2017

Sensory-based Group Treatment in Reducing Physically Acting-out Behaviors and Perceived Levels of Distress

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SENSORY- BASED GROUP TREATMENT IN REDUCING PHYSICALLY ACTING-OUT BEHAVIORS AND PERCIEVED LEVELS OF DISTRESS

Presented in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Occupational Therapy

Eastern Kentucky University
College of Health Sciences
Department of Occupational Science and Occupational Therapy

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2017

EASTERN KENTUCKY UNIVERSITY
COLLEGE OF HEALTH SCIENCES
DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY

Certification

We hereby certify that this Capstone project, submitted by Tiffany Barnette, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the project requirement for the Doctor of Occupational Therapy degree.

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This project, written by Tiffany Barnette under direction of Shirley O'Brien, Faculty Mentor, and approved by members of the project committee, has been presented and accepted in partial fulfillment of requirements for the degree of

DOCTOR OF OCCUPATIONAL THERAPY

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Executive Summary

Background: Mental health legislation over the last several decades has focused on restricting the use of seclusion and restraints within facilities receiving federal financial assistance. Facilities serving psychiatric populations have looked for strategies to eliminate the need for these forced interventions. One strategy is the use sensory-based treatment in occupational therapy intervention. Sensory approaches that have been adopted as 'best practice' include the use of sensory rooms, groups and kits to help users learn how to regulate psychological and emotional states of arousal.

Purpose: The purpose of this Capstone Project was to examine the effectiveness of a sensory-based group treatment program in relation to physical acting out behaviors. As a part of skilled occupational therapy treatment within an urban inpatient mental health hospital, a retrospective analysis was implemented to assess whether clients who participated in a sensory-based occupational therapy treatment group provided by a licensed occupational therapist showed a decrease in physical acting-out behaviors within 24 hours following the provided intervention.

Theoretical Framework: This Capstone Project was completed using the transformative worldview. The theory of sensory integration to provide participants with evidence-based strategies to reduce seclusion and restraints related to dealing with unwanted behaviors, and to provide client-centered coping techniques.

Methods: This Capstone Project was designed as a program evaluation utilizing retrospective analysis through the use of a PRECEDE-PROCEED Model of evaluation. of an occupational therapy treatment group.in an urban acute inpatient psychiatric hospital. This Capstone Project assessed the effectiveness of a sensory-based program used within the research facility to decrease unwanted behaviors and prevent the need for seclusion and restraint. Participants were

selected using convenience sampling of patients that resided on the two selected research units during time of data analysis. The Subjective Units of Distress Scale (SUDS) and the daily seclusion and restraint report were utilized as data collection methods to assess pre and post intervention responses from both the participant and occupational therapist/group leader.

Results: Paired t-tests revealed statistically significant results in client rankings their perceived level of distress before and after the provided sensory-based group intervention ($p < .05$). SUDS scores assigned by the occupational therapist/group leader for each client before and after the provided group intervention were also analyzed but did not show statistical significance. Clients displayed no acting out behaviors within 24 hours of attending group session.

Conclusion: This Capstone Project served as a pilot project providing insight into the effectiveness of sensory-based occupational therapy treatments used within the acute inpatient psychiatric setting. The results of this Capstone Project demonstrated positive outcomes related to using sensory-based strategies to reduce or eliminate unwanted behaviors. It also provides a basis for further research into how these forms of intervention could reduce the need for other forms of forced interventions or be utilized outside of the hospital setting in order for people living with mental illness to live in the community setting successfully.

Acknowledgements

I would like to thank all of the professors in the OTD program at Eastern Kentucky University for their dedicated investment to all the students. I want to especially thank Shirley O'Brien, Ph.D., OTR/L, FAOTA, Julie Baltisberger, Ph.D., OTR/L, Dana Howell, Ph.D, OTD, OTR/L, FAOTA, Colleen Schneck, ScD, OTR/L, FAOTA and Dory Marken, Ph.D., OTR/L, FAOTA for their endless support and assistance throughout this whole program. I don't think I could have made it through the Applied Leadership Program and Capstone Project without you.

I would also like to thank my place of employment and all the clients that participated in the program assessed by this Capstone Project. It is because of you that I do what I do and hope that together one day we can change the stigma of mental illness and make a world that encourages and supports you to be the best you can.

Lastly, I would like to thank my amazing husband and family for their never ending support. It is because of your continuous support and encouragement that I have made it through this program. I know there were times I was hard to handle from the stress but you never let me lose sight of the end picture. I hope I have made you proud.

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CERTIFICATION OF AUTHORSHIP

Submitted to (Faculty Mentor's Name): Shirley O'Brien
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Certification of Authorship: I hereby certify that I am the author of this document and that any assistance I received in its preparation is fully acknowledged and disclosed in the document. I have also cited all sources from which I obtained data, ideas, or words that are copied directly or paraphrased in the document. Sources are properly credited according to accepted standards for professional publications. I also certify that this paper was prepared by me for this purpose.

Student's Signature: Tiffany Barnette

Date of Submission: May 4, 2017

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SECTION ONE: NATURE OF PROJECT AND PROBLEM IDENTIFICATION

Introduction

In 2003, the Board of Directors of the American Occupational Therapy Association began the planning process of what is known as the Centennial Vision. When creating the Centennial Vision, one goal set by the Association membership was that occupational therapist would "enable people to improve their physical and mental health and enjoy higher quality of life through preventing and overcoming obstacles to participation in the activities they value" (AOTA's Centennial Vision, 2006). In the 10 years since this goal was set, the Vision's core tenets have furthered been defined in order to better communicate the importance of our presence in the ever-changing healthcare world. As a part of Vision 2025, occupational therapy will expand its impact on the changing health care system through advocacy that will help to change public and payer policies to include our profession as key players in the areas of discharge and transition planning, managing chronic health conditions (such as mental illness), and prevention of hospital readmissions (FY 2017 AOTA, 2016).

In 2015, the Substance Abuse and Mental Health Services Administration (SAMSA) included occupational therapists as suggested staff in the treatment of people with or at risk of serious mental illness, the profession would see a greater number of practitioners working within this practice setting. However, according to AOTA's *Workforce Trends in Occupational Therapy* (2015), in the year 2010 only 2.9% of therapists were working within the mental health field. This low number not only sheds light on the need for occupational therapists in the field of mental health but also further addresses the need for advocacy roles in promoting the unique and valuable contributions that occupational therapists can make in the mental health setting. In

2015, AOTA published an article titled “Occupational Therapy’s Distinct Value: Mental Health Promotion, Prevention and Intervention” in which three major levels of occupational therapy services related to mental health were described. These levels included intensive interventions in which clients are provided with a client-centered, recovery-based form of care to address functioning in a variety of occupations using psychosocial, self-management and environmental interventions (AOTA, 2015). The second level included that of targeted services in which both prevention of mental illness as well as the promotion of competencies to offset early symptoms were emphasized. (AOTA, 2015). Lastly, the third level includes that of universal services in which interventions focus on encouraging participation in health-promoting occupations, fostering self-regulation and coping strategies and promoting mental health literacy (AOTA, 2015). Thus, though the efforts of the professional organization, a unique role and contribution for occupational therapists in the treatment of mental illness has been set forth.

