Decreasing agitation, restraints, and time in restraint on an inpatient unit through improved staff implementations with patients to improve patient responsiveness.

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Abstract

Background

The use of physical restraint in healthcare is thought to have been present since its beginnings, with evidence of restraints being used in the psychiatric patient population (Abdeljawad & Mrayyan, 2019). This project assesses the effectiveness of increasing staff assessment and management of agitation and de-escalation skills to decrease patient agitation.

Objective

This Quality Improvement (QI) project aims to decrease agitation, restraints, and time in restraint on an inpatient unit through improved staff implementations with patients to improve patient responsiveness.

Methods

This QI project occurred in an inpatient psychiatric facility in the urban southern region. The number of participants was 25. Inclusion criteria: Participants must be 21-59 years old, able to communicate in English, and agitated on admission or have a history of agitation. Exclusion criteria participants below 21 and above 59 are non-agitated and unable to communicate in English. Assessment and management of agitation and de-escalation skills were administered on admission and when symptoms of agitation emerged. Modified Agitation Severity Scale (MASS) measured agitation. The project utilized a comparison to assess the effectiveness of the intervention.

Results

The Paired Samples T-Test indicated a statistically significant reduction in average minute restraints, $p<0.001$. There was a 56% reduction in restraint in minutes. 102 agitated episodes may have been averted within the eight weeks for agitation episode comparisons.

Conclusion

Physical restraints remain problematic, and nurses face this situation in daily practice. The preparedness for agitated behavior by well-prepared nursing services is critical to reducing agitation, restraint time, and decreased restraint use.

Key Words: Modified Agitation Severity Scale (MASS), Agitation, Quality Improvement (QI), Agitation Protocol, physical restraint, Psychiatric Mental Health Nurse Practitioner.

Description of the Problem

Patient restraints are a controversial topic in healthcare services, and it remains a complex topic in healthcare. Physical restraint is coercive, enabling the administration of treatment by safely reducing the physical movement of a patient opinion. Antecedents of physical restraint are violent behavior of patients, health assessment prior to implementation, and legislation governing clinical usage. Consequences of physical restraint are alleviation of conflict, physical injury, mental health trauma, and invisible impact on the institution (Junrong et al., 2019). Patients with mental illness may pose critical risks to self and others. Patients with severe mental health disorders have a high possibility of autolesion and agitation. Healthcare practitioners generally apply alternative approaches, such as de-escalation techniques and crisis management, to alleviate critical risks that an acute mental health illness patient poses. Nevertheless, compulsory intervention is implemented when alternatives fail to resolve the conflict. Often regarded as an inhumane approach, the use of physical restraint is prevalent in mental health settings, although its frequency varies significantly in different institutions. Junrong et al., 2019 stated that the frequency of physical restraint use on admitted patients in mental health settings ranges from 3.8% to 51.3% worldwide. Several investigations have claimed that the frequency of physical restraint use on psychiatric inpatients has considerably increased in the recent decade. The existing literature suggests that there are severe physical and psychological implications associated with the use of physical restraint for both mental health patients and staff alike. The debate surrounding this practice has been intensified by the compelling evidence suggesting that the application of restraint is not compatible with the values of recovery in mental health care. To influence clinical practice that governs the use of restraint, it is essential to explore patient experiences of its use (Douglas et al., 2021). Although physical

restraint is used for safety purposes, studies show that its inappropriate use can endanger patient safety and cause severe physical and mental health consequences. Its physical consequences include pressure ulcers, fractures, cardiac dysrhythmia, neuromuscular injuries, urinary and fecal incontinence, asphyxia, and strangulation-induced death. The mental health consequences of inappropriate physical restraint use include anger, frustration, aggression, fear, humiliation, low self-confidence, delirium, depression, and anxiety. Moreover, it is associated with ethical dilemmas and violates ethical practice concepts of autonomy and respect for dignity principles. It also prolongs the length of hospital stay and increases the risk of falls and nosocomial infections (Sharifi et al., 2021). As a QI project, this paper explores the effectiveness of evidence-based improvement staff assessment and management of agitation and de-escalation skills to decrease patient agitation among patients with agitation symptoms in an inpatient setting ages 21-59 years.

Background and Significance

In psychiatric mental health services care, patient safety and outcomes relate to the ability of care providers to manage symptoms of mental health illnesses. This, therefore, involved the implementation of best practices to improve the ability to cope with the symptoms of mental health illness. Despite the challenges and calls to reduce this practice, physical restraints continue to be used in acute care settings. The current guideline on restraint use is updated with evidence that includes critical care settings and issues related to restraint use in acute care units. Nurses play a significant role in the use of restraints. Factors such as knowledge and patient characteristics combined with the culture and resources in healthcare facilities influence physical restraint use. Nurses can identify high-risk patients for restraint use, assess the potential causes of unsafe behaviors, and target physiological, psychological, and environmental

interventions to address unsafe behaviors. Members of the interdisciplinary team can provide additional consultation, and institutions can provide resources and education and implement monitoring processes and QI practices to help reduce the practice of physical restraint use (Spennato et al., 2023). It is paramount to effectively educate staff on how to appropriately care for agitated and at-risk patients with regard to restraint and seclusion. If staff is not appropriately educated, patients and others are at higher risk of adverse outcomes. Restraint and seclusion must be considered last-resort methods of assessing and managing agitation, and de-escalation skills are ineffective. The patient should be included as much as possible in the decision-making process. Staff must review restraint and seclusion situations to evaluate performance and provide feedback to ensure efficient, effective, and safe healthcare practice if appropriate (Parkes & Tadi, 2022). A review conducted by Lee et al., 2021, revealed that restraint can be a form of abuse when it is inappropriately used and can result in fear, neglect, and failure to use de-escalation techniques. To date, research on restrictive practices has concentrated on mental health and long-term care settings. However, to ensure restraints are used as little as possible in the acute-care hospital setting, it seems necessary to investigate more comprehensively the use of restraint, to include all types of restraint irrespective of setting or subpopulations, and to identify factors associated with restraint use (Thomann et al.,2021). In this project, agitation was identified as one cause of restraint and sometimes can lead to seclusion. Agitation is a common and potentially dangerous condition requiring rapid recognition and treatment. Prompt intervention can prevent a patient with agitation from harming self and others or needing restraint or seclusion (Manning et al., 2022). The project aims to utilize evidence-based assessment and management of agitation and de-escalation skills to decrease patient agitation

