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Sensory-based Services in Adult Mental Health

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SENSORY-BASED SERVICES IN ADULT MENTAL HEALTH

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Requirements for the Degree of
Doctor of Occupational Therapy

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Leslie M. Reed
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EASTERN KENTUCKY UNIVERSITY
COLLEGE OF HEALTH SCIENCES
DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY

Certification

We hereby certify that this Capstone project, submitted by Leslie Reed, 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 Leslie Reed under direction of Dr. 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

CAPSTONE COMMITTEE

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Executive Summary

Background: This Capstone Project focused on the use of a sensory room program as an occupational therapy intervention in an adult mental health hospital. The goal of this sensory room program is to promote a culture and climate for client-centered practice that provides patients opportunities for self-regulation of emotions and learning of new coping skills in order to prevent and/or de-escalate acting out or aggressive behaviors. Sensory approaches offer a safe alternative for de-escalation that promotes trauma-informed and recovery-based practice.
Purpose: The purpose of this Capstone Project was to evaluate the sensory room program used by occupational therapy to determine whether use of the sensory room and the elements within the room reduced perceived levels of distress and acting out and/or aggressive behaviors of patients with mental illness.
Theoretical Framework: This Capstone Project utilized a transformative framework, which emphasizes the lives and experiences of marginalized groups and centers on reform to confront social oppression and improve quality of life of those affected.
Methods: This Capstone Project was an outcome evaluation of a routine clinical program using retrospective analysis of existing patient records to ascertain physical aggression episodes, sensory modulation ability, and self-ratings and staff ratings of patient distress levels pre- and post-sensory intervention. Only retrospective data from patient medical records, the sensory room documentation binder, and an incident report database were used in this study. Data collected included patient and staff ratings of perceived patient levels of distress, sensory items utilized within the sensory room, some demographic information, Allen Cognitive Level (ACL) score, and episodes of physical aggression.
Results: Through analysis of quantitative data, the results of the project demonstrated a statistically significant difference in Subjective Units of Distress Scale ratings, reflecting an overall decrease in patient distress levels from time of entry to time of exit of the sensory room. The majority of patients did not exhibit acting out behaviors within 24 hours post sensory intervention. Though there were no significant correlations identified via SPSS data analysis, the patient ACL scores generally indicated less personal insight.
Conclusions: Data analysis confirms that the use of a sensory room and sensory-based treatment approaches had positive effects among patients of varied ages, diagnoses, and ACL scores. Outcomes of this study align well with person-centered and recovery-oriented mental health care that supports the patient's preferences, responsibility and accountability, and oversight of their own recovery.

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CERTIFICATION OF AUTHORSHIP

Submitted to (Faculty Mentor's Name): Dr. 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.

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Date of Submission: 5-24-17

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Section I

Nature of Project and Problem Identification

Introduction

Though the use and adaptation of sensory integration principles for treatment within mental health practice has grown tremendously over the past fourteen years, research to ascertain the effectiveness is still quite insufficient (Champagne & Koomar, 2012; Champagne, Koomar, & Olson, 2010; Champagne & Stromberg, 2004; LeBel & Champagne, 2010; Scanlan & Novak, 2015). This rapid growth has often been associated with national initiatives including the recovery movement, trauma-informed care, seclusion and restraint reduction, and efforts to reduce and eliminate other forms of restrictive practices in mental health care (NASMHPD, 2000, 2009; SAMHSA, 2011b, as cited in Re, McConnel, Reidinger, Schweit, & Hendron, 2014; Sailas & Fenton, 2000; Scanlan & Novak, 2015; Sivak, 2012; U.S. Department of Health and Human Services, 2003, as cited in Champagne & Koomar, 2011, 2012). The recovery movement is an effort to reinvent the treatment of mental illness in the United States and largely recognizes the capability of people with mental illness to participate in the mainstream of society (Davidson, 2016; McCranie, 2010; SAMHSA, 2005, 2006). Recovery-based care in mental illness means that the consumer has primary control over decisions about their own care (MHF, 2017; SAMHSA, 2005, 2006, 2011a). The recovery approach is strengths-based and focuses on building resilience and providing support to those with mental illness (Jacob, 2015; SAMHSA, 2005, 2006, 2011a). One outcome of these initiatives is that many mental health care facilities are augmenting patient care with sensory-based services (Re, et al., 2014). Sensory-based services in mental health are designed to help patients to self-regulate their emotional and physiological arousal more effectively (Sutton, Wilson, Van Kessel, & Vanderpyl, 2013).

People with mental health disorders, especially when untreated, are at elevated risk for many detrimental and harmful behaviors including violent or self-destructive behaviors, which can impede high quality of life in these individuals (Healthy People, 2014b). An urban acute inpatient mental health hospital (the research facility) has a group treatment center that includes a sensory room, which the occupational therapy (OT) department oversees. The sensory room is meant to help calm versus alert the senses. The goal of this sensory room program is to promote a culture and climate for client-centered practice that provides patients opportunities for self-regulation of emotions and learning of new coping skills in order to prevent and/or de-escalate acting out or aggressive behaviors. The sensory room is intended to help patients who are agitated and beginning to escalate in behavior (i.e. increased agitation and defensive behaviors including questioning authority, refusal, verbal venting, and intimidation) to calm and regulate their own emotions. Sensory rooms are deliberately intended to be sensory supportive and used chiefly for the goals of crisis de-escalation and/or prevention (Champagne, 2015). The sensory room is also intended to help patients begin to identify simple sensory strategies and coping skills they can use outside the hospital post discharge when they become upset or angry. The target population for the sensory room is the mental health population in an acute mental health hospital.

When patients become agitated or begin to escalate in behavior in the research facility, they are typically verbally redirected/de-escalated and in doing so, offered options to calm (i.e. diversional activities, quiet time, medications, etc.). The sensory room is offered as a least restrictive option to patients who are presenting with signs of agitation. After people become mindful of their preferences, they are better able to intentionally structure their environment, acquire techniques needed to respond to those preferences, and make the essential environmental

and individual sensory modifications (Bronson & Bundy, 2001; Brown, 2001; Champagne, 2003b, as cited in Champagne & Stromberg, 2004). The appropriate use of a sensory room provides experiential and alternative opportunities for de-escalation, empowerment, choice, increasing awareness, and skill development. In essence, a sensory room improves quality of life for individuals with mental illness and creates a safer environment for both patients and staff (Champagne, 2015).