Within the practice of mental health, one area of research that has developed over the last 10 years is that of occupational therapy's role in reducing the use of seclusion and restraints and providing person-centered, trauma-informed alternate intervention strategies for addressing aggressive behaviors during times of emotional regulation crisis. As an evidence-based practice profession, one occupational therapy best-practice strategy in recent literature is the use of sensory-based treatment (LeBel & Champagne, 2010; Riahi, Dawe, Stuckey, & Klassen, 2016; Sutton, Wilson, Van Kessel & Vanderpyl, 2013). According to the evidence-based framework *Six Core Strategies to Reduce the Use of Seclusion and Restraint* (Huckshorn, 2006), sensory-based interventions were an area that emerged as a client-centered de-escalation strategy used to “de-escalate aroused states and eliminate the risk of restrictive responses” (Sutton, Wilson, Van Kessel, & Vanderpyl, 2013, p. 501). Strategy four focused on the use of preventive and proactive

tools that could be encouraged as alternatives to seclusion and restraints. Within their study, Riahi et al. (2016) described the role of occupational therapists in helping clients to learn regulation and organizational strategies for sensory input. Through these therapy services, clients were able to recognize and reduce distress and self-regulation of mood and behaviors.

SAMHSA (2015) supports prevention strategies focused on helping individuals develop the knowledge, attitudes, and skills they need to make good choices or change harmful behaviors as one of the first steps in treating and managing mental illness. The American Psychiatric Association further supported this idea through successful case studies presented in the online article titled "Learning from Each Other: Success Stories and Ideas for Reducing Restraint/Seclusion in Behavioral Health*"* (2017). These case studies found a 97% decrease in seclusion episodes within a two-month time period, and a 53% decrease in seclusion episodes within a three month period as a result of implementation of alternative intervention strategies.

Currently within the agency where the study took place, as needed medications, more commonly referred to as *pro re nata* (PRN) medications, are utilized as the first form of intervention when dealing with unwanted behaviors. With this form of treatment, clients within the acute inpatient psychiatric setting are not being provided the opportunity to learn and utilize self-regulating prevention strategies that may help to reduce the need for pharmacological and physical forced interventions. This Capstone Project focused on providing clients with alternative client-centered, trauma informed, recovery focused intervention strategies such as sensory-based self-regulation skills that may be used in times of crisis as opposed to pharmacological and forced interventions. Since Congress passed the Children's Health Act in 2000 restricting the use of seclusion/restraint within facilities receiving federal financial assistance (NAPAS, 2004), the treatment of mental illness and substance abuse has moved

toward the idea of person-centered recovery. This Capstone Project not only supports this form of treatment, but adds to the knowledge of client-centered care and that of the need to decrease the amount of forced treatments used to deal with physically aggressive behaviors related to mental illness.

Problem Statement

When the initiative to reduce and/or eliminate the use of seclusion and restraints within mental health facilities began; psychiatric hospitals such as the agency, where the study took place, began searching and implementing ways in which to meet this nationally set outcome. Through the skilled collaboration of symptom and behavior management, a person-centered model of care was developed in order to provide a more humane and collaborative approach to the dynamics of crisis prevention and intervention. One behavior management tool implemented was that of sensory-based interventions in order to reduce physical acting out behaviors. Champagne & Stromberg (2004) researchers and seasoned mental health practitioners, along with Moore and Henry (2002) and Reeves (2001) suggest that when a client is provided with knowledge on self-regulation as related to sensory preferences, they become more aware of their sensory preferences, better enabling them to make necessary adjustments to their environment and/or responses, ultimately decreasing the need for outside intervention.

First researched by A. Jean Ayres (1973), sensory-based approaches have more traditionally been seen in practice areas such as pediatrics. Using her knowledge of neurobiology, Ayres developed various types of sensory integration deficits and the related deficits in motor learning, academic abilities, attention and behaviors seen in many children with learning disabilities and physical dysfunctions (Schaaf & Nightlinger, 2007; Smith-Roley, Mailloux, Miller-Kuhaneck & Glennon, 2007). In her work, Ayres conceptualized dysfunction

in sensory integration (DSI). DSI is defined as the "inability to modulate, discriminate, coordinate or organize sensation adaptively" (Ayres, 1979, p. 3). As research has progressed and the theory of sensory integration has been furthered studied, these practices have moved outside of the pediatric world and into practices focusing on geriatrics, adults with developmental disabilities and treatment of people with severe mental illness. Champagne and Frederick (2011) discussed studies linking deficits in higher order cognitive function and sensory processing patterns in clients diagnosed with schizophrenia. While it is well established in the literature written by Champagne and Frederick (2011) that there are a significant links between cognitive deficits and functional outcomes of schizophrenia, further research has shown that dysfunction in sensory integration may also play an integral part in the treatment and maintenance of mental illness (Phillips & Seidman, 2008; Yeap, Sehatpour, Mango, Garavan, Thakore, 2008).

With the increase of research into the benefits of sensory based approaches to mental health care; a range of sensory approaches has been adopted as a form of 'best practice'. Approaches such as sensory rooms, groups and kits have helped consumers to learn how to regulate physiological and emotional states of arousal (Chalmers, Harrison, Mollison, Molloy & Gray, 2012; Cummings, Grandfield & Coldwell, 2010; Moore, 2015; Scanlan & Novak, 2015). These strategies are "highlighted as non-invasive self-directed and empowering interventions that may support more recovery-oriented and trauma-informed care" (Scanlan & Novak, 2015, p. 278). However, the literature into the effectiveness of specific sensory-intervention programs is lacking. This Capstone Project investigated participation in a structured sensory-based occupational therapy group and the relationship to decreasing physically acting out behaviors. The sensory-based group follows the curriculum designed by Moore (2015) in which focus on

assisting with self-regulation as alternatives to reducing the occurrence of physical acting-out behaviors is purported.

Purpose of the Project

The purpose of this Capstone Project was to examine the effectiveness of Moore's (2015) sensory-based group treatment program *The Sensory Connection Program: Curriculum for Self-Regulation* in relation to physical acting-out behaviors. As a part of skilled occupational therapy treatment within an urban inpatient mental health hospital, the intent of implementing this retrospective analysis was to assess whether clients who participated in a sensory-based treatment group provided by a skilled occupational therapist showed a decrease in physical acting-out behaviors within 24 hours following the provided intervention.