Aims or Intended Outcomes

The project is a QI initiative that influences practice change in an inpatient psychiatric care setting. The project's primary aim is to decrease restraint usage and the time spent in restraint episodes in an adult inpatient psychiatric facility by improving staff assessment and management of agitation and de-escalation skills to decrease patient agitation among ages 21-59 years. By implementing the intervention, the project seeks to influence practice change in the inpatient psychiatric care setting to improve the safety of agitated patients.

Theoretical Framework

As a QI initiative, the project seeks to establish the effectiveness of using evidence-based assessment and management of agitation and de-escalation skills to decrease patient agitation. The implementation of evidence-based strategies is intended to address agitation and enhance the safety of patients. Theoretical frameworks provide the basics for understating the importance, impact, and purpose of implementing a new practice. The following theoretical frameworks are relevant for this project:

The Quality Improvement Model

QI refers to using systematic instruments and methods to continuously improve the quality of care and patient outcomes. It is a systematic approach to improving health services and the quality of care and patient outcomes based on iterative change, continuous testing, and measurement while measuring the progress in real-time. QI assessment is crucial in improving health care, including improvements in time-savings, timeliness of service provision, cost reductions, and decreased errors or mistakes (Jones et al., 2019). The Doctor of Nursing Practice (DNP) clinical project aims to make a discernible improvement in delivering mental health

treatments to psychiatric inpatients. The most appropriate QI model for this project is the Plan-Do-Study-Act (PDSA). The model for improvement combines systematic methodology with subject-matter knowledge to create the desired improvement. The model comprises three questions and a PDSA cycle for testing changes to assess whether or not the model may lead to improvement. First, a plan is developed to test the change (*PLAN*), then carry out the test (*DO*), observe, analyze, and learn from the test (*STUDY*), and determine what modifications, if any, to make for the next cycle (*ACT*) Institute for Healthcare Improvement (IHI,2023). Interventions to enhance the care provided to psychiatric inpatients will be implemented using the PDSA. PDSA will guide the planning process, including identifying the project practice gaps and developing the hypothesis plan. *Implementing* the intervention will involve testing the hypothesis (decreasing patient agitation) and determining the time and number of restraints used. It will also be used to examine the effects or outcomes of the implementation process. Lastly, *Acting* will involve disclosing the findings and adjusting the intervention and implementation process.

Evidence-Based Practice (EBP) Model

EBP involves integrating the best available evidence with clinical knowledge and expertise while considering patient needs and preferences. If used consistently, optimal patient outcomes are more likely to be achieved. Using EBP means abandoning outdated care delivery practices and choosing effective, scientifically validated methods to meet individual patient needs. Healthcare providers who use EBP must be skilled at discerning research value for specific patient populations (Wilson & Austria, 2021). To help nurses navigate the steps in the process, several evidence-based practice (EBP) models have been established; However, these models have not always been adopted or applied constantly. The Johns Hopkins Evidence-Based Practice (JHNEBP) model will guide the DNP project (Duff et al., 2022).

The JHNEBP remains the powerful problem-solving approach to clinical decision-making. It is used specifically to meet the needs of the practicing nurse, and it uses the three-step process called Practice questions, Evidence, and Translation (PET). The model aims to ensure that the latest research findings and best practices are quickly and appropriately incorporated into patient care (Dang et al., 2022). However, in this project, the practice question is whether the staff assessment and management of agitation and de-escalation skills can decrease restraint usage and the time of restraint episodes in an adult inpatient psychiatric facility. The intervention is studied and analyzed. The goal is to understand the Modified Agitation Severity Scale (MASS) and the de-escalation techniques. In the final step, the interventions are interpreted based on evidence from previous usual care.

Nursing Theory

The nursing theory that supports this scholarly project is The Benner system model. Benner developed a concept known as the “From Novice to Expert” by Benner., 2023, explaining that nurses develop skills and an understanding of patient care over time from a combination of a solid educational foundation and personal experiences. For those patients experiencing agitation and possible restraint, improving staff assessment and management of agitation and de-escalation skills can reduce agitation and, thus, restraint situations and time spent in restraint. This is one of the essential elements in nursing. Nurses may work to optimize outcomes for patients, their families, healthcare providers, and the healthcare systems. Teaching nurses to be experts will no longer rely on principles, rules, or guidelines to connect situations and determine actions (Benner, 2023). Thus, the expert is pertinent to the proposed project plan.

Literature Review

Several studies have demonstrated the need to prevent restraint in an inpatient psychiatric facility by implementing an evidence-based, patient-centered MASS. The systematic review research of Chieze et al. (2019) on the effects of seclusion and restraints in adults states that seclusion and restraints have harmful physical or psychological consequences. Patients' preferences should be considered when deciding to apply these measures. The therapeutic relationship could focus on improving the effects of coercion and subjective perception (Chieze et al., 2019). There are increasing concerns about the extent to which these restraints are used in hospitals and whether the benefits outweigh the potential harm. A systematic review by Junrong et al.2019 on physical restraint in mental health nursing found that physical restraint is a coercive approach that enables the administration of necessary treatment by safely reducing the physical movement of any patient and should be the last resort of providers.