Problem Statement

Patients in mental health facilities are often placed in seclusion and/or restraints when they behave inappropriately even though these modalities are considered a treatment failure and there is no evidence to support any therapeutic value in utilizing them (Sailas & Fenton, 2000; Sivak, 2012). It is estimated that about 150 people die each year as a result of being placed in seclusion or restraints and that many others are injured and/or traumatized (SAMHSA, 2011b; NASMHPD, 2009; and Haimowitz, Urf, & Huckshorn, as cited in Sivak, 2012). "Beyond the physical risks of injury and death, it has been found that people who experience seclusion and restraint remain in care longer and are more likely to be readmitted for care" (SAMHSA, 2015a, para. 4). In addition, dependence, hopelessness, and learned helplessness are encouraged in using these methods, resulting in the inability of patients to learn effective coping skills and be successful in managing their own lives (Curie, 2005, as cited in Sivak, 2012).

Sensory approaches offer a safe alternative for de-escalation that promotes trauma-informed and recovery-based practice. Sensory approaches are established in and typically associated with pediatric OT practice (Ayres, 1979; Wilbarger & Wilbarger, 1991; Dunn, 1997; and Kranowitz, 1999, as cited in Abernethy, 2010; Koenig & Rudney, 2010; Schaaf & Davies, 2010; May-Benson & Koomar, 2010). Most healthcare professionals, including occupational

therapists, usually do not associate sensory-based practice with mental health (Abernethy, 2010). The majority of sensory research in the area of adult mental health primarily focuses on sensory deficits in adults with schizophrenia (Bailliard, 2015; Champagne & Frederick, 2011). There is currently limited research literature available regarding the effects of sensory room use with adults with mental illness who have aggressive behaviors. The problem this Capstone Project addressed is whether use of the sensory room and the elements within the room at an inpatient mental health hospital reduced perceived levels of distress and acting out and/or aggressive behaviors of patients with mental illness. This Capstone Project focused on program evaluation of the sensory room.

Purpose of the Project

The purpose of this Capstone Project was to evaluate the sensory room program as an OT intervention. A quantitative design was utilized. In this study, perceived distress levels and number of acting out and/or aggressive behaviors were used to test the theory of sensory modulation that predicted that the use of the sensory room positively influenced the distress levels for patients with mental illness at the hospital. The Allen Cognitive Level Screening (ACLS) and sensory element choices explored level of patient insight and level of assistance needed within the room for patients at the hospital. These data sets were examined retrospectively through existing records.

It is vital for occupational therapists to engage in more research that focuses on sensory approaches in mental health care. In doing so, it is possible to expand the amount of research literature available in this area and assist the profession in gaining more of a foothold in the field of mental health care and in meeting the Centennial Vision goal of being more science-driven and evidence-based (AOTA, 2007). A sensory room program also supports Vision 2025 as it

contributes to improved health and quality of life of patients with mental illness (AOTA, 2016). Using a sensory room in an acute inpatient mental health hospital adds to the least restrictive options offered for patients when they are agitated and beginning to escalate behaviorally. When patients are upset, use of the sensory room provides them the opportunity to self-regulate their emotions and physiological arousal levels. Utilization of the sensory room, which is an evidence-based and person-centered program, reduces the number of acting out and/or aggressive patient behaviors. It also assists patients in learning new positive coping skills they can replace the negative coping mechanisms (i.e. acting out, aggressive behaviors) with so that they are more successful in being discharged from the hospital and becoming productive citizens in the community. This is a major contribution of OT in shaping mental health practices. In addition, the use of this program promotes and supports national, state, and organizational initiatives to reduce seclusion and restraint use, provide least restrictive care to patients, and provide care that is recovery-based, evidence-based, trauma-informed, and person-centered (NASMHPD, 2000, 2009; SAMHSA, 2011b, as cited in Re, et al., 2014; Sailas & Fenton, 2000; Scanlan & Novak, 2015; Sivak, 2012; U.S. Department of Health and Human Services, 2003, as cited in Champagne & Koomar, 2011, 2012).

Theoretical Framework

A transformative framework guided this Capstone Project design. A transformative worldview emphasizes the lives and experiences of marginalized groups and centers on reform to confront social oppression and improve the lives of such people, the institutions where they work or live, and the life of the researcher (Mertens, 2003, as cited in Hall, 2013; Creswell, 2014). In this worldview, "issues such as empowerment, inequality, oppression, domination, suppression, and alienation" are addressed (Creswell, 2014, p. 10). Mentally ill patients are considered

marginalized people by many and are stigmatized by others. There are many hierarchies within a mental health hospital, traditionally with the patients unfortunately at the bottom of the totem pole. Patients have typically been seen as objects in the mental health system and are not treated as equals in their own treatment. Prior and colleagues (1979) stated that staff typically use domineering, dictating, and commanding speech rather than participate in shared interactions. Hastings and Remington (1994, as cited in McConkey, Morris, & Purcell, 1999) discuss that this type of staff communication could be a contributing factor in the challenging behaviors exhibited by patients. McConkey and colleagues (1999) also found that patients were rarely engaged as equal partners in interactions with staff, who did not grade their language from jargon to lay terms so the patients could understand them easily.

This type of interaction and treatment is typical under the medical model, in which patients are treated the same as if they were physically ill. Under the operation of a medical model, mental illness is frequently treated via medical and physical interventions (i.e. medications, manual therapies, seclusion and restraint use) because external symptoms are viewed as inner physical illness (Shi & Singh, 2015; McLeod, 2014). When in a mental health hospital setting, patients with self-injurious and aggressive behaviors are often forced to accept medication and are placed in seclusion or restraints for their own safety and the safety of others. However, the process of placing a patient in seclusion or restraints is often an excessive reaction and often results in unintentional injury to the patient or staff (Rakhmatullina, Taub, & Jacob 2013; Berzlanovich, Schöpfer, & Keil, 2012; Cecchi, Lazzaro, Catanese, Mandarelli, & Ferracuti, 2012). A transformative perspective reiterates that this type of treatment is oppressive and inhibits the patients' abilities to improve, take increased control and responsibility of their own lives, and live successfully in the community.