Project Objectives

This Capstone Project addressed both national and organizational objectives related to the decrease of seclusion and restraints as related to unwanted behaviors. Supported by statements made from the advocacy group SAMHSA (2015), the US Government and the Joint commission; the use of seclusion and restraints should be used as a last resort treatment. Instead as an alternative, institutions have been encouraged to focus more on a person-centered model of care. As one of the treatment outcomes at the facility where the study took place, the use of sensory-based interventions allowed the institution to meet the objective of providing person-centered, trauma-informed care. In addition, it provided clients with methods to emotionally regulate and control their behaviors in order to enhance their overall mental health (King & Rabauliman, 2011).

Along with meeting national and organizational objectives, this program development model was designed to explore the use of sensory-based treatment on clients' abilities to self-regulate and modulate sensory input as it relates to physically aggressive behaviors. Two hypotheses were explored in this Capstone Project relating to perceived levels of distress and aggressive behaviors. The first hypothesis stated that patients who participate in the provided sensory-based intervention will show a decrease in perceived levels of distress according to the SUDS scale ratings obtained before and after the provided group intervention. The second hypothesis stated that patients who participated in the provided sensory-based intervention will display no physically acting out behaviors during the 24 hours following their participation in the provided group session.

Theoretical Framework and Scientific Underpinning

The worldview that most aligns with this Capstone Project is that of the transformative worldview. Creswell (2014) defines transformative research as that "which contains an action agenda for reform that may change lives of the participants, the institutions in which individuals work or live, and the researcher's life" (p. 9). Many times, the transformative worldview focuses on issues such as empowerment and oppression in marginalized populations/groups. As a population, people living with mental health diagnoses face challenges in their day-to-day life. These challenges can result in hospitalization, at which time they are stripped of many of their freedoms. During the hospitalization, these clients may face a crisis situation in which oftentimes can result in physically aggressive behaviors. Inpatient hospitalizations are typically shaped within the context of medical model interventions, including pharmacological interventions to treat symptoms and unwanted behaviors. Through this model, mental illness is looked at and treated the same as if a client were to have a physical disability. Outward symptoms are thought

to be signs of inner physical illness, therefore through medical and physical interventions; the mental illness can be treated (McLeod, 2014; Shi & Singh, 2015). This provides an explanation of why when these behaviors are demonstrated, clients are either forced to accept medications that help control behaviors or are placed into seclusion and/or restraints. From the transformative worldview, this form of intervention oppresses clients' abilities to manage their own symptom burden and denies them the right to gain knowledge of how to live a socially acceptable life with a mental illness without pharmacological supports. In addition, the opportunity for them to learn and utilize self-regulation skills that are needed to function outside of the hospital setting are reduced.

Within the general mental health system of care, the recognition of the value and need for sensory-based interventions as a way to address self-regulatory concerns has become more evident (Chalmers, Harrison, Mollison, Molloy & Gray, 2012; Champagne, Koomar & Olson, 2010) . Influenced by studies first conducted by Champagne & Stromberg (2004) on the effectiveness of sensory-based treatments in mental health, this Capstone Project followed the theory of sensory integration. On the website *OT-Innovations*, Champagne (2016) states that sensory-based approaches in the treatment of mental health are "instrumental in facilitating both crisis prevention and reduction, ultimately shifting the deliverance of care within psychiatric settings to a more safe, trauma-informed and person-centered model of care". Thus, sensory-based intervention provides an alternative or conjunctive treatment model that not only supports the client's management of health but also fits within the medical model world.

Significance

This Capstone Project demonstrates significance to practice through allowing for client-centered, trauma-informed, and recovery-based care to be provided within the acute psychiatric

inpatient setting. With the use of evidence based research, this Capstone Project delivers high quality of healthcare through empowering the clients' participation in dealing with their diagnosis. Chalmers, Harrison, Mollison, Molloy and Gray (2012) state that providing sensory groups within the psychiatric setting "allows consumers to discuss, explore and better understand their own sensory diets and preferences, and how these can be used to their benefit during time of need, to support empowerment and wellness" (p. 36). Sutton, Wilson, Van Kessel and Vanderpyl (2013) further supported this form of intervention as it broadens the focus of de-escalation practice and encourages shared responsibility between clients and healthcare providers.

Healthcare outcomes set by the National Alliance for Mental Illness (NAMI) (2014) state that if a person receives compassionate, respectful, person-centered care they are more motivated to follow up with further care. Person-centered care includes both interactions between staff and clients, and the environment in which care is provided (Barton, Johnson & Price, 2009; Cookson, Daffern & Foley, 2012; Patterson, 2009). Sutton et al (2013) state "the creation of physical and social environments that not only reduce aversive stimuli, but also communicate safety and comfort may aid in shifting the affective state of an agitated person" (p. 506). Through this shift, a thoughtful outcome to aversive stimuli can be elicited rather than resulting in an impulsive response such as aggression. This shows significant importance in meeting healthcare outcomes and delivery standards set forth by the US government and other regulating bodies of healthcare as it relates to treatment of mental illness.

Summary

Current treatment options within acute inpatient psychiatric hospitals focus on providing client-centered care without the use of seclusion and restraints. The use of evidence-based interventions are needed in all areas of mental health practice. Sensory-based treatment groups provided in inpatient psychiatric units reduce the amount of physical aggression displayed by clients. This Capstone Project further develops the evidence related to sensory-based intervention by occupational therapists within the practice area of mental health along with demonstrating significance related to institutional, local and state healthcare outcomes, healthcare delivery and policy.

SECTION TWO: REVIEW OF LITERATURE

Introduction

Background information relating to the effects of sensory-based approaches in reducing physical acting-out behaviors were retrieved through an internet search of current periodicals using the keywords of "acting-out behavior", "mental illness", "sensory interventions" and "emotional regulation". Academic Search Complete was used to review current research that identified effective interventions/strategies and current programming used to decrease the amount of physical acting-out behaviors as related to sensory and emotional regulation. The Cochrane Library, Occupational Therapy Journals and other journals related to the field of psychiatric care were reviewed.

Role of Occupational Therapy in Mental Health

As the profession of occupational therapy celebrates its 100th anniversary in 2017, one can't help but to think back on where the profession started and how it has evolved over the past 100 years. With ongoing focus on defining our roles and philosophical foundations within the healthcare world, one area of practice that continuously requires advocacy and role delineation is that of mental health. The practice area of mental health was one of the first treatment areas where occupational therapy made its impact. As early as 1934, Barager recognized occupational therapy as one of the most beneficial forms of treatment for those with mental health issues. Occupational therapy provided a form of contact with reality, helped to develop self-esteem, and provided an appropriate therapeutic outlet for suppressed emotions (Sedgwick, Cockburn & Trentham, 2007). Early authors, Howland (1934) and Watts (1934) described the benefits of occupational therapy intervention as a means to "diverting the mind from unpleasant thoughts

and thus hastening recovery through a positive and optimistic attitude" (Sedgwick et al. 2007, p.6).