In this project, the frequency of physical restraint used on admitted patients in mental health settings rages from 3.8% -51.3% worldwide. Research studies support the idea that the frequency of physical restraint use on psychiatric inpatients has considerably increased in the recent decade (Junrong et al., 2019). The frequency of any form of restraint was 19%. The frequency of chemical and physical restraints was 19% and 0.5%, respectively. Less than 20% of caregivers in both groups reported that restraint was either stigmatizing (5.33% inpatient caregivers vs. 12% outpatient caregivers), cruel (8% inpatient caregivers vs. 15.33% outpatient caregivers), or a measure of punishment (9% inpatient caregivers vs. 16% outpatient caregivers). No significant difference was found between knowledge and attitude about restraint between caregivers in outpatient and inpatient settings (Kuppilli et al.,2022). Often, the use of mechanical restraint is a challenging area in mental health. Although mechanical restraint remains accepted

as standard practice in some regions, there are ethical, legal, and medical considerations to minimize or abolish its use. These concerns intensified after the Convention on the Rights of Persons with Disabilities. An international epidemiological study by Newton-Howes et al. (2020) on mechanical restraints in Pacific Rim countries states that policies to reduce or abolish mechanical restraints do not appear to be effective change. More significant effort is needed to report, monitor, and implement interventions to reduce restraint (Newton-Howes et al., 2020).

As data shows, physical restraint is done frequently in the inpatient facility. However, there is a great need for timely assessment and management of agitation in inpatient settings. These can be accomplished by collaborating with nursing staff, mental health technicians, providers, physical therapists, and administration. Nursing staff will assist in implementing evidence-based patient assessment and management of agitation and de-escalation skills to decrease patient agitation (Moran et al.,2024). In assessing and managing agitation and de-escalation skills, the best instrument utilized for the DNP project is the MASS. After the review of numerous guidelines, the MASS agitation treatment protocol was developed to identify and manage agitation in an inpatient adult psychiatric setting. The protocol involves modifying an existing agitation scale and pairing scores with a treatment algorithm to indicate the most appropriate behavioral and medication interventions. The patient is assessed physically for agitation symptoms. The MASS agitation treatment protocol may help calculate the MASS score on the behavior observed. Without the score mentioned, research shows that the MASS scale had a considerable correlation, high reliability, and strong convergent validity with the Clinical Global Impressions-Aggression scale (CGI-A) while providing the details needed for treatment decisions (Manning et al.,2022).

Project Design and Methods

Recruitment and Design

The project recruited 25 male and female participants; ages 21-59 years old. The participants were chosen due to agitation symptoms. Inclusion criteria are that the patient must be 21-59 years old, the participant must be able to communicate in English and must be agitated on admission or have a history of agitation. Exclusion criteria were those participants below 21 and above 59 years who are non-agitated and do not communicate in English. An assessment and management of agitation and de-escalation skills were administered at the first encounter to assess the usual care to agitated patients and measured by MASS with permission.

Implementation

The project was implemented within eight weeks to attain the 25 participants who presented with symptoms of agitation. Upon admission, baseline data was obtained for MASS score and restraint in minutes. When the MASS score is above 4, and the medication is given to the patient, the nursing staff will repeat the MASS score hourly until the score is less than 4, then resume at 0900 and 2100 for a five-day scoring schedule. During the hourly intervention, the nursing staff will continue to record the MASS score and restraint in minutes. Moreover, the nurse will also document the treatment intervention codes. This includes behavioral intervention, oral medication, and intramuscular injection. This will help to verify the initiation of less restrictive interventions or the beginning of agitation and restraint episodes. After data was obtained from the 25 participants, an analysis was conducted to understand the impact of the intervention in reducing restraint usage and time spent in restraints.

Outcome Measures

Measuring and reporting outcomes fosters improvement and adoption of best practices, thus further improving outcomes. For this QI project, the outcome measures were reducing restraint usage and the time spent in restraint episodes. This was obtained through timely assessment and management of agitation and de-escalation skills to reduce agitation.

Steps in Data Analysis

This QI project occurred in an inpatient psychiatric facility in the urban southern region. The number of participants was 25. Inclusion criteria are that the patient must be 21-59 years old, the participant must be able to communicate in English and must be agitated on admission or have a history of agitation. Exclusion criteria were those participants below 21 and above 59 years who are non-agitated and do not communicate in English. An assessment and management of agitation and de-escalation skills were administered to agitated patients and measured by MASS with permission.

Table 1 Modified Agitation Severity Scale

Weighted Value	Agitation Symptom	Point Value if Symptom Present
1	Red in the Face	1
	Grinding Teeth	1
	Tapping, Clenching, Involuntary Movements of Hands	1
	Disorganized Thinking	1
	Emotionally Labile, Anxious, Nervous	1
	Unable to Reason	1
2	Spitting	2
	Getting Attention with Voice	2
	Darting Eyes	2
	Demanding	2
	Speaking more Quickly than the Baseline	2
	Angry Tone of Voice	2
	Persistent Disruptive Verbalizations	2
	Restless	2
3	Yelling, Audibly Louder than Baseline	3
	Unable to be Calmed	3

	Inappropriate Behavior	3
	"In Your Face"	3
	Decreased Self-Control, Impulsiveness	3
	"Puffed up," Chest Out, Threatening Posture	3
	Confrontational	3
10	Biting	10
	Throwing Objects	10
	Violating Self or Others	10
	Physical Violence to Self or Others	10
	TOTAL SCORE *(Maximum score 83)*	

Agitation Severity: 1 to 4: Very mild agitation

4 to 6: Mild agitation

7 to 9: Moderate agitation

Greater than 9: Severe agitation and/or violent

The total score is the sum of each present symptom multiplied by the weighted value for the section

Source. Manning, et al., 2022. Used with Permission.

