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Searching for a common thread: A retrospective chart review of child and adolescent restraints
and seclusions

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DNP Scholarly Project Report

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Child and Adolescent psychiatry is an increasingly frequented area of research. The project leader believes violence in an inpatient psychiatry setting is an underrepresented topic of research and discussion. Close quarters among patients of varying diagnoses and backgrounds, coupled with varying culture and attitudes of staff make for a teetering point—a fine line—between therapeutic interaction and safety concerns. Particularly, in the case of patients under 18, one hopes to establish an environment of nurturing, as opposed to a police state. With the fact established that children and their parents should always come first, many of the staff are often exposed to dangerous situations. Intrusive interventions such as restraints and seclusions are employed during dangerous situations to maintain safety. With more intrusive measures being utilized it is important to identify potential predictors that can give inpatient staff insight into individuals who may be more likely to experience an event. The objective of this scholarly project was to identify if predictors, specifically age and diagnosis, influenced the duration and frequency of restraint and seclusion events on the child and adolescent unit. Age and diagnosis were chosen as the variables of interest due to the large variability within this population.

Finding predictors of restraint and seclusion events could improve patient safety, enhance staff capacity and improve treatment and management outcomes. Restraints and seclusions in the inpatient psychiatric realm are used as an acute intrusive interventional method to promote patient safety in crisis situations and are seen as an undesirable necessity. Due to the danger aggressive behaviors pose to patients and staff alike, it is important to identify characteristics

among those who have experienced an event. Possible trends in age, diagnosis, or temperament may provide insight and allow for practice gaps to close promoting better patient outcomes.

Box 1 describes a seemingly innocent interaction, which escalated quickly to an acute aggressive incident requiring the use of intrusive measures to promote patient and staff safety. Other potential events with safety concerns requiring restraints and/or seclusions include self-injurious behaviors (i.e. cutting, self-mutilation, burning, and physical aggression towards self), or aggression towards others (i.e. physical aggression, attacks on objects and their use as weapons). Self-injurious behaviors and aggression are commonalities seen in psychiatric facilities and less intrusive therapeutic interventions (i.e. redirection, distraction, emotional support, and use of healthy coping mechanisms) may fail to de-escalate the patient and maintain safety. The objective of the scholarly project was to identify if a relationship exists between age and diagnosis and the frequency and duration of events by addressing the following questions.

1. Is there a predominant diagnosis for individuals who experienced a restraint or seclusion?
2. Is one age group more likely to experience a restraint or seclusion?
3. Is there a downward trend in duration of events after the initial event?

A literature review of three databases (CINAHL Complete, Medline Complete, and PsychInfo) using the keywords: restraints, seclusions, children, and adolescents, was conducted. The inclusion criteria included English language publications between 2010 and 2015. The search yielded 15 results pertaining to predictors for use of restraints and seclusions in children and adolescents, which suggests a paucity of current literature about restraint and seclusion predictors.

Each study found in the literature had taken a unique approach in an attempt to identify potential predictors or interventions, which may lead to a reduction for restraint and seclusion

events. For example, Azeem, Aujla, Rammerth, Binsfeld & Jones (2011), reported implementation of the National Association of State Mental Health Program Directors' six core strategies based on trauma informed care. Use of the six core strategies led to the reduction in overall restraint and seclusion events within the population of interest. The two major diagnoses the authors noted were disruptive behavior disorders (61%) and mood disorders (52%) in the reviewed restraint and seclusion events (Azeem, et al., 2011).

Hert, Dirix, Demunter, & Correll, (2011) completed a systematic review to observe the overall prevalence and correlates of restraints and seclusions in children and adolescents. Findings showed restraints and seclusions are frequently used to promote safety. Although restraints and seclusions are utilized in children and adolescents across multiple countries, the definitions of restraints and seclusions, as well as the guidelines for implementation, were unclear. Furthermore, information on potential indicators and risk factors were scant in the literature (Hert et al., 2011).

Muir-Cochrane, Oster, & Gerace (2014) performed a 12-month audit, which examined the use of restraints and seclusions, and concluded further research was needed to identify strategies to reduce the number of events. An example strategy included information on de-escalation techniques, but lacked data on when the strategies were used and their success rates in the prevention of restraint and seclusion events. Duke, Scott, & Dean (2014) examined child and adolescent patients who experienced a restraint or seclusion in order to identify predictors for use of restrictive methods. Duke et al (2014) identified three event predictors: physical aggression, early admission stage, and occurrence in private space. Patient specific predictors were developmental disorders and lesser age, although further research is needed to generalize findings (Duke et al., 2014).

Pogge, Pappalardo, Buccolo, & Harvey (2014) conducted a study looking at child and adolescent psychiatric patients in a private psychiatric hospital who were hospitalized during a two year period. The study was unique as it examined both patients who were and who were not restrained or secluded. The data suggested children experienced more restraints and seclusions than adolescents, while adolescents tended to have a longer duration of events. Age was a significant predictor for the number and duration of events, however, factors such as diagnosis, intellectual functioning, and clinical symptom severity had no predictive values (Pogge et al, 2014).