There is currently an enormous push from federal, state, and local levels to reduce and/or eliminate seclusion and restraint use in psychiatric care (NASMHPD, 2000, 2009; SAMHSA, 2011b, as cited in Re, et al., 2014; Sailas & Fenton, 2000; Scanlan & Novak, 2015; Sivak, 2012; U.S. Department of Health and Human Services, 2003, as cited in Champagne & Koomar, 2011, 2012). It is necessary to discover and develop innovative and alternative approaches to reduce and/or eliminate these negative patient behaviors and these more restrictive forms of treatment (Champagne & Koomar, 2011; Champagne, Koomar, & Olson, 2010; Sailas & Fenton, 2000; Sivak, 2012). This Capstone Project also aligned well with sensory integration theory. Sensory-based services have been emphasized as "non-invasive, self-directed and empowering interventions that may support more recovery-oriented and trauma-informed practice" (Scanlan & Novak, 2015). Sensory approaches fit within the medical model and provide an alternative approach to treatment that supports the patients in taking control of their own lives and enhancing their overall quality of life. Occupational therapists are skilled in providing these approaches and therefore bring value to mental health practice.

Significance of the Study

This study related to all of the overarching goals of Healthy People 2020 (2014a). This type of sensory room helps mental health consumers attain higher quality lives with fewer injuries as they learn coping skills and sensory strategies to utilize in the hospital and community settings. Fewer acting out and aggressive behaviors also decrease the potential injuries involved to the patient when staff or community members, including police, must intervene. The sensory room helps individuals improve their overall health in learning to better take care of themselves and deal with their emotions. It also creates an environment that promotes good health for patients. Champagne (2015) discusses that the enrichment of the physical environment,

including the utilization of sensory rooms, provides a more supportive and recovery-based atmosphere. The sensory room promotes healthy development of coping skills and healthier behaviors for this population.

This study and its purpose and target population related to the Healthy People 2020 (2014b) Leading Health Indicator of Mental Health. "Mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (WHO, 2014, para. 1). A mental illness is a mental health condition that influences an individual's reasoning, emotions, or disposition and may affect his or her ability to interact with others and function on a regular day-to-day basis (NAMI, 2015). The OT sensory room program is geared toward the mental health population, but it more specifically focuses on improving the overall health of this population by providing a healthy alternative to seclusion and restraints and helping individuals learn to use healthy strategies and coping skills to calm themselves when upset. People with mental health disorders, especially when untreated, are at elevated risk for many detrimental and harmful behaviors including violent or self-destructive behaviors, which can impede high quality of life in these individuals (Healthy People, 2014b). This program is supportive in improving activity performance and participation in treatment (and life) of individuals with mental illness. The OT profession must work with individuals and communities to enhance activity performance and participation and to foster supports and reduce obstacles in the environment (Bass-Haugen, 2009).

In addition, this study related to the American Occupational Therapy Association's (AOTA) Centennial Vision (AOTA, 2007) in that it is a program that is science-driven and evidence-based and meets the occupational needs of the mental health population. There is

evidence available on the subject of sensory rooms and sensory modulation in mental health settings that attests to effective prevention and de-escalation of crisis and/or negative behaviors (Champagne & Stromberg, 2004; Champagne & Koomar, 2011, 2012; Smith, Press, Koenig, & Kinnealey, 2005). In completing research on this program, it also contributed to the limited amount of evidence available regarding OT in mental health services. The more research available and implemented in this aspect of practice also helps the OT profession become more powerful and widely recognized in this important area of healthcare. A sensory room program also relates to AOTA's Vision 2025 since sensory approaches contribute to improved health and quality of life of patients with mental illness, in addition to helping them learn new coping skills to better manage in the community once discharged from the hospital (AOTA, 2016).

There is a current trend in our culture at the national level to reduce the use of seclusion and restraints. The National Association for State Mental Health Program Directors (NASMHPD) is a private, not-for-profit membership organization helping to set the agenda and determine the direction of state mental health agency interests across the country, including state mental health planning, service delivery, and evaluation. This organization plays a central role in the national seclusion and restraint reduction initiative (NASMHPD, 2015). The Substance Abuse and Mental Health Services Administration (SAMHSA) also promotes the implementation and evaluation of best practice approaches to prevention and reduction of the use of seclusion and restraints in mental health settings (SAMHSA, 2015a, 2015b). Sensory modulation strategies, including sensory rooms, are beneficial in helping to prevent and reduce not only aggressive and acting out behaviors, but also seclusion and restraint use in mental health settings. The goal of this program aligns well with the efforts of the nation, state, and this immediate hospital setting in seclusion and restraint reduction. Change can certainly happen

through coordinated activity due to these same core beliefs and efforts (Stachowiak, n.d.). It is important to define and present this Capstone Project in a way that supports these same beliefs and efforts (Stachowiak, n.d.).

Summary

This Capstone Project was designed as a retrospective program evaluation of the sensory room program as an OT intervention in a group treatment center within a mental health hospital. The sensory room program provides recovery-based, trauma-informed, evidence-based, person-centered intervention and reduces perceived levels of distress and physically aggressive behaviors. The sensory room assists patients with mental illness identify and adapt new coping skills, improves their quality of life, improves their behaviors, offers a safe and healthy alternative to seclusion and restraints, and contributes to the available body of literature related to OT in mental health services. In addition, it relates well to the federal, state, local, and organizational healthcare goals and policies.

Section II

Review of the Literature

Introduction

In reviewing the available resources, research literature on the topic of sensory modulation and adult mental health was quite sparse and literature specifically regarding sensory rooms utilized in mental healthcare was even more limited. Sensory approaches have grown rapidly over the last ten to fifteen years. Though sensory approaches are more visible in psychiatric settings in recent years, there is only circumstantial evidence implying their effectiveness in severely mentally ill populations (Knight, Adkison, & Kovach, 2010).

Available literature was found via search engine databases including MEDLINE, CINAHL Complete, OT Search, OTseeker, Cochrane Library, Health Sciences,

PsychiatryOnline, PsycINFO, Health Source Consumer Edition, Nursing and Allied Health Database, PubMed, and Wiley Online Library. Key search words included sensory, adult mental health treatment, sensory in mental health, mental illness, aggression and mental illness, violence and mental illness, seclusion and restraint use, mental health and complimentary medicine, and mental health and complementary therapy. Also included were key words mental illness and art therapy, mental illness and music therapy, mental illness and yoga, mental illness and stress management, mental health communication, mental healthcare and communication, mental healthcare and interpersonal skills, and mental illness and emotional regulation.