Table 2 MASS Agitation Treatment Protocol

Assess and record MASS now, then at 0900 and 2100 while awake
- Calculate MASS score based on behavior observed within the most recent 1 h
- If medication given, repeat MASS hourly until score is less than 4, then resume at 0900 and 2100 scoring schedule

Agitation Score	Severity	Possible Treatment Interventions			
1–3	Very Mild	Behavioral Interventions			
4–6	Mild	Behavioral Interventions	Oral Medication		
7–9	Moderate	Behavioral Interventions	Oral Medication	Intramuscular Injection	
> 9	Severe and/or Violent	Behavioral Interventions	Oral Medication	Intramuscular Injection	Seclusion or Restraint

Behavioral Interventions

Speak with patient about frustration	Encourage patient to channel feelings into activity
Identify wants and feelings	Bring in alternative staff person
Quiet room	Staff directed time out
Encourage use of coping skills patient identifies as helpful	Redirect attention and offer choices
Encourage patient to engage in relaxation techniques	Offer fluids
Encourage self-time out	Offer food
Remove provoking stimuli	Offer nicotine replacement

Medication Interventions Choose one of the following:

O Lorazepam
- 1 mg Oral six times daily prn for MASS score of 4 to 9; (Max 8 mg in 24 h)
- 1 mg Intramuscular six times daily prn for MASS score of 7 to 9 and patient unable/unwilling to accept oral medications (Max 8 mg in 24 h)
- 2 mg Oral four times daily prn for MASS score of 10 or above (Maximum 8 mg in 24 h)
- 2 mg Intramuscular four times daily prn if MASS score 10 or above and patient unable/unwilling to accept oral medications: (Max 8 mg in 24 h) O Haloperidol
- 2 mg Oral six times daily prn for MASS score of 4 to 9; (Max 20 mg in 24 h)
- 2 mg Intramuscular six times daily prn for MASS score of 7 to 9 and patient unable/unwilling to accept oral medications (20 mg in 24 h)
- 5 mg Oral four times daily prn if MASS score 10 or above; (Max 20 mg in 24 h)

Table 2 (continued)

Assess and record MASS now, then at 0900 and 2100 while awake

- Calculate MASS score based on behavior observed within the most recent 1 h
- If medication given, repeat MASS hourly until score is less than 4, then resume at 0900 and 2100 scoring schedule

- 5 mg Intramuscular four times daily prn if MASS score 10 or above and patient unable/unwilling to accept oral medications (Max 20 mg in 24 h)

O Olanzapine (Low Dose): Lower doses should be considered for the elderly, patients with low body weight, dehydration, and no previous exposure to antipsychotic medication

- 2.5 mg Oral three times daily prn for MASS score of 4 to 9; (Max 20 mg in 24 h)
- 2.5 mg Intramuscular three times daily prn for MASS score of 7 to 9 and patient unable/unwilling to accept oral medications (Max 20 mg in 24 h)
- 5 mg Oral three times daily prn for MASS score of 10 or above (Max 20 mg in 24 h)
- 5 mg Intramuscular three times daily prn if MASS score 10 or above and patient unable/unwilling to accept oral medications (Max 20 mg in 24 h) O Olanzapine (Standard Dose)
- 5 mg Oral three times daily prn for MASS score of 4 to 9; (Max 30 mg in 24 h)
- 5 mg Intramuscular three times daily prn for MASS score of 7 to 9 and patient unable/unwilling to accept oral medications (Max 30 mg in 24 h)
- 10 mg Oral three times daily prn for MASS score of 10 or above (Maximum 30 mg in 24 h)
- 10 mg Intramuscular three times daily prn if MASS score 10 or above and patient unable/unwilling to accept oral medications (Max 30 mg in 24 h) Notify Physician: Nurse to contact on-call physician if
- Maximum daily dose met for agitation medication,
- 3 or more doses of MASS protocol medication given in less than 4 hours, or
- Concerns for acute muscle stiffness

Source. Manning, et al., 2022. Used with Permission.

The primary aim of this project is to identify agitation and decrease agitation leading to restraint use and decrease restraint usage and the time spent in restraint episodes in an adult inpatient psychiatric facility. Participants were admitted to the unit with agitation ages 21-59 (n= 25) and assessed with MASS on admission. Total time in restraints before the intervention is compared with time in restraints after the project. The number of episodes of agitation in which de-escalation techniques start is also compared with restraints avoided due to increased staff skills. The project utilized a comparison to assess its effectiveness. The Paired Samples T-Test was used for comparison, indicating that the reduction in average restraint in minutes was statistically significant, $p<0.001$. For the 25 participants, the total number of minutes in restraints at the beginning was 365, or an average of 14.6 minutes per episode. At the end of the project, the total time in restraints was 159 minutes or an average of 6.4 minutes per episode. There was a 56% reduction of restraint in minutes within the eight weeks of the project, as **shown in Figure**

2. For the number of incidences of agitation comparison conducted, results showed that the total number of episodes of restraints during the project was 209. On day 1, the number of agitated episodes was 110, averaging 4 per participant. By the end of the project, only eight incidences of agitation were recorded, with an average of 0.3. In total, 102 agitated episodes may have been averted within the eight weeks of the project, as **shown in Figure 1.** The project demonstrates the effectiveness of nursing services preparedness to manage agitation, reducing the time of agitation and episodes of restraint and total time in restraint.