Instead of examining age, Bridgett, Valentino & Hayden (2012), tested the child or adolescent's temperamental characteristics--effortful control and fearfulness. Effortful control was measured through completed objective scales aimed at identifying attention and self-regulatory processes in terms of negative and positive emotional experiences. Their findings suggested that temperament should be considered when individualizing care for patients. Targeting the prevention or reduction of events demonstrated that individuals with lower effortful control and higher fearfulness had increased risk for increased restraint and seclusions (Bridgett et al., 2012).

Tompsett, Domoff, and Boxer (2011), assessed children and adolescents for predictive risk factors for restraint or seclusion during hospitalization. Although multiple risk factors were identified, the only individually focused predictor was a previous history of aggression. Various manifestations were explored: aggression towards adults, aggression towards peers, self-aggression, and property damage. No predominant type of aggression was identified to be a more significant predictor for a restraint or seclusion event to occur across settings. Although while patients were hospitalized aggression towards adults emerged as the most predictive and cited

factor for restraint and seclusions events. A history of previous placements in inpatient settings was found to be the sole significant predictor in restraint and seclusion events (Tompsett, et al., 2011).

The literature review of the 15 articles summarized the published characteristics which could, ultimately, help predict when a restraint or seclusion may occur in the population of interest through patient temperaments (Bridgett et al., 2012), age (Pogge, et. al, 2014; Duke et al., 2014), developmental disorders (Duke et al., 2014), history of aggression or previous admissions (Tompsett et al., 2011; Duke et al., 2014), and environmental factors (Duke et al., 2014). Definitions for restraint or seclusion varied and are not clearly identified to the reader. Alternative interventional methods have also been identified in an attempt to decrease the number of events. No studies, however, were found that identified therapeutic techniques specific to age and diagnosis to promote a decrease in events and increase in treatment success in terms of safety. Furthermore, no studies demonstrated a decrease among duration and frequency of events for those experiencing an initial event.

Theoretical Framework

The theory most applicable to the scholarly project is Behavioral Modification. Other theories such as Peplau's Interpersonal Theory were considered, but because Peplau's theory considers the construct of nursing as a therapeutic interpersonal process it was not applicable. Behavioral Modification was chosen due to the nature of the variables and due to the fact that implementing restraints and seclusions are found to have no therapeutic value and can potentially cause harm even though their intent is to promote safety.

Although literature directly using the behaviorist theory in nursing was difficult to find, the key concepts of classical and operant conditioning have been identified. Behaviorism directly

correlates with the psychological theories established by Ivan Pavlov and expanded upon by John Watson. The components, comprising two forms of associative learning are classical conditioning and operant conditioning. Classical conditioning refers to a process of behavior modification in which an innate response to a potent biological stimulus becomes expressed in response to what is considered a neutral stimulus (Rostami & Khadjool, 2010). Repeated pairings of the neutral stimulus and the biological stimulus then elicit the desired response (Rostami & Khadjool, 2010). Operant conditioning focuses on an instrumental learning approach. This method of learning occurs via various reinforcements and punishments for specific behaviors (Rostami & Khadjool, 2010).

Behaviorism measures observable behaviors produced by the individual or learner's response to a given stimuli. This theory appears to be the most applicable to the population of interest because one would expect an individual who undergoes a restraint or seclusion to learn specific procedures are in place for unsafe behaviors. If an individual does not learn after the first event, but receives multiple subsequent events, one would assume the length of time spent in an uncomfortable and potentially emotional distressing situation would decrease as the individual learns the necessary or desired behaviors based on operant conditioning theory. Restraints and seclusions are utilized to promote safety in acute emergent psychiatric crises. Although these interventional methods are used with good intentions, many patients perceive the methods as a form of punishment. Intrusive methods for redirecting out of control behavior are undesired by patients and the project leader believed individuals who experience multiple events would show a decrease in duration of events as they have learned the desired behavior. This type of learning would be consistent with the Behaviorism theory, however, one strains to comprehend the large variance in the number of restraint and seclusion events. Some individuals experienced only one

event and others experienced twenty-nine events in the population of interest. For those who experience one restraint one could presume the individual has learned the desired behavior.

Those who experience a high volume of restraints may have other factors influencing their ability to learn. Perhaps restraints and seclusions are not a viable variable for learning to occur, as one would expect with the Behaviorism theory due to the highly volatile and emotional situations that can occur. Or another hypothesis is that patients engaging in unsafe behaviors requiring a restraint or seclusion could be obtaining a secondary gain from the interaction.

Patients who thrive on attaining attention from staff even if it is negative attention may engage in these behaviors to meet their needs.

Methods

Study Design

The scholarly project was a 6-month quasi-experimental retrospective chart and database review performed August to December 2015. Data was obtained from the electronic medical records and an online database at a major university medical center in Nashville, Tennessee. The project protocol obtained approval by the necessary Institutional Review Boards. No recruitment was conducted and no informed consent was necessary.