In 2003, the Board of Directors of the American Occupational Therapy Association began the planning process of what is known as the Centennial Vision. When creating the Centennial Vision, one goal set by the Association membership was that occupational therapist would "enable people to improve their physical and mental health and enjoy higher quality of life through preventing and overcoming obstacles to participation in the activities they value" (AOTA's Centennial Vision, 2006). In the 10 years since this goal was set, the Vision's core tenets have furthered been defined in order to better communicate the importance of our presence in the ever changing healthcare world. As a part of Vision 2025, occupational therapy will expand its impact on the changing health care system through advocacy that will help to change public and payer policies to include our profession as key players in the areas of discharge and transition planning, managing chronic health conditions (such as mental illness), and prevention of hospital readmissions (Vision 2025, 2016).

Interventions for Reducing Seclusion and Restraints

As the profession moves towards a greater focus on mental health promotion, prevention and management, one key aspect of evaluation and treatment of mental health is that of managing aggressive behaviors related to symptom burden. One long-standing treatment method for dealing with physically aggressive behaviors in many mental health settings has been the use of seclusion and restraint. However, in 1998 the *Hartford Courant* published an article highlighting the dangers and side effects of this intervention not only on clients but also on those who must implement this traumatizing method of control as cited in Weiss, Altimari, Blint, & Megan (1998). As a result of this article, Congressional diplomats called for a revision of current

mental health interventions related to aggressive behaviors, with the ultimate goal of eliminating the use of seclusion and restraints (Huckshorn, 2006). One solution implemented in many mental health facilities in place of the use of mechanical restraints is that of pharmacological interventions to control unwanted behaviors. While this form of intervention is an effective alternative to physical restraints, many regulating agencies still consider the use of these medications as chemical restraints. Pharmacological intervention fails to address the underlying issue related to aggressive behaviors; the deficits in a clients' ability to regulate emotional responses.

Emotional Regulation and Aggression

A recent review of research into the role of emotional regulation as related to aggression found clear evidence that maladaptive emotional regulation can cause aggressive behaviors (Perkins, Prosser, Riley & Whittington, 2012; Roberton, Daffern & Bucks, 2012; Sutton, Wilson, Van Kessel and Vanderpyl, 2013). Sutton et al. (2013) supports this link through providing the example of under and over regulation as related to aggression. They state that "under-regulation of emotions, particularly anger, usually becomes aggressive as a way to terminate difficult emotional situations, while over-regulation contributes to aggression by increasing physiological arousal and raising the likelihood of activating suppressed emotional triggers" (Sutton et al., 2013, p. 501). While many practitioners have a basic understanding of how to address aggressive clients, many do not understand the significance of the link between emotional regulation and aggression. Instead, front-line staff such as nurses are taught to view the pathway to aggression as a preference that does not allow for an arousal process that could be recursive and capable of self-regulation (Richter, 2006). Therefore, when this top-down approach of clinical responses does not reduce the aggressive behaviors, seclusion and restraint, whether pharmacological or

mechanical, are chosen as the only remaining option for de-escalation (Perkins, Prosser, Riley & Whittington, 2012).

However, in recent research, this view of managing aggression has been rejected and the idea that aggression can be influenced by the ongoing interaction between a person and their environment has been further developed (Oud, 2006; Paterson , Bowie, Miller & Leadbetter, 2010; Richter, 2006). With the focus placed on reducing seclusion and restraints while still safely managing aggression, one area of research that has developed over the last 10 years is that of occupational therapy's role in providing person-centered, trauma-informed alternate intervention strategies. As a profession that prides ourselves on the use of evidence-based practice, one strategy that has been cited in recent literature as a form of best practice is the use of sensory-based treatment (LeBel & Champagne, 2010; Riahi, Dawe, Stuckey, & Klassen, 2016; Sutton, Wilson, Van Kessel & Vanderpyl, 2013). According to the evidence-based framework, *Six Core Strategies to Reduce the Use of Seclusion and Restraint* (Huckshorn, 2006), sensory-based interventions are one area that emerged as a client-centered de-escalation strategy used to "de-escalate aroused states and eliminate the risk of restrictive responses" (Sutton, etal. 2013, p. 501). Thus, the role of occupational therapy has emerged within the evidence-based literature to offer alternatives to seclusion and restraints.

Six Core Strategies to Reduce the Use of Seclusion and Restraint

When the campaign to eliminate seclusion and restraint began; the National Association of State Mental Health Program Directors' (NASMHPD) (2014) received funding from SAMHSA to develop a curriculum that would address the problem of seclusion and restraint in inpatient settings. After meeting with individuals with lived experiences of seclusion and restraints, conducting thorough literature reviews and leading work sessions with national

experts who have successfully reduced the use of seclusion and restraint within their work settings, the Six Core Strategies were developed (Huckshorn, 2006; Huckshorn & LeBel, 2009; NASMHPD, 2014).

Using the prevention-oriented, trauma- informed care framework that approaches restrictive procedures as a problem that must be reduced for quality improvement (LeBel, Duxbury, Putkonen, Sprague, Rae & Sharpe, 2014), the six core strategies include: (1) active leadership toward organizational change; (2) using data to inform practice; (3) developing the workforce; (4) using restraint and seclusion prevention tools; (5) actively including consumers and advocates in the care setting and (6) rigorously debriefing restraint and seclusion events after they occur. To make implementation of this framework easier for institutions, "each strategy was developed into a didactic presentation using current literature, practice-based evidence, and pragmatic examples of specific implementation task associated with each strategy" (LeBel, Duxbury, Putkonen, Sprague, Rae & Sharpe, 2014, p. 24). Using these tools, institutions are able to develop a restraint/seclusion reduction/prevention action plan that is supported through evidence based research while allowing these institutions to assess their change efforts against multiple activities over time (Human Services Research Institute, 2009; NASMHPD, 2014).

While all the strategies focus on developing a reduction/prevention action plan, strategy four specifically relates to the use of interventions. Strategy four (Huckshorn, 2006) focuses on the use of preventive and proactive tools that can be used to prevent behaviors that often result in forced intervention. Several researchers have completed studies examining these preventative and proactive tools, with several supporting the use of sensory input. Researchers Miller, Coll & Schoen (2007) along with Ogden, Mintton & Pain (2006) concluded that through sensory input clients were shown how to moderate arousal and become aware of their emotions. This equipped

the clients with strategies and tools for containing their emotions so that adaptive behaviors can be engaged both in the mental health facility and upon release to the community setting. Sutton et al. (2013) discuss how through supporting clients to recognize their sensory sensitivities, we as occupational therapist encourage clients to be responsible for their behaviors and use self-regulation to deal with problems.