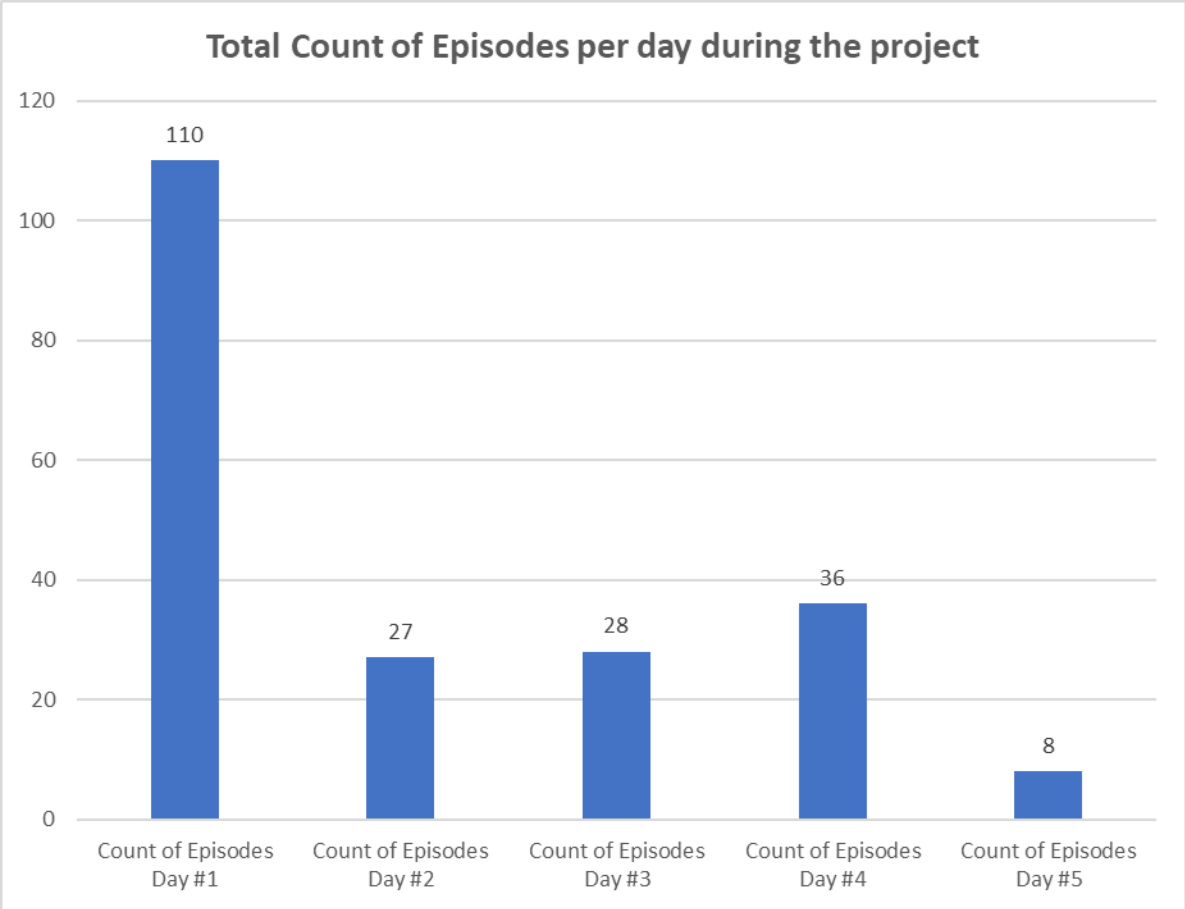

Figure 1

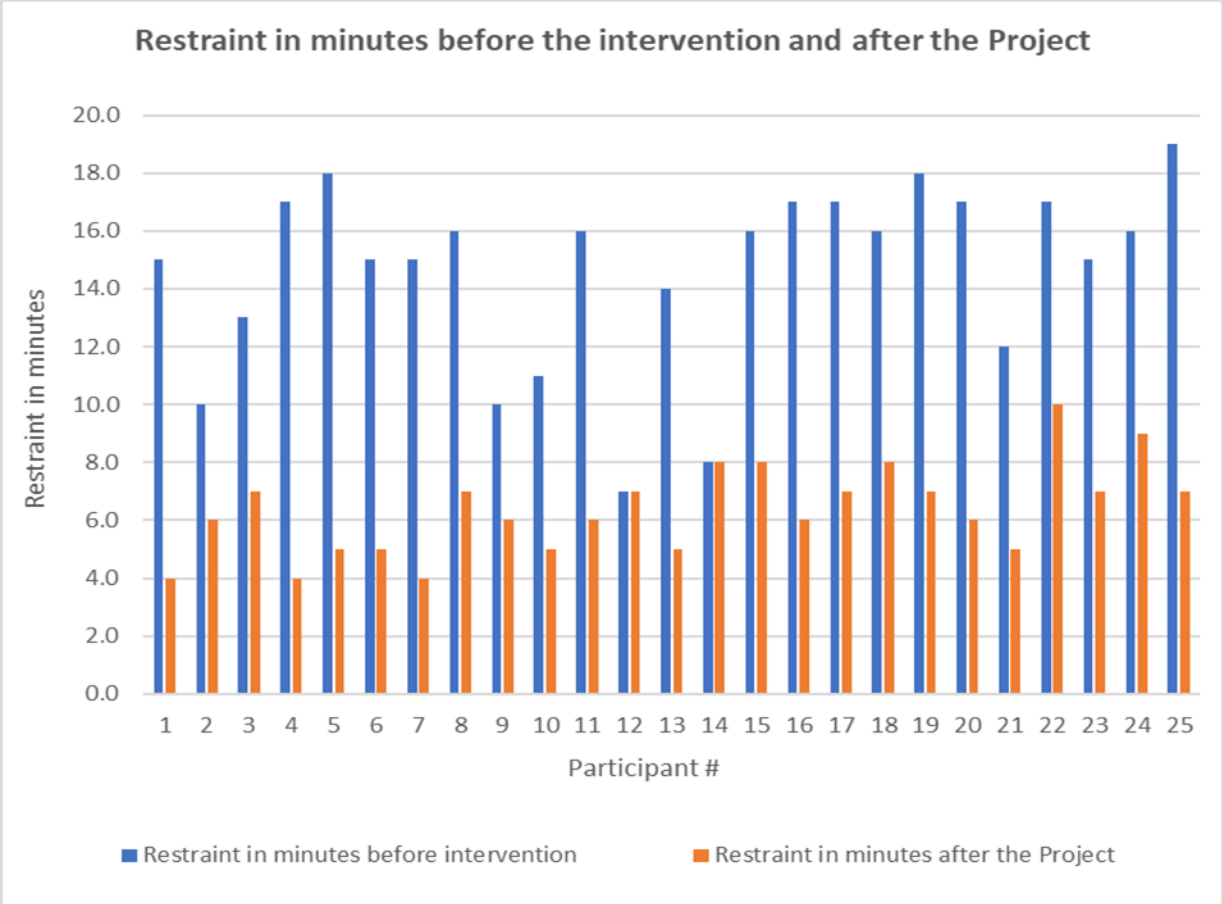

Figure 2

Findings

Based on the MASS scores, the project measured the reduced restraint and time spent in restraint episodes. Total time in restraints before the intervention is compared with time in restraints after the project. The number of episodes of agitation in which de-escalation techniques start is also compared with restraints avoided due to increased staff skills. The project utilized a comparison to assess its effectiveness. The Paired Samples T-Test was used for comparison, indicating that the reduction in average restraint in minutes was statistically significant, $p<0.001$. For the 25 participants, the total number of minutes in restraints at the beginning was 365, or an average of 14.6 minutes per episode. At the end of the project, the total time in restraints was 159 minutes or an average of 6.4 minutes per episode. There was a 56% reduction of restraint in

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Conclusions

QI projects focus on influencing practice change. In this project, the focus was establishing the effectiveness of assessment and management of agitation and de-escalation skills to decrease patient agitation. After conducting analysis, the project found that the intervention was effective in reducing agitation symptoms, thus reducing restraints and time spent in restraint episodes. A well-prepared nursing services preparedness for agitated behaviors is critical to reducing agitation and resulting restraint use. As a QI project, the findings are important in improving practices in psychiatric care and ensuring patient safety is guaranteed.

Limitations and Implications for Practice

The project utilized purposive sampling to select the participants for the project. This sampling method has its limitations. For instance, it can be biased by excluding a subgroup, such as participants below 21 years old and those above 59 years old. The sample size was also small. The project tackled restraints, which is a central coercive approach for ensuring safety or maintaining necessary treatment when patients pose a critical risk in a psychiatric mental health unit. This means that generalizability is essential in improving practice, and in small samples (25

Participants), generalizability may be problematic. However, as an evidence-based practice QI project, the findings will help add to the growing knowledge in psychiatric care. In this regard, the findings can present evidence supporting using assessment and management of agitation and de-escalation skills to decrease patient agitation, thus reducing restraints and time spent in restraint episodes.

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Appendix A: Modified Agitation Severity Scale (MASS)

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	Disorganized Thinking	1
	Emotionally Labile, Anxious, Nervous	1
	Unable to Reason	1
2	Spitting	2
	Getting Attention with Voice	2
	Darting Eyes	2
	Demanding	2