Setting

The scholarly project took place at an 88-bed psychiatric hospital associated with a major university medical center in Nashville, Tennessee. The psychiatric hospital is comprised of four acute units that focus on stabilization of their patient populations. The child and adolescent unit is a 26-bed unit that is made up of two hallways one for child and one for adolescent. The two hallways are connected by the nurse's station, which allows for fluctuation to occur within the

population allowing for more adolescents or children at any given time as they can be housed on either side. This unit provides care to those suffering their first psychotic episode, depression, anxiety, eating disorders, autism and behavioral concerns. There are three acute adult units that provide care for those with psychotic disorders, co-occurring disorders, and geriatric or dual diagnosis disorders. Adult I is a 22-bed unit that specializes in providing care to those with psychosis related disorders. Adult II is a 16-bed unit that specializes in providing care for those wishing to safely withdrawal from alcohol, opiates, or benzodiazepines while also addressing co-occurring disorders such as major depressive disorder and bipolar affective disorder. Adult III is a 24-bed unit focusing on providing care to the geriatric psychiatric population as well as a wide variety of other psychiatric concerns.

This institution has magnet status and focuses on providing safe and quality nursing care. On the child and adolescent unit in particular interdisciplinary collaboration occurs daily through the use of treatment team. Treatment team allows for the providers, social workers, and nursing staff to discuss the patients on the unit and address any concerns or special considerations that need to be incorporated into their care. Treatment team only occurs on the morning shift, which is 7 am to 3 pm (first shift). Other shifts such as 3 pm to 11 pm (second shift) and 11 pm to 7 am (third shift) may be at a disadvantage in terms of following through with interventions discussed and provided in the morning if not effectively communicated in nursing report. In addition to potential gaps in reporting, second and third shift nursing staff may feel disconnected from the providers who are not readily available on the unit if an escalating situation were to occur. Although events occur on all three shifts the majority of them occur on first and second. Fluctuation in frequencies varies between the two shifts, and could be attributed to many variables such as staff, the acuity of the milieu, visitation with families or phone calls having

already taken place, and the build-up of emotions from groups and processing with the treatment team.

Historically, the child and adolescent unit at the site for this scholarly project has had a higher number of restraints and seclusions when compared to the adult units. See Box 2 for monthly breakdowns of restraint and seclusion events in the first half of 2015. The numbers indicate a noteworthy use of more restrictive interventional measures among children and adolescents, than among adults. Child and adolescent, and adult staff are trained uniformly for de-escalation and crisis management. Variables, so far as the patient characteristics are concerned, are age, diagnosis, developmental stage, history of aggression, and past inpatient admissions. External factors such as relationship dynamics between patients and staff, acuity of the milieu, season change, and structure of the unit could influence outcomes, as well. These variables could be contributing to the relatively higher frequency of events within the child and adolescent population.

One external variable to consider is seasonal changes, which have historically been noted in trends in increased acuity, suicidal ideations and attempts, as well as mania. Spring and summer tend to have higher rates of suicide than the autumn and winter months (Christodoulou, Douzenis, Papadopoulos, Papadopoulou, Bouras, Grounellis, & Lykouras, 2011). In terms of restraint and seclusion rates seen on the child and adolescent unit, there was a surge in the number of more intrusive interventional methods utilized in April 2015. This could be due to the natural response individuals have to the seasons changing with spring beginning. There was not the same surge in April 2014 but in August 2014 there was an increase in the number of events on the child and adolescent unit. This could also be attributed partly to the natural response in

season changes as well as the beginning of the school year, which can be a challenging time. Other months that had higher numbers of events included October and November of 2014.

During the literature review, it became clear the terms restraint and seclusion often differed from institution to institution and, in some cases, were not defined at all. For the scholarly project, the terms restraint and seclusion, including any subcategories, will be defined by the terms used in the specific institution's policy. See Box 3 for restraint and seclusion definitions.

Participants

Participants were obtained from an existing online database for restraints and seclusions for the child and adolescent unit at the psychiatric hospital. Dates of collected data ranged from January 2014 through August 26, 2015. Yielding 111 unique participants, both male and female patients, aged 4 to 18, were included in the study. Inclusion criteria included those who experienced at least one restraint or seclusion during his or her inpatient hospitalization on the child and adolescent unit. Exclusion criteria were based on age and excluded 18 year olds housed on the adult units who had experienced an event. The convenience sample had no randomization of participants. The data on all participants who met the inclusion criteria was used in the scholarly project.

Materials

Materials utilized were Microsoft Excel Spreadsheet, SPSS, the restraint and seclusion database, and the population's electronic medical records. Information regarding patient events was aggregated from the database and the corresponding demographic and diagnoses information were derived from the electronic medical records. Information obtained was

organized and formatted into password-protected excel spreadsheets. De-identified information was then formatted into SPSS for analysis.

Procedures

The project leader obtained all restraint and seclusion data from an online database where each event was entered. The online database chronologically ordered events for each month per annum. Each event log contained information such as age, inpatient unit, duration, medication use, gender, and type of restraint. Once information from the log was entered into a password-protected Excel spreadsheet, the project leader reviewed the individual's EMR for diagnoses and demographic information which was then added to the excel spreadsheets with the corresponding log entry.

Results

Demographics

The total number of restraints and seclusions recorded from January 1, 2014 to August 26, 2015 on the in-patient child and adolescent unit totaled 487 separate events. Of these reported incidents 369 (76%) occurred in patients 12 years and younger, and 118 (24%) occurred in patients aged 13 to 18 years. The events were segregated regarding type of incident, such as physical restraint technique, mechanical device, and seclusion. The total number of physical restraint techniques used was 329, and 8 mechanical device techniques were employed. The remaining 150 events were seclusions. Refer to Table 1 for demographic information on gender, age, and state of residence. Furthermore, data were also found to explain the use of as-needed

medications during these events. For incidents involving both male and female patients, less than half of patients required as-needed medication interventions for de-escalation and release. Table 2 shows the use of as-needed medications during the events to help aid the patient in de-escalation.