Most of the relevant literature focused on use of sensory approaches in mental health (including sensory integration techniques, Snoezelen rooms, sensory rooms, sensory groups, sensory defensiveness, and sensory dissonance) (Lee, Cox, Whitecross, Williams, & Hollander, 2010; Bronson & Bundy, 2001; Scanlan & Novak, 2015; Sivak, 2012; Smith, et al., 2005; Sutton, et al., 2013; Wiglesworth & Farnworth, 2016; Chalmers, Harrison, Mollison, Molloy, & Gray, 2012; Abernethy, 2010; Pfeiffer, Brusilovskiy, Bauer, & Salzer, 2014; Bjorkdahl, Perseius, Samuelsson, & Lindberg, 2016). Other relevant literature focused on the effect of staff interactions and interpersonal skills on patient behavior in psychiatric facilities (McConkey, Morris, & Purcell, 1999; Devoe, Wallace, & Fryer, 2008; Hochman, Itzhak, Mankuta, & Vinket, 2008; Eley, Young, Hunter, Baker, Hunter, & Hannah, 2007; Thompson & McCabe, 2012; Goodwin & Happell, 2007; Daffern, Thomas, Murray, Podubinski, Hollander, Kulkhani, deCastella, & Foley, 2010; Lipczynska, 2011), aggression and violence with the mentally ill (Rueve & Welton, 2008; Moro, 2007), seclusion and restraint use (Berzlanovich, Schopfer, & Keil, 2012; Cecchi, et al., 2012; Rakhmatullina, Taub, & Jacob, 2013; Sailas & Fenton, 2000), and yoga and other complementary approaches in mental health care (Re, et al., 2014). The

majority of the literature was not from OT, but from other disciplines such as psychiatry, nursing, psychology, and social work.

Mental Health Treatment

Mental health treatment strives to reestablish a sense of self, assuage psychological pain, improve quality of life, and/or improve interpersonal functioning (Mathew, 2012). Sensory strategies work well in comparison to and are congruent with other mental health treatment approaches (Mathew, 2012). Mental health interventions have succeeded in forging many advances over the last several decades. Though these accomplishments have been significant, abundant, and vast, effectiveness with individuals with mental illness remains inconsistent (Champagne, Koomar, & Olson, 2010). High rates of symptom exacerbation and hospital readmissions continue to exist (Montgomery & Kirkpatrick, 2002, as cited in Champagne, Koomar, & Olson, 2010). In order for a person to behave normally, the brain must organize sensations accurately (Ayres, 1979). Maladaptive emotional regulation can trigger aggressive behavior (Robertson, et al., 2012, as cited in Sutton, et al., 2013).

Aggression and Violence

In recent years, priorities have been set to seek out and adapt creative and complementary modes of treatment and reduce the numbers of seclusion and restraint use (WHO, 2013; SAMHSA, 2015a/b; NASMHPD, 2000, 2009, 2015). As a result, many mental health facilities are beginning to supplement patient care with sensory regulation strategies and interventions (Re, et al., 2014). Aggression is positively correlated with many mental health disorders (Rueve & Welton, 2008; Moro, 2007; Healthy People, 2014b). Psychiatric disorders associated with aggression and violence are wide-ranging, but are most often linked with patients diagnosed with personality disorders, intellectual developmental disabilities, and substance dependence (Rueve

& Welton, 2008; Moro, 2007; Petit, 2005). Often, a person's home, work, and social occupations are negatively affected by self-injurious and aggressive coping strategies and lack of emotional regulation (Rueve & Welton, 2008; Moro, 2007). Patients who present to mental health hospitals are frequently not taking medication and are unstable initially, which increases their risk of violence. Aggressive and violent episodes are frequent and serious in psychiatric facilities (Shah, 1991, as cited in Sailas & Fenton, 2000).

Seclusion and Restraint Use

Seclusion and restraint continue to be interventions commonly used in the treatment of mentally ill patients who are disruptive, aggressive, and/or violent. Sailas and Fenton (2000) found in their literature review that though valid evidence does not exist to support or oppose the effectiveness, benefit, or harm of seclusion and restraint, that the use of these interventions should be minimized for ethical reasons. However, Sivak (2012) stated that "no evidence supports the therapeutic value of seclusion and restraint" (p. 26). In addition, many local, state, national, and international organizations believe that seclusion and restraint use are treatment failures, are detrimental to the patient, and have no benefit (WHO, 2013; SAMHSA, 2015a/b; NASMHPD, 2000, 2009, 2015; MHA, 2016; NAMI, 2014). Symptom management for patients with mental illness experiencing distress in mental health hospitals is often very limited (Chalmers, et al., 2012). Unfortunately, when typical approaches such as validation, negotiation, and warning don't work with patients who are escalating toward crisis, staff has a tendency to think restraint or seclusion are the only remaining options (Sutton, et al., 2013).

Communication and Interpersonal Factors

Furthermore, a combination of factors plays a role in aggressive behaviors in the mentally ill population. Too often, healthcare staff contributes to these behaviors. Communication is key

in a patient's alliance with treatment and motivation to recover and is vital in efficacious healthcare delivery (Devoe, et al., 2008). In a study by Hochman and colleagues (2008), patients were less satisfied when the tone or conversation in an interview was dominated by the physician. The study also related that patients evaluate professional care and depth of the relationship by communication skills. Optimizing communication can also lead to better patient behaviors and outcomes and has been strongly associated with patient views of overall satisfaction and high-quality healthcare (Devoe, et al., 2008). Communication presents as a leading problem with Indigenous mental health patients (Eley, et al., 2007). Studies supported the importance of interpersonal relationships in medical settings along with more open communication. Thompson and McCabe (2012) related that communication between the patient and staff is central to achieving a beneficial alliance and that this alliance has regularly shown adherence to treatment in mental health. A study by Goodwin and Happell (2007) found that participants agreed that an environment of reciprocal confidence and respect is crucial for valuable and efficient teamwork to occur. Goodwin and Happell (2007) said that clinicians' attitudes have been indicated as a key obstacle to patient involvement. In addition, this was thought to signify negative perceptions held by clinicians regarding patients of mental health services. Glover (2005, as cited in Sivak, 2012) discussed that many staff focus on negative patient characteristics in psychiatric settings, which creates an atmosphere where staff view the patients as the only cause of aggression and/or violence. This thought process can result in staff expecting patients to live up to the self-fulfilling prophecy of negative behaviors and staff freeing themselves of any responsibility for behaviors (Sivak, 2012). Lipczynska (2011) commented that communication and language are stumbling blocks that must be overcome if patients and professionals are to collaborate on diagnosis and treatment. There needs to be a shift away from

the rigid medical model focus to more holistic, recovery model approaches (Chalmers, et al. 2012).