	Speaking more Quickly than the Baseline	2
	Angry Tone of Voice	2
	Persistent Disruptive Verbalizations	2
	Restless	2
3	Yelling, Audibly Louder than Baseline	3
	Unable to be Calmed	3
	Inappropriate Behavior	3
	"In Your Face"	3
	Decreased Self-Control, Impulsiveness	3
	"Puffed up," Chest Out, Threatening Posture	3
	Confrontational	3
10	Biting	10
	Throwing Objects	10
	Violating Self or Others	10
	Physical Violence to Self or Others	10
	TOTAL SCORE *(Maximum score 83)*	

Agitation Severity: 1 to 4: Very mild agitation

4 to 6: Mild agitation

7 to 9: Moderate agitation

Greater than 9: Severe agitation and/or violent

The total score is the sum of each present symptom multiplied by the weighted value for the section

Source. Manning, et al., 2022. Used with Permission.

Appendix B: MASS Agitation Treatment Protocol

Table 2 MASS Agitation Treatment Protocol

Assess and record MASS now, then at 0900 and 2100 while awake
- Calculate MASS score based on behavior observed within the most recent 1 h
- If medication given, repeat MASS hourly until score is less than 4, then resume at 0900 and 2100 scoring schedule

Agitation Score	Severity	Possible Treatment Interventions			
1–3	Very Mild	Behavioral Interventions			
4–6	Mild	Behavioral Interventions	Oral Medication		
7–9	Moderate	Behavioral Interventions	Oral Medication	Intramuscular Injection	
> 9	Severe and/or Violent	Behavioral Interventions	Oral Medication	Intramuscular Injection	Seclusion or Restraint

Behavioral Interventions

Speak with patient about frustration	Encourage patient to channel feelings into activity
Identify wants and feelings	Bring in alternative staff person
Quiet room	Staff directed time out
Encourage use of coping skills patient identifies as helpful	Redirect attention and offer choices
Encourage patient to engage in relaxation techniques	Offer fluids
Encourage self-time out	Offer food
Remove provoking stimuli	Offer nicotine replacement

Medication Interventions Choose one of the following:

O Lorazepam
- 1 mg Oral six times daily prn for MASS score of 4 to 9; (Max 8 mg in 24 h)
- 1 mg Intramuscular six times daily prn for MASS score of 7 to 9 and patient unable/unwilling to accept oral medications (Max 8 mg in 24 h)
- 2 mg Oral four times daily prn for MASS score of 10 or above (Maximum 8 mg in 24 h)
- 2 mg Intramuscular four times daily prn if MASS score 10 or above and patient unable/unwilling to accept oral medications: (Max 8 mg in 24 h) O Haloperidol
- 2 mg Oral six times daily prn for MASS score of 4 to 9; (Max 20 mg in 24 h)
- 2 mg Intramuscular six times daily prn for MASS score of 7 to 9 and patient unable/unwilling to accept oral medications (20 mg in 24 h)
- 5 mg Oral four times daily prn if MASS score 10 or above; (Max 20 mg in 24 h)

Table 2 (continued)

Assess and record MASS now, then at 0900 and 2100 while awake
- Calculate MASS score based on behavior observed within the most recent 1 h
- If medication given, repeat MASS hourly until score is less than 4, then resume at 0900 and 2100 scoring schedule