One of the independent variables the scholarly project was the individual's diagnosis. Approximately 86.5% (n=96) of participants had multiple axis 1 diagnoses, and 9% (n=10) had concurrent axis 2 diagnoses. Table 3 and 4 display the breakdown in terms of diagnoses for restraint type events and seclusion events. The second independent variable in the project was age of individuals involved in restraints or seclusion events. Ages ranged from four to 18 years of age with a mean age of 11.5 years. Due to the wide range in age, ages were grouped into categories for analysis. Refer to table 5 for the categorization of age.

Predominant Diagnoses

The first question for the scholarly project was to determine if there was a predominant diagnosis for individuals who experienced a restraint or seclusion. Descriptive statistics focusing on frequency of diagnosis depicted frequency of events rather than individual patients. The frequency of diagnoses was calculated for both restraints (physical and mechanical) and seclusions. For those experiencing a restraint-type intervention, the predominant diagnoses fell into the category of mood disorders (n= 256) followed by neurodevelopmental disorders (n=209). For those who experienced a seclusion intervention, the predominant diagnosis in terms of events was neurodevelopmental disorders (n= 110) followed by mood disorders (n= 94). See

Table 3 for further details regarding all categories of diagnoses for those experiencing a restraint. See Table 4 for details regarding all categories of diagnoses for those experiencing seclusion.

Age Group

The second question for the scholarly project was to determine if one age group was more likely to experience a restraint or seclusion. Age was categorized into five even groups. See Table 5. The variability in number of events experienced by age is shown in Table 6. A cross tabulation was performed. For the youngest patients (4-6 years, group A), seven patients experienced a restraint or seclusion accounting for 6.3% of all individuals. For group B (7-9 years), 28 patients experienced an event accounting for 25.2% of all individuals. Group C (10-12 years) had 33 patients and accounted for 29.7% of all individuals. Group D (13-15 years) consisted of 23 patients accounting for 20.7% of total events. Lastly, the oldest patients (16-18 years, group E) consisted of 20 patients and accounted for 18% of the total patients who experienced an event. The age group with the most individuals experiencing a restraint or seclusion was Group D, the patients who were 10-12 years of age. Group B (7-9 years) recorded the second most numerous restraints or seclusions. See Table 7.

Duration

The third project question was to determine if there was a downward trend in duration of events after the initial event. A one-way ANOVA was performed individually for physical restraints and seclusions. Mechanical restraints did not have enough events to be considered separately (n=8). Also, a one-way ANOVA was performed combining both types of restraints and seclusion. Since all individuals experienced at least one restraint and some experienced up

to 29 restraints, the project leader focused on an individual's initial 6 events. The project leader believed six events was an adequate number of events to establish if a trend in duration occurred.

A one-way between subjects ANOVA was conducted to compare the effect of the first six events on duration in physical restraint conditions. There was not a significant effect of the first six restraint events on duration of physical restraints at the $p < .05$ level for the three conditions [$F(5, 217) = .572, p = .721$] with a 95% total CI (9.11, 11.86). The duration means are close in number and no consistent downward trend was noted from the first incident to the sixth incident. See Figure 1. A one-way between subjects ANOVA was conducted to compare the effect of the first six events on duration in seclusion conditions. There was not a significant effect of the first six seclusion events on the duration of seclusions at the $p < .05$ level for the three conditions [$F(5, 90) = 1.319, p = .263$] with a 95% total CI (9.76, 15.62). Although there was a more noticeable downward trend from event number two to event number six after an initial spike in length of duration, it was not statistically significant. See Figure 2. A one-way between subjects ANOVA was conducted to compare the effect of the first six events for all types of intrusive interventions on duration in physical, mechanical, and seclusion conditions. There was not a significant effect of the first six events at the $p < .05$ level for the three conditions [$F(5, 316) = .671, p = .646$] with a 95% total CI (10.19, 12.92).

Discussion

For the scholarly project, when collecting patient data, it was found that individuals had their diagnosis organized in the traditional multi-axial system where axis one was clinical diagnosis and axis II was personality and developmental disorders. Axis III, IV, and V were

deemed not applicable to the scholarly project. With the implementation of the DSM-V in 2013, the way diagnoses were documented in the electronic medical record varied depending on provider preference for documentation. These variances included the multiaxial system and primary diagnoses. With the implementation of DSM-V, some diagnoses were no longer recognized. One example is Asperger's disorder, which was absorbed by Autism Spectrum Disorder in the latest edition. For the scholarly project, diagnoses were categorized into the new considerations set by the DSM-V, meaning any individual with an axis II disorder had it incorporated into the appropriate new diagnosis category, such as neurodevelopmental disorder for the analysis.