Sensory Approaches and Aggression

Even though we are encouraging the use of self-regulation skills in order to manage aggression, we as occupational therapist can still help clients to develop these skills. Sutton et al. (2013) states that through reducing aversive sensory stimuli and creating a sensory friendly environment we can shift the affective state of a client to a thoughtful outcome rather than an impulsive response such as physical aggression. This form of intervention helps to create a sense of control for clients. SAMHSA (2015) states that "prevention strategies focused on helping individuals develop the knowledge, attitudes, and skills they need to make good choices or change harmful behaviors" is one of the first steps in treating and managing mental illness. By providing clients with sensory-based coping skills, they are able to regulate their emotions, think clearly and influence their immediate environment and redirect their behaviors away from aggressive actions (Sutton et al, 2013).

"Sensory approaches have been highlighted as non-invasive, self-directed and empowering interventions that support recovery-oriented and trauma-informed practice" (Scanlan & Novak, 2015, p. 283). One of the key focuses for treating those with mental illness using the recovery model is that patients have a choice in their treatment decisions. In this model, clients are able to focus on having a life that is not deficit and symptom focused, but instead instills hope for a process of change that allows clients to improve their overall health and

wellness, live self-directed lives and strive to reach their full potential (Science Meets the Human Experience, 2017). Through the use of providing sensory-based interventions such as comforts rooms and sensory focused coping strategies, patients are being provided with choices in symptom management that can oftentimes be transferred outside of the hospital setting (Knight, Adkison, & Kovach, 2010) These approaches and programs have not only been successful in reducing the use of seclusion and restraints but they also provide a form of intervention that can be used with all stages of mental illness and cognitive impairment. Knight et al. (2010) state sensory environments provide demand free interventions that do not require cognitive nor memory to understand or feel accomplished in controlling their emotions and behavioral responses. Thus, leading to the need for occupational therapist to continue research into this area of practice and how we as a profession can contribute to this knowledge.

Summary

Much of the research that was found throughout this literature review focused on providing sensory-based approaches through environmental adaptations and individual therapeutic interventions. One area that research is lacking as related to sensory-based interventions is that of providing intervention within a group setting. Knight et al. (2010) state "one effective method for introducing sensory tools is through sensory intervention groups". Through the group process, sensory choices can be explored and patients may identify effective individual coping strategies. In many psychiatric settings symptom management strategies are consistently being explored. Therefore, with the evidence found throughout this literature review and with the implementation of this Capstone Project, evidence supporting the benefits of sensory-based approaches within the treatment of mental health will be further developed.

SECTION THREE: METHODS

Project Design

This Capstone Project was designed as a program evaluation model utilizing retrospective analysis in a PRECEDE-PROCEED Model of evaluation. Through this form of evaluation, practitioners are able to better understand the complexity of a health problem and provide intervention that focuses on addressing this targeted need (Doll, 2012). As part of skilled occupational therapy treatment within the research agency, sensory-based group intervention is provided weekly on five locked inpatient units. The use of sensory-based interventions have been implemented within the psychiatric setting as a means to provide client-centered coping strategies as an alternative intervention method to de-escalating unwanted behaviors. This Capstone Project was designed to assess the effectiveness of the use of these strategies on two of the five inpatient units.

This study was considered to have minimal risk for the participants and the research agency. Those clients that chose to participate encountered no more risk through participation in the provided intervention. Although the clients were encouraged to participate for the entire group session, the option to leave the group or not to participate was available for the clients to choose at their own will. The Institutional Review Board at the facility and Eastern Kentucky University approved the project taking place as a part of standard treatment in the occupational therapy department.

Setting

The setting chosen for this Capstone Project was an urban acute inpatient psychiatric hospital located in central Kentucky. The research agency is a state owned hospital that is managed through a local healthcare system and provides psychiatric care to adults ages 18 and

over with severe and persistent mental illness. The areas served include more than 50 counties surrounding the research agency. This research agency was chosen due to ease of access as the researcher works full time within the facility.

The agency consists of five locked inpatient units, three of which are mixed sex units and two that are same sex units. The two units that were chosen for analysis in this Capstone Project are mixed sex units consisting of 20-25 clients with approximately equal numbers of males and females per unit. These two units were chosen to participate within the research study based on job assignment and the diversity of clients that are housed on each of these two selected units.

Identification of Participants

Participants for this study were selected using convenience sampling of patients that were residing on the selected units during the time period of the study analysis. For this study the inclusion criteria for participants consisted of clients residing on the two locked units which house both males and females ranging in age from 18 to 65+ years of age. Groups were held on the two selected units and included clients of all four types of supervision levels. Prior to the beginning of the group session, a general announcement was made over the unit intercom inviting all patients on the unit to participate in the group. No patient was turned away from group but the expectation to stay and participate the whole group session in order to collect accurate data was requested.

Data Collection and Instrumentation

Two data collection tools were used pre and post group sessions to collect effectiveness of data. The Subjective Units of Distress Scale (SUDS) is a one-item Likert-type subjective distress scale that ranges from 0 to 10 (Kim, Bae & Park, 2008). According to the Likert-scale, 0

indicates a state of absolute calmness and 10 indicates a person is experiencing the worst distress ever (Kim, et al., 2008). One important feature of the SUDS scale is that it is subjective in nature. The data collected from the scale comes from a perspective of the individual experiencing the distress. As a subjective instrument, the SUDS scale can have both positive and negative indications for data collection. Positive aspects of the SUDS scale include self-report from the client's perspective along with predictive validity. In the research study conducted by Kim et al. (2008) the SUDS scale showed predictive ability when used as a rating scale for anxiety levels pre and post treatment intervention. This meant that when the SUDS scale was used at the end of the first intervention session it was able to predict overall treatment responses at the termination of intervention. This finding of predictive ability is significant when using the SUDS scale to rate intervention as it may indicate how well a client will respond to treatment intervention. While the SUDS scale provides a clients' perspective on their own distress level, this can also be a possible limitation to data collection. For example, when using the SUDS scale, focus should be placed on rating only one distressing emotion. This may cause conflict with data collection in the sense that a client may rate their level of anxiety at the beginning of the provided intervention but depending on what the intervention focuses on, the rating post group may be based on a different emotion such as anger, loneliness or sadness (Kim et al., 2008).

Data collected using the SUDS scale included both the perception of the client and the therapist. Before each group session, the clients who chose to participate in group rated their perceived distress level using the SUDS scale. The therapist conducting the group/researcher then rated the clients perceived distress level based on the clients' behavior coming into the group. The client and therapist then re-rated the clients perceived distress level following the

conclusion of each group session. While the SUDS scale is created as a data collection tool for participants to self-rate, the therapist/group leader also rated the clients perceived levels based on the knowledge that individuals with mental health concerns may have questionable insight. This form of data collection is defined by Creswell (2014) as a one-group pretest-posttest design in which a pretest measure is followed by a treatment and a posttest for a single group of participants.