- 5 mg Intramuscular four times daily prn if MASS score 10 or above and patient unable/unwilling to accept oral medications (Max 20 mg in 24 h)

O Olanzapine (Low Dose): Lower doses should be considered for the elderly, patients with low body weight, dehydration, and no previous exposure to antipsychotic medication

- 2.5 mg Oral three times daily prn for MASS score of 4 to 9; (Max 20 mg in 24 h)
- 2.5 mg Intramuscular three times daily prn for MASS score of 7 to 9 and patient unable/unwilling to accept oral medications (Max 20 mg in 24 h)
- 5 mg Oral three times daily prn for MASS score of 10 or above (Max 20 mg in 24 h)
- 5 mg Intramuscular three times daily prn if MASS score 10 or above and patient unable/unwilling to accept oral medications (Max 20 mg in 24 h) O Olanzapine (Standard Dose)
- 5 mg Oral three times daily prn for MASS score of 4 to 9; (Max 30 mg in 24 h)
- 5 mg Intramuscular three times daily prn for MASS score of 7 to 9 and patient unable/unwilling to accept oral medications (Max 30 mg in 24 h)

- 10 mg Oral three times daily prn for MASS score of 10 or above (Maximum 30 mg in 24 h)
- 10 mg Intramuscular three times daily prn if MASS score 10 or above and patient unable/unwilling to accept oral medications (Max 30 mg in 24 h) Notify Physician: Nurse to contact on-call physician if
- Maximum daily dose met for agitation medication,
- 3 or more doses of MASS protocol medication given in less than 4 hours, or
- Concerns for acute muscle stiffness

Source. Manning, et al., 2022. Used with Permission

Appendix C: Literature Review Summary Table

Article Reference in APA Style	Purpose of the Article	Type of Research (Design)	Results	Level and Grade of Evidence according to the Evidence-based Model that you are using for your Project (Such as Johns Hopkins Nursing Evidence-based Model and Guidelines)
Background of Project Need				
Bruijin, W. D., Daams, J. G., Hunnik, F. J. V., Arends, A.J. Boelens, A. M., Bosnak, E. M., Meerveld, J., Roelands, B., Munster, B. C. V., Verwey, B., Figee, M., Rooij, S. E., & Mocking, R. J. T. (2019). Physical and pharmacological restraints in hospital care: Protocol for a systematic review. https://www.frontiersin,org/articles/10-3389	Physical and Pharmacological Restraints in Hospital Care.	Protocol for a Systematic Review	Results of this review may more optimally guide health professionals in their choice when to refrain from applying restraints in the hospital and when to use restraints in a safe way.	II
Chieze, M., Hurst, S., Kaiser, S. & Sentissi, O (2019). Effects of seclusion and restraint in adult psychiatry: A Systematic review. https://www.frontiersin.org/articles/10.3389	Effects of seclusion and restraint in adult:	A systematic Review	Seclusion and restraints have harmful physical or psychological consequences. Patients' preferences should be	III

			considered when deciding to apply these measures.	
Junrong, Y., Chen, W., Aixiang, X., Zhichun, X., Lin, Y., Jiankui, L., Yao, L., Yu, X. & Yunlei, Z. (2019). Physical restraint in mental health nursing: A concept analysis https://www.ncbi.nim.nih.gov/pmc/article	Physical restraint in mental nursing	A concept analysis	Physical restraint is a coercive approach that enables the administration of necessary treatment by safely reducing the patient's physical movement. It should be the last result used by providers.	III
Lee, T. K., Valimaki, M. & Lantta, T (2021). The knowledge, practices, and attitudes of Nurses regarding Physical restraints: Survey results from Psychiatric Inpatient settings. https://doi.org/10.3390/ijerph18136747	The knowledge and practice, and attitudes of Nurses regarding physical restraints	A survey results from psychiatric inpatient settings.	Nurses had a good restraint- related knowledge with satisfactory attitudes and practices, although their knowledge levels, attitudes, and practices regarding restraint varied. Having a higher age, seniority, and education level contributed to a higher restraint-related knowledge level.	III
Newton-Howes, G., Savage, M. K., Arnold, R., Hasegawa, T., Staggs, V. & Kisely, S (2020). The use of mechanical restraint in Pacific Rim countries: An International epidemiological study. https://www.cambridge.org/core/journals/epidemiology-and- pychiatric science/article/	The use of mechanical restraint in pacific rim countries	An International epidemiological study	Policies to reduce or abolish mechanical restraint do not appear to be effecting change. Greater effort at reporting, monitoring, and carrying out interventions to achieve the stated aim of reducing restraint is greatly needed	III
Project Purpose Statement-De-escalation				
Brening, D., Gade, P. & Voellm, B (2022). Is de-escalation training effective in reducing violent incidents in forensic psychiatric setting? A systematic review of the literature. https://doi.org/10.21203/rs.3.rs-1424930/v1	Is de-escalation training effective in reducing violent incidence in forensic psychiatric settings?	A systematic review of the literature	Positive changes are reported across a variety of outcome measures providing initial indication that de-escalation training might contribute to a reduction of aggressive incidences in forensic psychiatric.	II
Celofiga, A., Plesnicar, B.K., Koprivsek, J., Moskon, M., Bekovic, D. & Kumperscak, H.G. (2022). Effectiveness of De-	Effective of de- escalation in reducing	A cluster randomized study	De-escalation is effective in reducing the incidence of severity of	II