The data revealed two diagnoses as predominant for restraints and seclusions. The two predominant diagnoses categories were mood disorders (bipolar and related disorders and depressive disorders) and neurodevelopmental disorders for both restraints and seclusions. These two categories encompass a wide variety of disorders such as bipolar I disorder, bipolar II disorder, major depressive disorder, disruptive mood dysregulation disorder, mood disorder not elsewhere defined (NED), autism spectrum disorder, intellectual disability, and attention deficit hyperactivity disorder. One limitation to the scholarly project was the large proportion of the patient's diagnoses, which included NED. Potentially, the NED designation may be due to the patients' younger age and the providers' desire to avoid labeling an individual with mental illness until certain. In addition to these concerns, many psychiatric disorders have age-related criteria. Another limitation to the scholarly project was the lack of a control group (i.e. individuals hospitalized during the assessed time period who did not experience an event). If a control group had been used, more concrete findings with diagnoses as a variable might have been identified.

Age was the second independent variable the project leader identified. The data showed the 10-12 year old group experienced the most restraints or events. The second most prevalent age group was the 7-9 year olds. The project leader believes that one plausible explanation for the majority of restraints and seclusions occurring within the 7-12 age group could be due to difficulty adjusting to more formal life skills typically learned in Erikson's Industry versus Inferiority stage of psychosocial development. This developmental phase means these school-aged children are attempting to learn skills to relate to peers, adapt to a more structured environment with rules, to work as a team member, and to master the educational curriculum (Child Development Institute, n.d.). If a child is struggling to be successful with this stage of development, it could be suggested that they have not met their psychosocial development milestones and may be expected to function at a higher level than they cognitively are able to achieve. Without knowing specific patient's abilities, unrealistic expectations can cause them to be unsuccessful in the inpatient setting due to the child not having resolution of previous psychosocial crises, which could lead to a mistrusting child who is guilt ridden and likely to experience defeat in daily life (Child Development Institute, n.d.). Further research is needed to assess the cognitive and developmental levels of those experiencing restraints or seclusions and to consider Erikson's stages of psychosocial development and Kohlberg's stages of moral development. With these added elements, characteristics could emerge to help identify predictors for those at risk for restraint and seclusion events.

The project leader examined a potential change in event duration for those who had experienced multiple events. This was based on the assumption that the theory of Behaviorism would be applicable to this population of interest and subject matter. No statistically significant data was found when looking at individuals who had experienced multiple events and the

duration of those events. This suggests that learning did not occur for those experiencing multiple events. The project leader cannot absolutely confirm those individuals who experienced one event learned the desired behavior and was able to maintain a safe body. It is possible that those who experienced one event were outliers in the population of interest. Limitations included that the scholarly project focused on the first six events as opposed to all events and that individuals who experienced only one restraint or seclusion event were included.

Since the data did not support statistically significant findings in terms of predictors for those experiencing a restraint or seclusion, further research is needed to examine other variables, which could be eliciting an undesirable response from child and adolescent patients. When comparing these scholarly projects findings with the findings of the existing literature, conflicting results are apparent. Duke et al. (2014) was able to identify three event predictors but also was able to state that their findings supported developmental disorders and younger age as predictors for restraints and seclusions. From the sample used for this scholarly project only 9 individuals had a developmental disorder diagnosis, which accounts for less than 1% of population examined, although the predictor of younger age held true between the literature and this scholarly project's findings. Pogge et al. (2014) found no relationship between diagnosis and intellectual functioning, but did find younger age as a predictor for increased number of events. Other studies looked at patient temperaments (Bridgett et al., 2012), history of aggression or previous admissions (Tompsett et al., 2011; Duke et al., 2014), and environmental factors (Duke et al., 2014). These are variables that were not examined in this scholarly project.

Due to conflicting results and the myriad of variables examined, definitive predictors cannot be ascertained with absolute certainty. These variables include both personal characteristics, such as a previous history of aggression, a previous history of restraints or

seclusions, and developmental stage considerations. External variables could be examined in future research including staff attitudes towards restraints and seclusions, staff education in de-escalation techniques, number of events successfully diffused, compassion fatigue, acuity of the milieu, and staffing needs.

Implications for practice

Inpatient Setting

For registered nurses and nurse practitioners working on inpatient child and adolescent psychiatric units, identification of characteristics or predictors common among individuals who are hospitalized for acute stabilization would be beneficial to guide treatment plans. Preventative measures such as a restraint and seclusion risk assessment could be performed at admission indicating their level of potential for requiring a restraint or seclusion. This risk assessment would allow for conversations to occur earlier during the hospitalization among the interdisciplinary team discussing individualized behavioral plans and de-escalation techniques. Individualized behavioral plans and de-escalation techniques could foster a positive rapport with the patient and potentially decrease the number of restraints or seclusions for that individual because the focus would be on fostering an environment where the patient could be successful. Allowing for more individualized treatment plans based on an individual's needs with encouragement to allow for success to occur could promote a positive growth in their emotional development giving them confidence in their abilities. This success could lead to the development of more effective coping mechanisms for the patient to use in times of increased emotional stress and potentially reduce the number of events that occur. These interventional methods could also be applied to the inpatient adult units as well.