Sensory Approaches in Mental Health

In addition to more staff awareness of their own therapeutic use of self or lack thereof, additional intervention strategies must be identified and adapted in mental health settings that are recovery-based, trauma-informed, and patient-centered. Sensory approaches are a viable, less restrictive alternative to seclusion and restraint use and are extremely useful in helping people calm and self-regulate their emotions and behaviors. Though the majority of sensory approaches and assessments available are designed for the pediatric population, most can be adapted or modified for use with adults in psychiatric settings. Occupational therapists are extensively trained and prepared to address and apply sensory interventions to support engagement in everyday life activities and many therapists are trained and certified in the theory and practice of sensory integration techniques (ACOTE, 2011; WPS, 2017). Sensory approaches to mental health are a niche in OT and occupational therapists are considered the experts with sensory approaches since therapists have an in depth understanding of how to utilize sensory integration techniques to evaluate and effectively treat those struggling in their daily occupations (AOTA, 2017; WPS, 2017). OT is recommended as valuable to perform sensory integration strategies as an effective and appropriate treatment in many practice areas and with many populations (Cromwell, 1987). Abernethy (2010) found that "the existence of sensory defensiveness can influence the effectiveness of other treatment methods used in psychiatry" and that mental illness can be compounded by sensory defensiveness (p. 212). Pfeiffer and colleagues (2014) shared that extreme sensory processing patterns are linked to participation and recovery in patients with severe mental illness. They discuss that assessment of sensory processing patterns inform

sensory-based interventions that can result in greater community participation and recovery outcomes. Sutton, et al. (2013) suggested that sensory approaches have a valuable role in optimizing arousal and regulating emotion and that they improve the gamut of effective options in managing aggression.

A study by Chalmers and colleagues (2012) found that implementing sensory modulation approaches to treatment empowered patients to be partners in their own care and that use of the sensory room and sensory engagement programs reduced arousal levels of patients in distress. A study by Bjorkdahl and colleagues (2016) reported an increase in patients' self-confidence, emotional self-care, and well-being with the use of sensory rooms in psychiatric care. Wiglesworth and Farnworth (2016) identified a mean decrease in stress attributed to use of a sensory room. In addition, sensory rooms provide an escape from the patient "unit's chaotic treatment environment and the patient's inner turmoil" (Sutton & Nicholson, 2011; Novak et al., 2012, as cited in Wiglesworth & Farnworth, 2016, p. 260). A study by Re and colleagues (2014) reported that complementary therapies such as yoga help patients with severe mental illness learn to regulate their own emotions and find some relief from emotional distress while hospitalized. A literature review by Scanlan and Novak (2015) concluded that there is limited evidence for sensory approaches supporting seclusion and restraint reduction or reduction in aggressive behaviors when used in isolation and that more research in this area is necessary. There are also very few studies related specifically to sensory rooms and reduction in aggressive behaviors when used in isolation and further research is necessary in this area as well.

Summary

Available literature supported the need for this Capstone Project. Limited literature exists on sensory approaches in adult mental health settings and there is certainly a lack of

empirical research on this topic. The majority of the existing literature identifies a need for further research on sensory approaches in mental health settings. Scanlan and Novak (2015) stated that "services implementing sensory approaches should ensure that robust evaluation processes are in place" (p. 284). Program evaluation of sensory services as implemented by OT was necessary to meet this recommendation and ensure that provided services are effective and evidence-based. Further studies are necessary to foster the positive impact of sensory modulation in psychiatric settings.

Section III

Methods

Project Design

This Capstone Project was designed as a retrospective program evaluation of the sensory room program, which the OT department oversees. A sensory room is part of the research facility's group treatment center and is offered to patients who are upset or agitated as a safe quiet place for them to self-regulate their emotions and behavior. The sensory room is recovery-based and person-centered and intended for the goals of crisis de-escalation and/or prevention. The sensory room is a place where patients can participate in various sensory activities of their choice to engage all of their senses and assist them in calming (Sivak, 2012). This Capstone Project was designed to evaluate whether use of the OT sensory room reduced perceived levels of distress and acting out and/or aggressive behaviors of patients with mental illness.

The sensory room is small and cozy, painted a calming color, and has cloud light panels to help dim the harsh fluorescent lights. The room provides various seating options including chairs, a small sofa, and a glider rocker. The room also includes a locked sensory cabinet that is stocked with a variety of sensory items including a scent diffuser, radio, white noise machine,

various fidget items, stress balls, weighted vests, weighted lap pads, weighted medicine balls, slam balls, earplugs, scented lotions and hand sanitizers, flavored oral swabs, adult coloring pages, puzzle books, journals, crayons/markers/pencils, a hand held massager, play-doh, theraputty, an exercise/stability ball, and various other items (refer to Appendix A for complete list). These sensory items are offered to the patient for use while in the room to help calm the patient. The patients are directly supervised at all times while in the sensory room by therapy staff. Patients are offered this room as an option to calm themselves any time they are agitated while in the group treatment center.

Setting

The setting for this Capstone Project was an urban acute inpatient mental health hospital. The hospital provides psychiatric care to adults with severe and persistent mental illness from the surrounding fifty counties in the state. This hospital was chosen for this project due to the convenience of the researcher being a full-time employee in the facility. The hospital houses five locked patient units that consist of three co-ed units, one all male unit, and one all-female unit. The average length of stay for patients in the hospital is 19 days. Major programming includes patient groups in the group treatment center, groups on the patient units, and individual contacts with patients. These groups and individual contacts include sessions on a variety of psychoeducational, skills-based, and leisure-based topics. Most patients who are eligible to attend the group treatment center attend daily. Eligibility is based on medical and behavioral safety concerns. Any patient attending the group treatment center can request use of the sensory room. Staff in the group treatment center can also offer the use of the room to patients they observe are anxious, frustrated, or upset.

