shifts are not a simple task to accomplish (Sharfstein, 2008). They require durable leadership, constantly tracking data involved, and even going so far as hiring previous patients (the consumers of the treatment) to aid in the training and debriefing procedures. Culture shifts also call for intentional and innovative ways of hiring, orienting, training, and evaluating staff.

Patient interviews. Jonikas et al. (2004) saw reductions in their hospital's seclusion and restraint use because they were intentionally personable with patients and spent more time talking with them about their unique needs and background. This proved to be more effective than the EDIT program. They were able to integrate information gained from these patient interviews to build more effective and more useful crisis management plans. Jonikas et al. interviewed patients during their intake or within 24 hours of their admission to discuss and identify their stress triggers.

During the interview, the patient's personal crisis management strategies and calming techniques would also be discussed at length. Jonikas et al. (2004) believed it was crucial to understand the crisis management techniques that work best for that patient because all patients are unique. After this part of the interview, patients would then discuss their restraint histories, as well as their medication preferences in case of crisis. The information gathered from this interview was compiled into a distinct crisis management plan for each patient. One copy of the plan was given to the patient, while another copy was stored in the patient's chart for ease of access. Each plan was reviewed and assessed weekly. Any necessary changes to be made to the plan were updated during this weekly review. Programs like EDIT should integrate this style of patient interviewing and integration of patient safety plans. Each component of this study's patient interview process would be a phenomenal model for future seclusion and restraint reduction programs.

Administrative procedural review, staff training, debriefing and feedback. Knox and Holloman (2012) claim other factors involved in successful seclusion and restraint reduction programs, such as their Project BETA, include the implementation of

administrative quality management review procedures that work to positively enhance the management of aggressive behavior. Knox and Holloman emphasized the needs for on-going staff feedback, as well as training staff to identify aggressive behavioral cues early on, and to utilize verbal de-escalation techniques as the first form of intervention. Each of those components were items that played a significant role in the implementation of EDIT.

In accordance with Knox and Holloman's (2012) recommendations, the hospital where EDIT was implemented does annually require all staff to complete mandatory training in multiple areas of competency. Also, in accordance with Knox and Holloman's recommendations, EDIT regularly reviewed recordings from the hospital's security cameras in the clinical areas to not only monitor the milieu, but also for the sake of training, learning, and instruction. As a part of their initial training with the hospital's Director of Performance Management, EDIT analyzed the recordings of seclusion or restraint incidents to help identify less abrasive interventions that could have been utilized. Debriefings with both staff and patients regarding the seclusion and restraint incident was another valuable factor that both EDIT and Knox and Holloman conducted to provide powerful learning opportunities for both parties.

Conclusion. The EDIT program was able to integrate many of the components discussed previously into their program. Further research to discover which items a team like EDIT could improve on would be a crucial component to successfully reducing the use of seclusion and restraint interventions in the future.

Limitations

This study had several limitations. First, the present research was not a randomized, controlled study, and thus, causal inferences cannot be claimed. For example, any differences in condition may be partly attributable to consistency of the applied intervention, the integrity of program implementation (e.g. staff who document and how they document), changes in staff member's attitudes, inconsistent staff in general (which create unpredictable grounds for a wide array of other variables based on the varying levels of skills, training and personalities involved), specific unit environment changes that may have added to the results of this study (i.e. the major construction done in the first month of original data, which had to be omitted), and other possible organizational, administrative, or programmatic factors that were subject to unpredictable and unavoidable change.

Furthermore, some of the data may have been inaccurate, such as instances where incident durations were only one minute (12.62% of the data). Indeed, it is unlikely that any mechanical restraint, physical restraint, or seclusion event could only last the duration of one minute. However, it does depend on how staff were defining the start and stop times of each intervention. The staff's definitions of these start and stop times, therefore, are subject to variance and may be unpredictable. That is a considerable limitation of this study.

Practical Applications

Improving data collection and allowing for more transparency in the way restrictive intervention data is shared to compare intervention rates between hospitals would reinforce the culture shift needed for successful seclusion and restraint reduction

programs (Smith et al., 2005). In doing this, a greater emphasis may also be placed on enhancing staff training in the areas of crisis management, rapport building, and non-offensive skill development that reinforces verbal de-escalation techniques.

In addition, simplifying the systems and procedures used to collect data on restrictive intervention episodes would help create more precise archival data. Staff may also benefit from simplified data collection procedures, as this may increase staff satisfaction, and in turn, may decrease human error (Jonikas et al., 2004).