In addition to focusing on providing individualized care to support the actual needs of the patient, evidence-based practice has shown ways to reduce the frequency and duration of events. According to evidence based practice, implementation of six core strategies has led to the reduction of seclusions and restraints within psychiatric facilities. For example, Azeem, Aujla, Rammerth, Binsfeld & Jones (2011) focus on trauma informed care and use of the six core strategies led to the reduction in overall restraint and seclusion events within the population of interest. Another study examined the implementation and outcomes of the same six core strategies for the reduction of seclusions and restraints in 43 inpatient psychiatric facilities (Wieman, Camacho-Gonsalves, Huckshorn, & Leff, 2014). It was found that facilities that used the six core strategies consistently had a reduction in the duration and frequency of events. Restraint hours decreased by 55% and seclusion hours were reduced by 19% (Wieman, et. al, 2014). These six core strategies could be implemented in any inpatient psychiatric facility to improve the quality and safety in this population.

Outpatient Setting

Discussion on the importance for healthcare professionals in any practice setting should be addressed. Psychiatric patients require similar health care, as do other individuals such as sick visits, medical related hospital visits, medication management appointments, women's or men's health visits, and well-visit appointments with a variety of healthcare professionals. Ergo, all providers should be competent in providing care to these individuals. According to the Center for Disease Control and Prevention (CDC) (2014b), 20% of all primary care office visits for all ages were mental health related. Visits were classified as mental health related if ordering a depression screening, addressing the need for psychotherapy, a mental health diagnosis or reason

for visit, or psychotropic medications were ordered or refilled (CDC, 2014b). For children (<12 years) 5% of their primary care office visits are mental health related compared to adolescents (12-17 years) where 10% of their visits were mental health related (CDC, 2014b). As age increases the percentage of primary care office visits for a mental health related issue trend upward as well (CDC, 2014b). According to the CDC (2014a), 7.5 % of children and adolescents (6-17 years) were prescribed medication for emotional or behavioral difficulties in 2011-2012. A data brief from the National Center for Health Statistics found 11% of Americans aged 12 years and older were taking an antidepressant medication (CDC, 2011). Other findings showed less than one third of Americans taking at least one antidepressant medication and less than one-half of those taking multiple antidepressants had seen a mental health professional within the past year (CDC, 2011).

Nurse Practitioners care for patients with psychiatric concerns, despite area of practice. Knowledge about relationships between specific diagnosis and age could lead to the development of strategies which successfully allow for the patient to be stable in their environment and prevent the patient from being admitted. These helpful strategies might improve patient outcomes by reducing the need for an inpatient admission, decreasing number of events in inpatient and outpatient settings, and enhancing patient/provider rapport.

Conclusion

In conclusion, although diagnosis and age are related to restraint and seclusion events, further research is needed to identify missing components which tie multiple variables together to elicit a statistically significant response. Previous research has identified potential risk factors for restraints and seclusions, but is not conclusive. Further research should focus on the individual's developmental stage, history of aggression, and past inpatient hospitalization. Due to

the high volume of restraint and seclusion events among the population of interest, external factors such as staff attitudes towards restraints and seclusions, staff education in de-escalation techniques, number of events successfully diffused, compassion fatigue, acuity of the milieu, and staffing needs should be evaluated as well.

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Box 1: Implementation Example

Restraint Implementation Example
<p>Kristen has been working as a nurse on the child and adolescent psychiatric unit for the past five years. One day after receiving report she enters the milieu to interact with her patients and begin establishing rapport. The shift appeared to be calm and nothing concerning was noted. During free time Kristen was in the group room processing with patients and playing UNO. Other patients were in the group room as well playing the Wii. A disagreement began over whose turn it was to play and Kristen overheard verbal threats. She redirected the patients and provided them with emotional support. Both patients, enveloped by their argument, did not respond to Kristen's de-escalation attempts. At this point one of the patients tackled the other and began punching him in the face. Kristen attempted to intervene by pulling the patients off of each other and attempting verbal de-escalation. One patient was able to settle and walked away from the situation while the other continue to posture towards the direction of peer and tried to push Kristen out of the way to get to the other patient. At this point in the de-escalation process Kristen performed a primary restraint technique to promote the safety of both patients and the milieu.</p>

Box 2: Frequency of events in 2015

Month 2015	Child/Adolescent Unit	Adult Units (I, II, III)
January	22	7
February	14	6
March	7	10
April	60	4
May	35	3
June	18	5
Total	156	35

Vanderbilt Psychiatric Hospital [VPH] Restraint and Seclusion Log. (2015).

Box 3: Restraint & Seclusion Definitions

Physical Restraint	"Any method, physical or mechanical device, material or equipment, that immobilizes or reduces the ability of a patient to move his or her arms, legs, body, or head freely" (Vanderbilt University Medical Center [VUMC], 2013).
Physical Holding	"The use of staff body contact in order to restrict freedom of movement or normal access to one's body. Which does not include touch associated with prompting, comforting, or escorting" (VUMC, 2013).
Seclusion	"Involuntary confinement of a patient in a room alone or in areas from which the patient is physically prevented from leaving" (VUMC, 2013).

VUMC. (2013).