Inclusion/Exclusion Criteria and Recruitment Procedures

Participants for this study were chosen via a convenience sampling of any patients who attended the sensory room in the group treatment center during the study timeframe. Within the research facility, patients are assigned different levels of supervision based on behaviors and psychiatric and medical stability. The supervision levels are one-to-one observation, line of sight, safety, and support. For these levels, one-to-one 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 restricted to the locked unit and routine unit supervision is provided, which means that a staff member must visually check on the patient every thirty minutes. Support level is defined as the least restrictive supervision level and indicates that the patient may leave the unit to participate in activities that might take place within the rehabilitation services department and outside courtyards and go off grounds on community outings.

Patients in the hospital must have support level to attend the group treatment center and, thereby, the sensory room. Participants for this study were those patients in the hospital who were already participating in the sensory room program. Patients represented a variety of ages, genders, and psychiatric and medical diagnoses. Age of patients ranged from 18 to 61 and both male and female patients were included. Patients who participated in the sensory room at least once during the twelve week study period were included. Exclusion criteria included patients who did not participate in the sensory room during the twelve week study period. The rationale for inclusion of a vulnerable population of patients with mental illness was that the study was retrospective and did not publish or make known to the public any identifiable or confidential

patient information. Only staff in the facility who were involved in the study and already worked with the patients had access to such information.

Project Methods and Procedures

The sensory room is a routinely offered OT treatment intervention within the group treatment center. Any patient who is agitated or upset is offered the sensory room as an option to self-regulate and calm their emotions/behaviors. Patients can also request to go in the sensory room in the group treatment center when feeling agitated or upset. While in the sensory room, patients are offered and engaged in a variety of sensory modulation activities to increase adaptive responses to internal and external stimulation in order to regulate emotions and behavior. Only one patient can be in the room at a time and the patient is monitored within line of sight at all times while in the room.

Typical staff training regarding the sensory room is provided to all group leaders in the group treatment area by the OT department. It is provided face-to-face in a two part power point presentation covering basic sensory information, benefits, supportive evidence for programming, and specific guidelines and protocols for use of the sensory room and elements within the room. Teaching targets the human sensory system and how it works, importance of sensory-based services, evidence supporting sensory use in adult mental health, how and when to use sensory-based services, importance of therapeutic communication, client-centered and individualized services, protocols and policies for sensory services (including the sensory room), and appropriate documentation. The presentation includes forward looking scenario assessment questions (i.e. matching scenarios and case studies), role plays, documentation simulation, instructor feedback, and a tour of the sensory room.

Upon entry of the sensory room, each patient rates their perceived level of distress based on the Subjective Units of Distress Scale (SUDS) (Appendix B) and the staff member also rates the patient's distress level based on the patient's behavior, body language, and verbal communication. Data collected in this Capstone Project used the SUDS scale and included both, the perceptions of the patient and the therapist. Staff then unlock the sensory cabinet within the room and allow the patient to identify items they desire to use in helping themselves calm. The staff allows the patient up to fifteen minutes in the room to calm and de-escalate. Once the patient is calm and/or the fifteen minute timeframe is met, the patient and staff member again rate the patient's perceived level of distress using the SUDS scale and the patient is returned to their scheduled group activities and encouraged to continue to use identified sensory coping activities as needed. 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 an intervention and a posttest for a single group of participants. While the SUDS scale is created as a data collection tool for participants to self-rate, the staff member also rates the patients' perceived distress levels in the sensory room (and therefore this study) based on the knowledge that many individuals with mental illness have questionable insight. Lastly, the staff member completes a sensory room documentation note on the patient (refer to Appendix C) that includes not only the perceived levels of distress, but also general demographic information, level of assistance patient required within the room to engage in calming activities, and the items utilized within the room. Levels of assistance include independent (patient engaged by self with no help from staff), moderate assistance (patient needed some help from staff to engage), and total assistance (patient needed 100 percent help from staff to engage). Every patient who utilizes the sensory room participates in an ACLS within one week post use as part of the routine clinical program.

The incident report database is reviewed daily and this database records all physically aggressive behaviors. The occupational therapist (researcher) receives a report each morning documenting all incidents within the preceding 24 hours. These reports were utilized to track the physically aggressive behaviors of all study participants. The date, time, and behavior for each incident is recorded for any patient who participates in the sensory room as part of the existing OT treatment protocol.

This Capstone Project used the PRECEDE-PROCEED model of program evaluation. This model is a framework that can help health program planners and evaluators analyze situations and design health programs efficiently (Doll, 2010). This Capstone Project was an outcome evaluation of a routine clinical program using retrospective analysis of existing patient records to ascertain physical aggression episodes, sensory modulation ability, and self-ratings and staff ratings of patient distress levels pre- and post-sensory intervention. Means, standard deviations, and ranges of scores were calculated for this quantitative data using SPSS and a t-test analysis in the form of descriptive analysis (Creswell, 2014). Descriptive analysis using frequencies and percentages (with categorical data) and means with standard deviations (with continuous data) were used to describe the characteristics of the sample for the evaluation. Paired sample t-tests were used to assess the changes in the SUDS ratings before and after the sensory intervention. Finally, frequencies and percentages were used to describe the proportions of patients who participated in the sensory intervention who had physically aggressive behaviors within twenty-four hours of receiving sensory intervention (based on the incident report database). In addition, the ACLS provided a cognitive score and approximate level of insight for each patient in relation to their self-rated levels of distress. This Capstone Project hypothesized that patients show a decrease in their levels of distress from the time they enter the sensory room to the time they exit

the room. Correlational statistics were used to explore relationships between data sets. This Capstone Project also hypothesized that patients displayed no physically aggressive behaviors (ex: hitting, kicking, biting, spitting, etc.) during the 24 hours following their participation in the sensory room. Lastly, the Capstone Project hypothesized that there is a positive correlation between patient level of insight via the ACLS score and perceived levels of distress.