escalation in reducing aggression and coercion in acute psychiatric units. A cluster randomized study. https://www.frontiesin.org	aggression and coercion in acute psychiatric		aggression and the use physical restraints in acute psychiatric units.	
Haefner, J., Dunn, I. & McFarland, M. (2020). A Quality Improvement Project using verbal de-escalation to reduce seclusion and patient aggression in an inpatient psychiatric unit. https://www.tandfonline.com/journallnformation?journalcode	A quality Improvement project using verbal de-escalation to reduce seclusion and patient aggression in an inpatient psychiatric unit	A quasi-experimental design	The results of this study support the importance of educating nurses on verbal de- escalation to reduce patients placed in seclusion and decrease patients' aggressive behavior in the psychiatric settings.	III
Isobel, J., Owen, P., McPherson, P., Armitage, C. J., Brooks, H., Bee, P., Lovell, K & Brooks, C. P (2022). De-escalation of conflict in forensic mental health inpatient settings: A Theoretical domains framework-informed qualitative investigation of staff and patient perspectives. https://doi.org/10.1186/s40359-022-0735-6	A quality Improvement project using verbal de-escalation to reduce seclusion and patient aggression in an Inpatient psychiatric unit.	A quality research design	Staff motivation to engage in de-escalation may be increased through reducing perceptions of patient dangerousness via post-incident debriefing and advanced de-escalation planning.	II

Kabungu, P (2021). The impact of hand-on training in the implementation of verbal de-escalation techniques to manage trauma related aggressive behaviors in a forensic psychiatric facility. https://www.scitechnol.com/peer-review	The impact of hand -on training in the implementation of verbal de-escalation techniques to manage trauma related aggressive behaviors in a forensic psychiatric facility	A mixed research study (qualitative and quantitative)	Theoretical training coupled with-on-site experience increased nurses' self-efficacy in handling patient aggression and agitation, and that there was a higher understanding of de-escalation techniques among nurses, with decreased of agitation-related injuries in the unit.	III
Project purpose Statement -Decreasing Patient agitation				
Caruso, R., Antenora, F., Riba, M., Murri, M. B., Biancosino, B., Zerbinati, L. & Grassi, L. (2021). Aggressive behavior and Psychiatric Inpatients: A narrative review of the literature with a focus on the European Experience. https://doi.org/10.1007/s11920-021-0123-z	Aggressive behavior and Psychiatric Inpatient	A Narrative review of the literature	This review highlights the need to undertake initiatives aimed at enhancing understanding, prevention, and management of violence in general hospital settings across Europe.	II
Manning, T., Bell, S. B., Dawson, D., Kezbers, K., Crockett, M. & Gleason, O (2022). The utilization of a rapid agitation scale and Treatment Protocol for patient and staff safety in an Inpatient Psychiatric setting. https//doi.org/10.1007/s11126-022-10001-y	The utilization of a rapid agitation scale and treatment protocol for patient and	A Quantitative research	This finding suggest that including a rapid agitation assessment and protocol within	III

	staff safety in a psychiatric setting.		the EMR potentially improves nurses' perceptions of unit safety, helps assess treatment response, reduces time patients spend restrained, and supports decision making for nurses.	
Pompili, M., Ducci, G., Galluzzo, A., Rosso, G., Palumbo, C. & Berardis, D. ,D (2021). The management of Psychomotor agitation associated with schizophrenia or bipolar disorder: A Brief Review. https://doi.org/10.3390/ijerph18084368	The management of psychomotor agitation associated with schizophrenia or bipolar disorder.	A Brief Review	In cases where a patient presenting to the ED is subsequently admitted for observation and treatment, longer assessments may be useful for treatment planning purposes and decrease the likelihood of overlooking organic disease signs. To this extent, the brief agitation rating scale (BARS) is useful and practical scale for the assessment of agitation in a real-world context.	III
Roppolo, L. P., Morris, D. W., Khan, F., Downs, R., Metzger, J. Carder, T., Wong, A., H. & Wilson, M. P (2020). Improving the management of cutely agitated patients in the emergency department through implementation of project BETA (Best practices in the evaluation and treatment of agitation). https://doi;10.1002/emp2.12138	Improving the management of acutely agitated patients in the emergency department through implementation of project BETA.	A Qualitative research	Project BETA (Best practices in the evaluation and treatment of agitation) is a compilation of the best evidence and consensus recommendations developed by	III

			emergency medicine and psychiatry experts in behavioral emergencies to improve our approach to the acutely agitated patient.	
Wrong, A. H., Roppolo, L. P., Chang, B. P. ,Yonkers, K. A., Wilson, M. P. Powsner, S. & Rozel, J. S (2020). Management of Agitation during the covid-19 pandemic. https://escholarship.org/uc/uciem-westjem	Management of agitation during the covid-19 pandemic	A quantitative research	Patients presenting with agitation often present socioeconomically disadvantaged populations with significant health disparities. Individuals with homelessness, mental, and substance use abuse disorders. The project BETA guidelines focus on a noncoercive approach to manage these patients, emphasizing de-escalation, safety, risk assessment, and addressing potentially life-threatening medical concerns.	III

Appendix D: Letter to the Editor.

The Chief Editor of the Western Journal of Nursing Research,

To Vicki Conn,

Patient and staff safety is paramount in any Psychiatric inpatient unit. To assist in making this happen, I set out to implement a quality improvement project. Topic: Decreasing agitation, restraints, and time in restraint on an inpatient unit through improved staff implementations with patients to improve responsiveness. Keywords are Modified Agitation Severity Scale (MASS), Agitation, Quality Improvement (QI), Agitation Protocol, Physical restraint, and Psychiatric Mental Health Nurse Practitioner. In the project, I used 25 participants. I worked with the nursing staff to assess and increase the ability of nursing staff to identify and manage agitation and de-escalation skills to decrease agitation, restraints, and time in restraint on an inpatient unit. With this education, the staff implemented MASS to measure agitation, leading to more timely and appropriate intervention and effectiveness. I will greatly appreciate your critique of my findings. This is the only journal that I plan to submit the manuscript. The authors have no conflict of interest associated with this article.

Sincerely,

Jane P. Kilolong, PMHNP-BC, DNP Student.

University of South Alabama

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Appendix E: Word Count

Abstract: 250

Manuscript: 3191

Tablets and Figures: 841