Table 1. Demographic Information

	N (%)	Mean age in years (std. error)
Males	74 (66.6)	11.04 (0.37)
Females	37 (33.4)	12.49 (0.65)
Total	111 (100)	
Race		
- Caucasian	67 (60)	
- African American	33 (30)	
- Hispanic	3 (3)	
- Asian	1 (1)	
- Biracial	7 (6)	
State of Residency		
- Tennessee	107 (97.3)	
- Kentucky	4 (2.7)	
Restraint Type		
- Physical	329 (68)	
- Mechanical	8 (2)	
Seclusion		
Total	150 (30)	
Total	487 (100)	
Number of Beds per Unit		
Adult I	22 (25)	
Adult II	16 (18)	
Adult III	24 (27)	
Child and Adolescent	26 (30)	
Total	88 (100)	

Table 2. Medication use per number of events

	N (%)
Males	
- PRN Medication Used	129 (41.5)
- PRN Medication Not Used	182 (58.5)
Total	311 (63.9)
Females	
- PRN Medication Used	74 (42.0)
- PRN Medication Not Used	102 (58.0)
Total	176 (36.1)

Table 3. Frequency of diagnoses per Restraint Type events

	N = number of occurrences for a diagnosis in all 329 events	N= Number of Individuals with Specific Diagnosis
Mood Disorders	256	59
Neurodevelopmental Disorders	209	34
Trauma Disorders	78	19
Anxiety Disorders	67	23
Conduct-Like Disorders	62	11
Eating Disorders	11	1
Somatic Disorders	9	1
OCD Disorders	5	1
Psychotic Disorders	4	3
Substance Abuse Disorders	4	4

Note. Since all clinical disorder diagnoses were used and some individuals had multiple diagnoses the frequency for these events total more than the sample population of 111. Percentages for each category of diagnoses occurrence totaled over 100% and therefore was left off the table.

Table 4. Frequency of diagnoses per Seclusion events

	N = number of occurrences for a diagnosis in all 150 events	N= Number of Individuals with Specific Diagnosis
Neurodevelopmental Disorders	110	23
Mood Disorders	94	25
Trauma Disorders	43	7
Conduct Like Disorders	23	9
Anxiety Disorders	16	8
Psychotic Disorders	2	1
OCD Disorders	1	1
Eating Disorders	0	0
Substance Abuse Disorders	0	0
Somatic Disorders	0	0

Note. Since all clinical disorder diagnoses were used and some individuals had multiple diagnoses the frequency for these events total more than the sample population of 111. Percentages for each category of diagnoses occurrence totaled over 100% and therefore was left off the table.

Table 5. Age Categorization

Age Variable	Included Ages (in years)
A	4-6
B	7-9
C	10-12
D	13-15
E	16-18

Table 6. Event Occurrence Categorization

Event Variable	Number of Events
A	1-3
B	4-6
C	7-9
D	>10

Table 7. Predominant age ranges that experienced an event

Age Range in years (Group)	N (%)
10-12 (C)	33 (29.7)
7-9 (B)	28 (25.2)
13-15 (D)	23 (20.7)
16-18 (E)	20 (18)
4-6 (A)	7 (6.3)
Total:	111

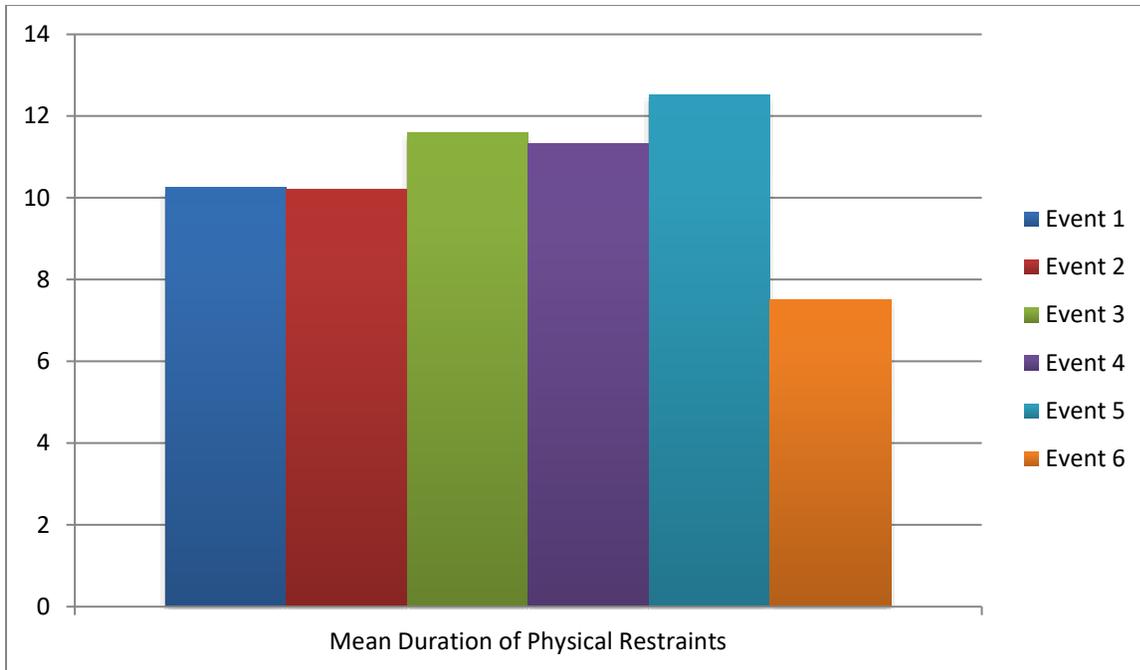


Figure 1. Mean duration of physical restraints in minutes

Note. [F (5,217)= .572, p= .721] with a 95% total CI (9.11, 11.86)