Another practical application culled from literature to enhance the reduction of seclusion and restraint episodes is to limit the number of patients on the unit. Smith et al. (2005) conducted a study that displayed how having fewer patients on a unit allows for more sensitive care and a safer, restraint-free hospital. Thus, getting hospital administration to move towards reducing the number of patients on each unit may be a major factor in reducing the use of the restrictive interventions overall.

Another practical application for programs like EDIT would be producing more functional programming on the psychiatric units for patients (Smith et al., 2005). This would include groups led by staff that would teach and train patients in the areas of vocational services, money management skills, better psychoeducational classes that teach patients how to better manage their impulses in general, or even training in psychopharmacology, medication education in general, or self-administration of medication. All of these enhanced patient programs would be geared toward better preparing patients for discharge and reentry to the general population. The EDIT program may have only addressed part of the patient's needs in their efforts. Additional programming would aid in the enhancement of such a program.

Lastly, the practical application and implementation of individual therapy during patient's short-term crisis stabilization stay would also significantly reduce the need for and use of restrictive interventions. Individual therapists would be readily available to provide support for patients in crisis well before they would begin to escalate.

Future Recommendations

The present research has important clinical implications and suggest many possible areas of future research. For example, future research may seek to discover new and improved ways of getting staff and patients involved in a partnership of safety and breaking the dynamic of authority between staff and patients. The findings of this study also support the need for a more rigorous evaluation of the restrictive intervention's general effectiveness, as well as overall staff and patient satisfaction with nonviolent intervention alternatives.

First, future studies should examine a larger sample size (perhaps multiple years worth of data to increase the power of the study overall), as well as to obtain cleaner data that is more accurate and includes proper documentation, specifically in the duration of the interventions analyzed in this study. It may also be important to include other outcome measures to better explore the possible treatment effects of the program. Determining ways to enhance staff training would be another necessary step towards successfully implementing an early de-escalation intervention program.

Second, future studies may also be improved by more consistently training staff to eliminate individual-level variability in training levels and general skill sets on the floor interacting with patients. This type of consistency would also create a more reliable and therapeutic environment for patients who are in crisis. To that end, it would be helpful to

include measures of implementation integrity, such as a measure for skills in employing the program techniques.

Third, to be consistent with the literature (Jonikas et al., 2004; Smith et al., 2005), basic demographic information on both patients and staff would also enhance future studies, as well as diagnostic information on patients. In conjunction with the same literature, data on staff injuries, staff turnover rates, and even data that indicates justification for each intervention utilized would greatly enhance future studies.

Fourth, future studies could also be improved by tracking chemical restraint data, which could be a fourth restrictive intervention (in addition to mechanical restraint, physical restraint, and seclusion) that would be meaningful to track, gather data, and statistically analyze. Chemical restraint is defined as the utilization of medication to restrict one's ability to move freely (Smith et al., 2005). This would be a useful fourth intervention to include in future studies because of the possibility of misuse or overuse by staff to restrain patients; in this method, however, without the use of force, but instead via injections or oral consumption.

Fifth, because a culture shift is necessary for successfully reducing restrictive interventions, future research should consider the staff beliefs and attitudes about patients. In general, when staff take an authoritative stance and believe they are above the patients, there is a higher likelihood that greater duration and frequency of restrictive intervention would occur (Fisher, 1994; Knox & Holloman, 2012; SAMHSA, 2010; Smith et al., 2005). For future studies, there needs to be more detailed, in-depth staff training around the idea that patients are human and are to be treated as staff would want to be treated if they were in their shoes, instead of treating them simply as a diagnosis.

Taken together, discovering new and more effective ways to alter the attitudes, beliefs, and general culture of the hospital is one of the greatest factors attributed to the successes of other studies conducted on the topic of seclusion and restraint reduction efforts (Jonikas et al., 2004; Smith et al., 2005).

Conclusion

Overall, the present research displayed an upward trend in both duration and frequency of interventions used before to after EDIT. However, the present work was unable to statistically validate the hospital's claims of success regarding the EDIT program. In that spirit, there is considerable room for future improvements on the creation and implementation of early de-escalation teams who are working tirelessly to reduce the rate of seclusion and restraint use in psychiatric hospital settings.

Nevertheless, the findings of this study have important clinical implications and suggest an array of areas for future research, such as discovering new and improved ways of creating a partnership between staff and patients that breaks the dynamic of authority between them. The findings of this study support the need for a more rigorous evaluation of the general effectiveness of restrictive interventions used in psychiatric hospital settings.

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