The use of daily seclusion and restraint reports were also used to collect data related to patient acting-out behaviors. Every morning the occupational therapist/researcher received a report on the preceding day and nights incidences, as standard unit practice in the facility. Since the researcher had set the hypothesis that clients' who participated in the group sessions would show a decrease in physical acting-out behaviors within the 24 hours following group implementation, the researcher used these reports to track group participants' behaviors. If a client who participated in the group session appeared in the report for physical acting-out behaviors; the date, time and incidence was recorded as a typical part of occupational therapy treatment protocol and the on the data collection form (Appendix B).

Outcome Measures

This Capstone Project served as a program evaluation tool using the PRECEDE-PROCEED Model to analyze the impact that a person-centered, evidence-based program had on decreasing physically acting-out behaviors (Doll, 2012). To evaluate the success of this sensory-based program on the amount of physical acting-out behaviors, the use of impact evaluation was employed. "Impact evaluation explores the impact of the program itself, monitoring the program throughout implementation and at final outcome" (Doll, 2012, p. 284). Through the use of pretest posttest data analysis, change in SUDS scores and physical acting out behaviors were compared.

Procedures

The Capstone Project included 10 weeks of occupational therapy intervention in a group setting. Each week one 45 minute sensory-based treatment group was provided on two inpatient locked psychiatric units. This length was determined based on standard group treatment time within the research agency. The group sessions were designed based on the group treatment program created by Karen Moore, OTR/L titled the *Sensory Connection Program, Curriculum for Self-Regulation* (2015). As a ten session skill-building group program, this curriculum was chosen for this Capstone Project as it is "designed to be used for acute and long-term mental health care serving clients with a wide range of cognitive abilities" (Moore, 2015, p. VII). The materials for each group were chosen based on the next sequential group session going from 1-10 as designed by Moore (2015). Sessions included focus on topics such as managing stress through healthy habits, dealing with bothersome sensory experiences and developing a crisis intervention and safety plan (Moore, 2015).

Within the research agency, different levels of supervision are assigned per patient based on behaviors and psychiatric stability. The supervision levels consist of the following: 1:1 observation, line of sight, safety and support. For these levels, 1:1 observation indicates that a staff member must be within arm's reach of the patient at all times. Line of sight is defined as a staff member within line of sight of the patient at all times. Safety level means that the patient is not allowed to leave the locked unit but routine unit supervision is provided, meaning that a staff must place eyes on the patient every 15 minutes. Lastly the support level is defined as the least restrictive supervision level and indicates that the patient is allowed off the unit to participate in activities that might take place within the rehabilitation department or other locations such as the outside courtyards and community outings.

Prior to beginning each session, the participants and the therapist evaluated the clients perceived distress level using the SUDS scale. The therapist then provided the group intervention as laid out by the curriculum for that selected session. Following completion of the group session, the client and therapist again rated the clients' perceived distress level using the SUDS scale. Along with documenting the SUDS scale ratings, demographic information such as gender, age, and diagnosis were also collected.

Within 24 hours of providing the group session, the daily seclusion and restraint report was checked to identify if any of the participants from the previous day's group displayed physically acting-out behaviors. If so, these behaviors were documented and tracked throughout the research time frame. The collected information was stored on a secure locked computer along with a paper form within a binder that was within the possession of the researcher at all times or locked within the researcher's desk within the researcher's locked office.

Validity

During the course of this Capstone Project, several threats to internal and external validity were addressed. One threat to internal validity that occurred on multiple occasions was that of mortality. Creswell (2014) defines mortality as when "participants drop out during an experiment due to many possible reasons" (p.175). This threat was likely due to the nature of the research agency. As an acute care facility, admission and discharge from the facility are always unknown. Therefore, a participant may be discharged in the middle of the study time. However, due to our facilities' high readmission rate secondary to symptom burden, the same participant may return to the hospital and begin again in the research study during the 10 week time frame.

For this Capstone Project, validity was enhanced through strategies such as spending prolonged time within the research agency. Creswell (2014) states "the more experience that researchers have with participants in their settings, the more accurate or valid the findings will be" (p. 202). I worked within the research agency for four plus years, therefore it can be assumed that I have prolonged experience with the selected research population. Based on this experience I am able to reduce the risk of participants' mortality as a risk to validity during a single group session. My skilled encouragement and redirection skills will be used to explain the importance of full participation within the group sessions, hopefully resulting in all participants who begin a group session ending a group session.

Data Analysis

Data related to perceived client distress levels and physical acting-out behaviors displayed by clients who participated in the group sessions were gathered. Using the data analysis software SPSS 23, descriptive statistics and paired sample T-Test were used to calculate *t* and *p* (sig 2-tailed) scores to analyze the effect of the intervention on perceived levels of distress (Creswell, 2014).

SECTION FOUR: RESULTS AND DISCUSSION

Introduction

This Capstone Project was designed as a program evaluation model that utilized retrospective analysis in a PRECEDE-PROCEED Model of evaluation. Using quantitative data, this Capstone Project assessed the effectiveness of sensory-based interventions within a psychiatric setting as a means to provide client-centered coping strategies as an alternative intervention method to de-escalate unwanted behaviors. This section provides demographic

details of the participants, along with analysis of data collected during the skilled occupational therapy sensory-based groups that were provided weekly on two locked inpatient units within the research facility.

Results

The aim of this Capstone Project was to provide clients on a locked unit within an acute inpatient psychiatric facility with a sensory-based group that focused on providing client-centered coping strategies as an alternative intervention method to de-escalate unwanted behaviors. The time frame analyzed for this Capstone Project resulted in 14 participants of various age, gender, and supervision level. Table 1 below summarizes the demographics of the participants during the allotted study time.

Table 1
Demographics of Study Participants

Participant Characteristic		Frequency
Gender	Female	5
	Male	9
Age	18-30	6
	31-50	3
	51+	5
Supervision Level	Support	11
	Safety	3
	Close	0

A third demographic recorded within data was that of diagnoses. Included among the 14 participants was 7 different Axis I diagnosis. Figure 1 provides a visual breakdown of the percent in which each diagnosis was seen throughout the study. While this data was not used for analysis, it does provide indication for further study in relation to adaptive coping strategies and specific diagnoses.