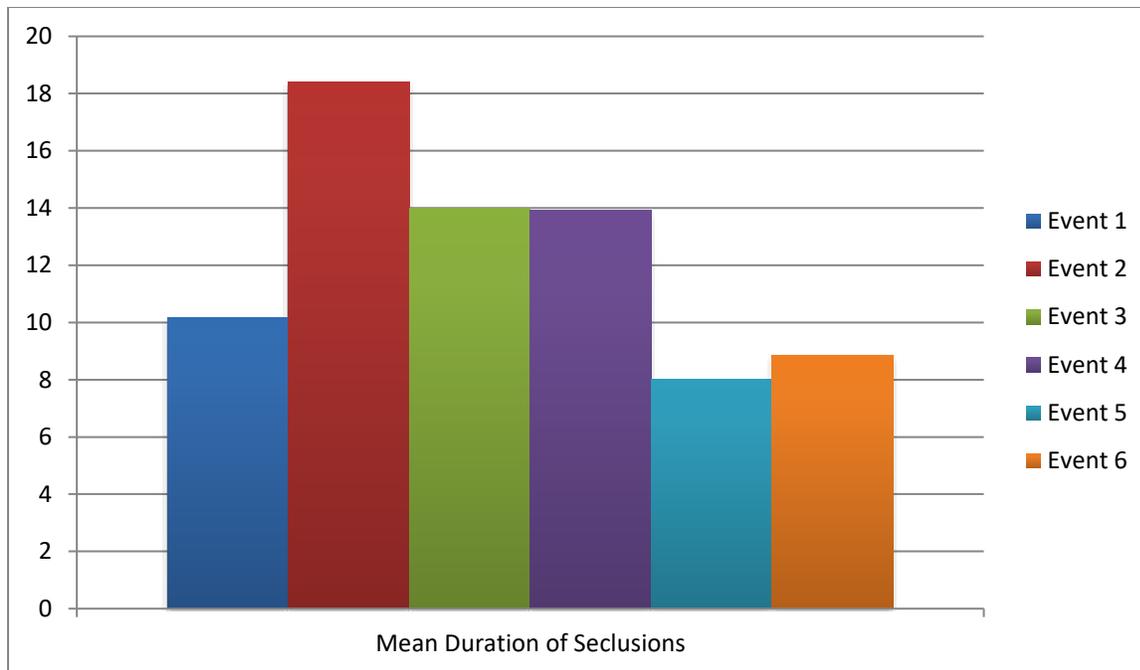


Figure 2. Mean duration of seclusions in minutes

Note. [F (5, 90)= 1.319, p=. 263] with a 95% total CI (9.76, 15.62)

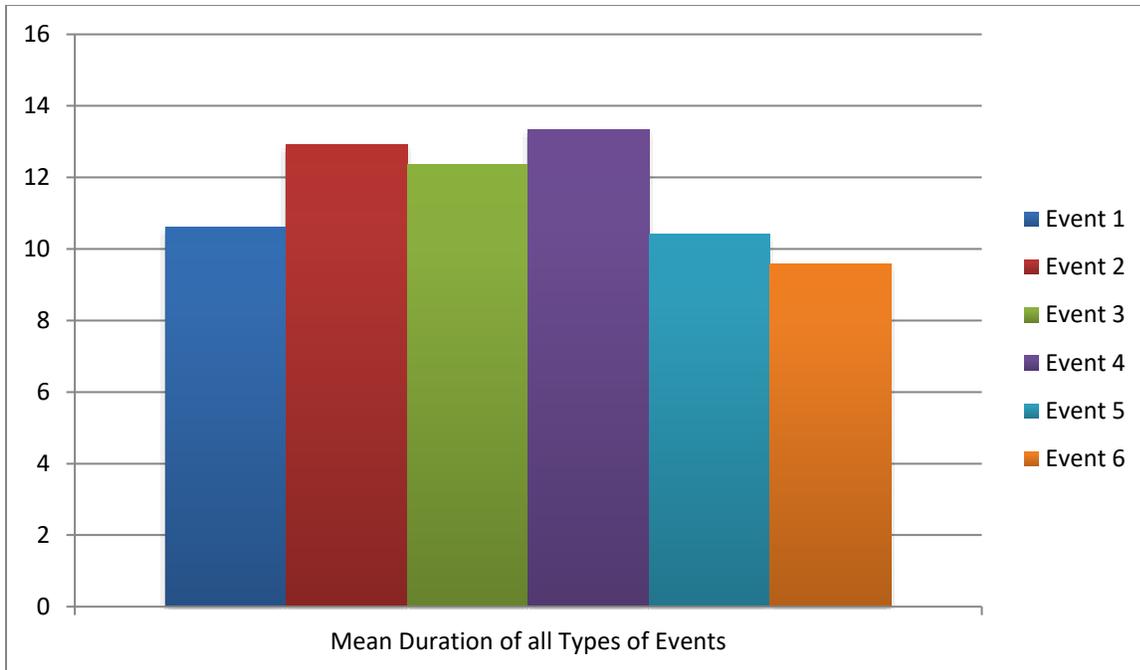


Figure 3. Mean duration of all types of events in minutes

Note. [F (5, 316)= .671, p= .646] with a 95% total CI (10.19, 12.92)