Outcome Measures Used

The SUDS scale was used to rate each patient's distress level pre and post intervention. The SUDS scale is a Likert-type subjective distress scale that ranges from zero to ten (Kim, Bae, & Park, 2008). On the Likert-scale, zero indicates a state of absolute calmness and ten indicates a person is experiencing the worst possible distress and is out of control (Kim, et al., 2008). A significant feature of the SUDS scale is that it is subjective in nature, which means that the data collected from the scale comes from the perspective of the individual rating the perceived distress. As a subjective instrument, the SUDS scale can have both positive and negative implications for data collection. Positive aspects of the SUDS scale include self-report from the patient's perspective along with predictive validity. In the research study conducted by Kim and colleagues (2008), the SUDS scale showed predictive ability when used as a rating scale for anxiety levels pre and post treatment intervention. Their findings showed that the "SUDS score at the end of the first intervention session predicted overall treatment response at the termination of intervention" (Kim et al., 2008, p. 4). This finding of predictive ability is significant when using the SUDS scale to rate intervention as it may indicate how well a patient will respond to treatment intervention. While the SUDS scale provided a patient's 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

conflicting data collection because a patient may rate their level of anxiety at the beginning of the provided intervention, but depending on what the intervention is, the rating post intervention may be based on a different emotion such as anger, loneliness, or sadness (Kim et al., 2008).

The ACLS is an evidence-based standardized screening assessment of functional cognition (Allen Cognitive Group, n.d.). Interrater reliability is high for this tool, with nearly perfect reliability (r = .99, n = 32, range of levels 2-6) (Allen Conferences, Inc., 2001). The predictive validity is r = .76 and n = 23 (Moore, 1978, as cited in Allen Conferences, Inc., 2001). Test-retest reliability is r = .75 and n = 22 and is "correlated with well-known instruments commonly used with a variety of diagnostic categories to check the validity of the scale" (Allen Conferences, Inc., 2001, para. 5).

This Capstone Project offered program evaluation using the PRECEDE-PROCEED model to analyze the impact that a person-centered, recovery-based, trauma-informed, and evidence-based program had on decreasing physically aggressive behaviors (Doll, 2010). The application of impact evaluation was also essential. Impact evaluation explores "the impact of the program itself" monitoring the entire program throughout implementation and the final outcome (Doll, 2010, p. 284). Through the use of pretest posttest data analysis, changes in SUDS scores and physical acting out behaviors were compared.

Ethical Considerations

This Capstone Project was approved by both, the facility Institutional Review Board (IRB) and the Eastern Kentucky University IRB.

Section IV

Results

Introduction

This Capstone Project was an outcome evaluation of a routine clinical program using retrospective analysis of patient records. The project addressed whether use of the sensory room and the elements within the room at an inpatient mental health hospital reduced perceived levels of distress and acting out and/or aggressive behaviors of patients with mental illness. This Capstone Project focused on program evaluation of the sensory room and turned out to be a pilot study due to number of patients (n = 15) who participated during the study timeframe. This Capstone Project hypothesized that patients show a decrease in their levels of distress from the time they enter the sensory room to the time they exit the room. This Capstone Project also hypothesized that patients displayed no physically aggressive behaviors (ex: hitting, kicking, biting, spitting, etc.) during the 24 hours following their participation in the sensory room. Lastly, the Capstone Project hypothesized that there is a positive correlation between patient level of insight via the ACLS score and perceived levels of distress.

As mentioned previously, means, standard deviations, and ranges of scores were calculated for this quantitative data using SPSS and a t-test analysis. Descriptive analysis using frequencies and percentages (with categorical data) and means with standard deviations (with continuous data) were used to describe the characteristics of the sample for the evaluation. Paired sample t-tests were used to assess the changes in the SUDS ratings before and after the sensory intervention. Finally, frequencies and percentages were used to describe the proportions of patients who participated in the sensory intervention who had physically aggressive behaviors within twenty-four hours of receiving sensory intervention (based on the incident report

database). In addition, the ACLS provided a cognitive score and approximate level of insight for each patient in relation to their self-rated levels of distress. Correlational statistics were used to explore relationships between data sets.

Results of Evaluation of Project Objectives

This pilot study consisted of 15 patients, both male and female, ranging in age from 18 to 61 years old with a mean age of 31 years old (see Table 1 and Table 2). The study included an almost equal amount of male versus female patients. The patients each had one of four mental health diagnoses (see Figure 1), with majority being Psychotic Disorder, Not Otherwise Specified.

Table 1

Patient Information

	Mean	Median	Mode	Range
ACL Score	4.5	4.4	4.4	.8 (range 4.2 – 5.0)
Age	31	22	18	43 (range 18 – 61)