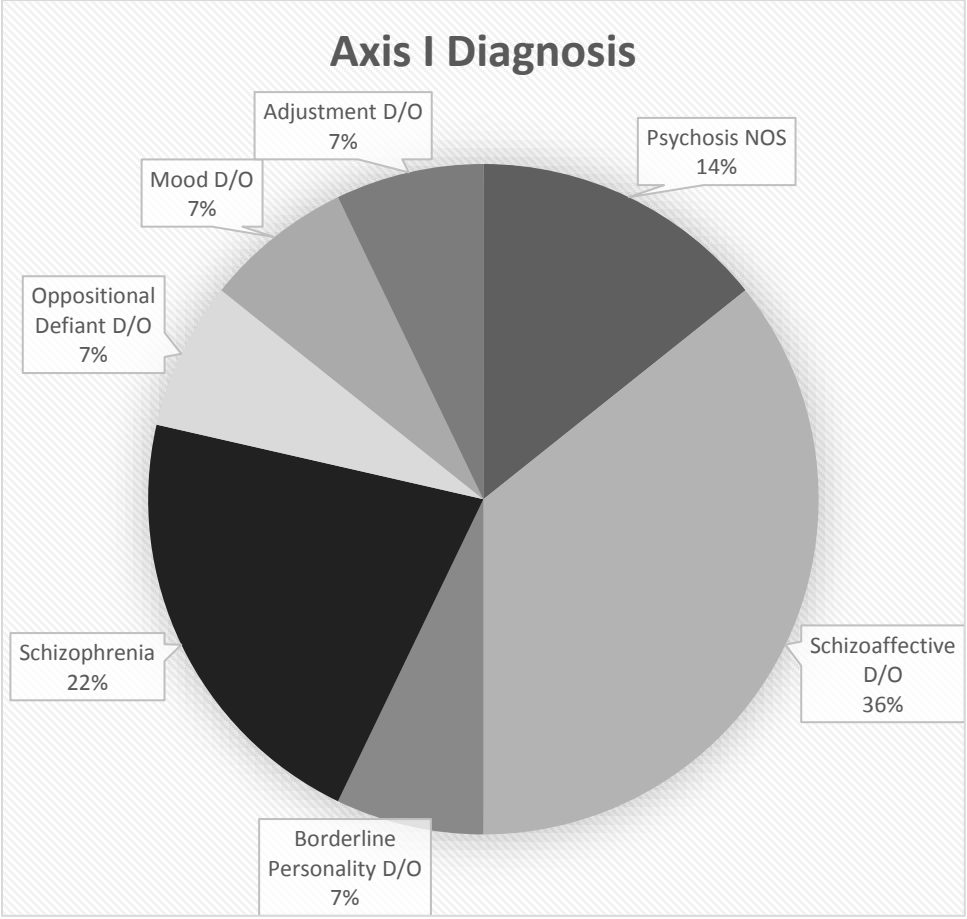

Figure 1. Percent of Participants Axis I Diagnosis

In order to analyze the data gathered within this Capstone Project, the software system SPSS 23 was utilized to run paired sample t-test in order to find *N*, the *t*-score and *p* (sig 2-tailed). The first pair of data that was used for analyzation was that of the SUDS scores given by the client ranking their perceived level of distress before and after the provided sensory-based group intervention. The second pair of data that was used was that of the SUDS score given by the occupational therapist/group leader for each client before and after the provided group intervention. The data found from this analysis can be seen in Table 2. Using a reference *p* score of $p<.05$, the decrease in SUDS score given by the client is statistically significant. However, the

SUDS scores given from the occupational therapist according the *p* score does not show statistical significance.

Table 2

Analysis Results

	N	*t*	*p* (sig 2-tailed)
Client SUDS rating	14	2.828	.014
Occupational Therapist SUDS rating	14	2.121	.054

Along with obtaining the demographics and SUDS scores for each client, the daily seclusion and restraint report was also used to collect data related to client acting-out behaviors. Since the hypothesis was set that clients' who participated in the group sessions would show a decrease in physical acting behaviors within the 24 hour following the group implementation, this report was utilized in order to track group participant behaviors. From the reports provided during the analyzed time frame, zero incidences were documented showing that any of the 14 group participants displayed any form of physical acting out behaviors within 24 hours following the provided group intervention.

Discussion

This Capstone Project explored two hypotheses related to sensory-based interventions and physical acting-out behaviors. The first hypothesis stated that clients would show a decrease in their perceived levels of distress according to the SUDS scale rating from the beginning to the end of each group session. According to the data analysis, this hypothesis proved to be true, as the *p* score showed a statistically significant decrease in SUDS scores provided by the clients. As seen in previous research, clients who participated in a sensory-based group related to coping strategies and self-regulation were able to utilize interventions provided within the group session

to decrease their perceived levels of distress. Sutton et al (2013) found that by drawing attention to the bodily sensation or the immediate environment, the sensory interventions such as those provided in the *Sensory Connection program: Curriculum for Self-Regulation* (2015) provide distraction from anxious thoughts and allow clients to "think more clearly, regulate their emotions, influence their immediate environment and control destructive behaviors" (p. 504). The literature shows that when a person is taught skills in which to regulate their physiological and emotional states of arousal, they begin to take more responsibility and accountability in the management of their illness (Chalmers, Harrison, Mollison, Molloy & Gray, 2012; Cummings, Grandfield & Coldwell, 2010; Moore, 2015; Scanlan & Novak, 2015). Thus, a reduction in aggressive and unwanted behaviors are seen and reinforced by outcomes in the current study.

Along with observing a decrease in SUDS scores provided by the client, there was no statistical significance found between the pre and post group SUDS scores given by the occupational therapist/group leader. While this may appear to be a surprising finding, it is actually a result that was anticipated prior to the research beginning. As talked about previously, often clients with mental illness display maladaptive emotional regulation strategies and have decreased insight into their emotions and overall diagnosis. Amador, Strauss, Yale, Flaum, Endicott and Gorman (1993) described insight as being comprised of awareness and attribution. The authors define "awareness as the recognition of signs or symptoms of illness, while attribution refers to explanations about the cause or source of these symptoms" (Amador et al, 1993, p. 874). These definitions can be important to understanding the results seen in the current study as many of the clients tended to rate their level of perceived distress as higher than what their behaviors appeared to show. This is important because the SUDS scores given by the occupational therapist/group leader to each client was based off of skilled clinical observation of

the clients' behaviors prior to the beginning of group and at the conclusion of the group session. Basing these scores off of behavioral observations ultimately resulted in the occupational therapist/group leader assigning a lower score both pre and post group session.

For example, one client ranked themselves as being a 4 on the SUDS scale prior to beginning group and a 3 at the conclusion of group. For this same client, the Occupational Therapist/group leader assigned a pre group score of 2 and post group score of 1. These lower scores were given on the skilled, clinical observation that when the client entered the room, they were smiling and socializing with other peers but when asked how they were doing today, they answered with the response of "not good." From the clients' behavior, they appeared to be experiencing a low score of distress. However, due to their lack of awareness and attribution the client instead feels as if they are experiencing higher distress levels which resulted in a higher self-ranking SUDS score. This is an example of the need for discussion between the therapist and client about behavior when feeling distressed. Further, this example reinforces the importance of professional guidance in the interpretation of insight for clients with mental health conditions.

The second hypothesis stated that clients who participated in the provided group session would display no physically acting-out behaviors (for example, hitting, kicking, biting, spitting, etc). during the 24 hours following the group session. This hypothesis was also proven to be true as according to the daily seclusion and restraint report none of the 14 clients who participated in the group sessions displayed any forms of physical acting-out behaviors. While one cannot assume a direct connection to this decrease in acting-out behaviors to the provided group session, previous research has shown that sensory strategies can contribute (LeBel & Champagne, 2010; Riahi, Dawe, Stuckey & Klassen, 2016; Sutton, et al, 2013). Sutton et al (2013) stated that "deliberate use of selected sensory inputs have been shown to moderate arousal, thus allowing

individuals to become aware of emotions as well as equipping the person with a strategy and tool for adaptive emotional regulation" (p. 501). The ten skill building sessions used in Moore's (2015) curriculum provides a way to short circuit impending crisis, such as those that would lead to acting-out behaviors, and in turn facilitate the use of higher level stress response systems. Thus, as supported by the literature, sensory-based coping strategies allow clients to take control of their illness and live a more balanced and fulfilled life outside of the hospital setting (Champagne & Stromberg, 2004; Knight et al., 2010; Moore & Henry, 2002; Reeves, 2001).

Strengths and Limitations

Several strengths and limitations exist within this Capstone Project, such as the small sample size, the need for a more objective group leader to provide the group sessions and the complex nature of working with a vulnerable client population such as people with acute mental illness. As seen in the results section, the sample size for this Capstone Project was 14. This small sample could be associated with the clients' motivation to participate in provided active treatment. As part of the research facilities' policy, clients are provided with the option to freely choose whether or not they would like to participate in any form of active treatment (which includes groups) during their stay at the facility. Before beginning each group session the occupational therapist would make an announcement over the unit intercom inviting all clients to participate in the group session. This provided the clients with motivation and cognitive cues that the group would be taking place, however clients could not be forced to participate.

The need for a more objective group leader to provide the group sessions was also seen as a limitation and strength. As an employee of the facility in which the study was conducted, the occupational therapist's previous knowledge and rapport with the participating clients could have impacted the SUDS rating assigned to each client. It is a strength that to know the clients'

behaviors and for the therapists to clinically assess the client in order to accurately assign a score of their perceived level of distress. However, it could have resulted in a lower ranking than if someone who had no previous knowledge of the clients' behaviors would have observed and rated them. Thus a need for inter-rater reliability exists in daily scoring of client behaviors.

Lastly, the complexity related to mental illness and working with those who are in the acute stage of mental illness could also be a limitation to this study. As mentioned before, people with mental illness tend to have lack of insight into their diagnosis and overall state of health. This Capstone Project was carried out in an acute inpatient psychiatric facility, which means that clients served within this facility are in their most acute stages of mental illness. Due to symptom burden, clients within this study may have a maladaptive view of the group sessions and how they make them feel pre and post participation in occupational therapy groups. The acuteness of clients' illness in relation to safety can also be seen as a limitation to this Capstone Project. Due to the increase nature of harm to self or others of the clients served in this facility, not all strategies that were provided in the group sessions could be used outside of the group session while hospitalized.

Implications for Practice and Future Research

The results of this Capstone Project offer new insights and implications for future practice and research in the area of sensory-based interventions with mental health populations. Based on the results of this Capstone Project, sensory-based groups within the acute psychiatric setting not only provide person-centered, trauma-informed care but clients are able to see a decrease in their perceived levels of distress following the intervention. This not only supports previous research that sensory based interventions can be effective in reducing negative emotions and behaviors in the practice area of mental health but also shows a need to expand the use of

these strategies. Occupational Therapy has a role in leading such groups in a mental health setting.

While this Capstone Project only assessed a small number of participants, it does provide a basis for future research in the area of sensory-based strategies within mental health practice. Using the findings from this Capstone project, future studies focused on sensory-based interventions with specific psychiatric diagnoses, gender, ages and within other types of facilities could all add to our knowledge of providing the most client-centered, trauma- informed care to people living with mental illness. As Occupational Therapists we have set the distinct value of helping people to maintain their mental health and live full and productive lives. With the findings of this Capstone Project, along with previous and future study findings, we have a base knowledge of strategies that can assist in meeting this value as laid out by AOTA (AOTA's Centennial Vision, 2006).

Conclusion

Designed as a retrospective analysis through program evaluation , this Capstone Project addressed whether sensory-based interventions within a group setting reduce perceived levels of distress and physical acting-out behaviors. The study hypothesized that a decrease in perceived levels of distress pre and post group intervention would be seen by clients, along with no physical acting-out behaviors within the 24 hours following the group session. Results of this study supported both hypotheses to be true, indicating need for further research development in tools and trainings that can assist clients in dealing with unwanted behaviors that may not be best addressed through pharmacological interventions. The results also show that until our system begins to treat people living with a mental illness as a person and not just a symptom then we

will continue to see a decline in the success of people living occupationally-balanced, full, productive lives.

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Appendix A

SUDS Scale

(Subjective Units of Distress Scale)

	Severity	Example
	10	Feels unbearably bad (total loss of control, miserable, seriously thinking about hurting self or others)
	9	Feeling desperate (starting to lose control, starting to think about hurting self or others)
	8	Approaching loss of control
	7	Maintaining control with difficulty
	6	Feeling bad to the point that I think something ought to be done about the way I feel
	5	Moderately upset, uncomfortable
	4	Somewhat upset (somewhat agitated)

	3	Mildly upset, worried
	2	A little bit upset
	1	No acute distress (no serious or immediate worries, concerns, or upsets)
	0	Peace, serenity (calm)

Joseph Wolpe, PhD author 1969

Appendix B

Data Collection Form

Patient Name _____ Unit_____ Date_____
Age _____ Sex_____ Diagnosis_____
Admit Date_____ Supervision Level_____

Group Session #_____ Topic Focus_____

Pre-Group Patients SUDS rating_____
Post Group Patients SUDS rating_____

Pre-Group Therapist SUDS rating_____
Post-Group Therapist SUDS rating _____

Patient Name _____ Unit_____ Date_____
Age _____ Sex_____ Diagnosis_____
Admit Date_____ Supervision Level_____

Group Session #_____ Topic Focus_____

Pre-Group Patients SUDS rating_____
Post Group Patients SUDS rating_____

Pre-Group Therapist SUDS rating_____
Post-Group Therapist SUDS rating _____