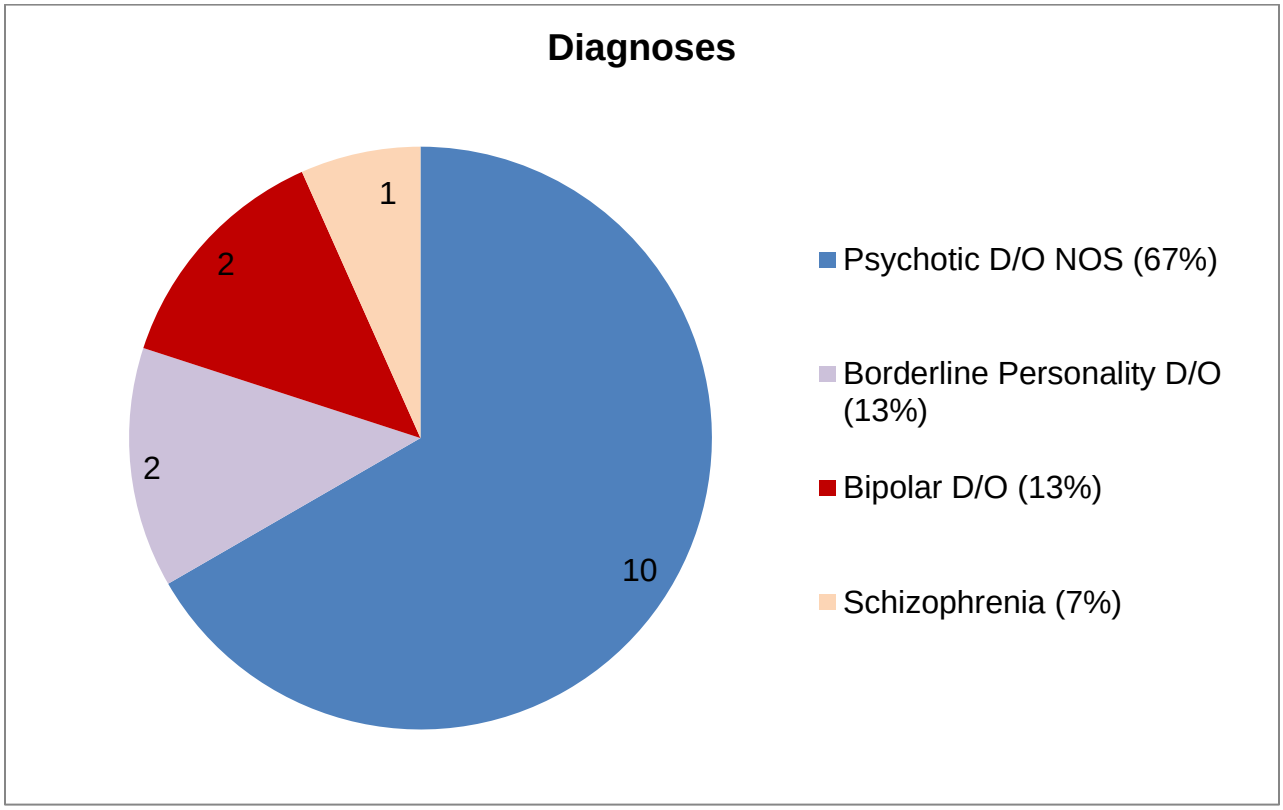
Table 2

Patient Characteristic Information

Patient Characteristic		Frequency
Gender	Male	7 (46.6%)
	Female	8 (53.3%)
Acting Out Behaviors	Yes	1 (6.7%)
	No	14 (93.3%)

*Acting Out Behaviors within 24 hours post sensory intervention

Figure 1



The majority of patients did not exhibit acting out behaviors within 24 hours post sensory intervention, with only one patient of fifteen having physically aggressive behavior (see Table 2). Pre- and post- use of the sensory room, each patient rated their perceived level of distress. In addition, staff rated the patient's level of distress upon entry and exit of the sensory room. These ratings are shown in Table 3. Ratings were based on the SUDS scale (see Appendix A) and ranged from 0-9 in this study. Overall, patients did show a decrease in their levels of distress in the time from entry to exit of the sensory room.

Table 3

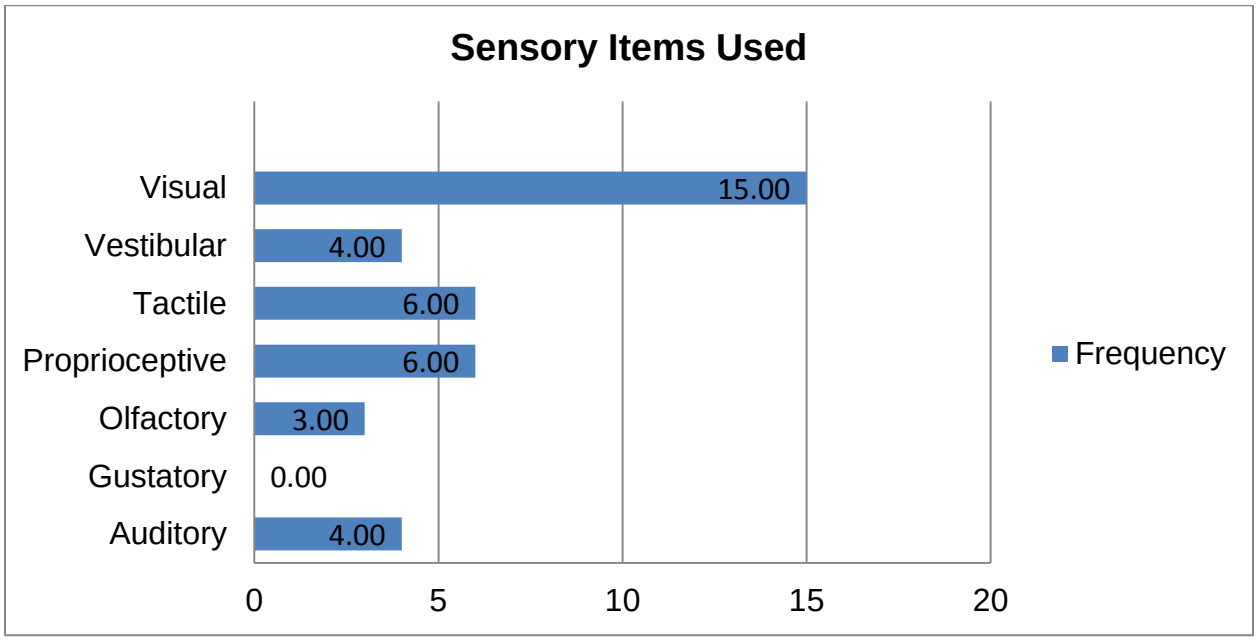
Patient and Staff SUDS Ratings

Patients	PSS	SSS	PSE	SSE	PSD	SSD
1	1	5	0	1	1	4
2	8	6	6	4	2	2
3	6	8	1	2	5	6
4	8	5	2	1	6	4
5	1	3	1	1	0	2
6	8	5	8	1	0	4
7	7	6	1	3	6	3
8	7	7	0	2	7	5
9	6	3	3	1	3	2
10	3	5	3	3	0	2
11	6	5	2	2	4	3
12	6	4	3	1	3	3
13	6	7	0	2	6	5
14	5	7	2	3	3	4
15	8	9	3	5	5	4

*PSS = Patient SUDS start of session
*PSE = Patient SUDS end of Session
*PSD = Patient SUDS difference
*SSS = Staff SUDS start of session
*SSE = Staff SUDS end of session
*SSD = Staff SUDS difference

Staff then unlocked the sensory cabinet in the room (refer to Appendix B for a list of specific cabinet items) and allowed the patient to identify items they desired to use in helping calm themselves. Below is a list of sensory items used by patients in the sensory room (Figure 2). Visual sensory items (i.e. dim and bright light, magazines) were the most common items used by patients in the sensory room, followed by tactile (i.e. fidget toys, stress balls, play-doh) and propriceptive items (i.e. weighted medicine balls, weighted lap pads).

Figure 2



The staff completed a sensory room documentation note (see Appendix C) on each patient who participated in the sensory room program, which included levels of assistance needed to engage in the sensory room. Figure 3 shows that the majority of patients were independent in their utilization of the sensory room.

Figure 3

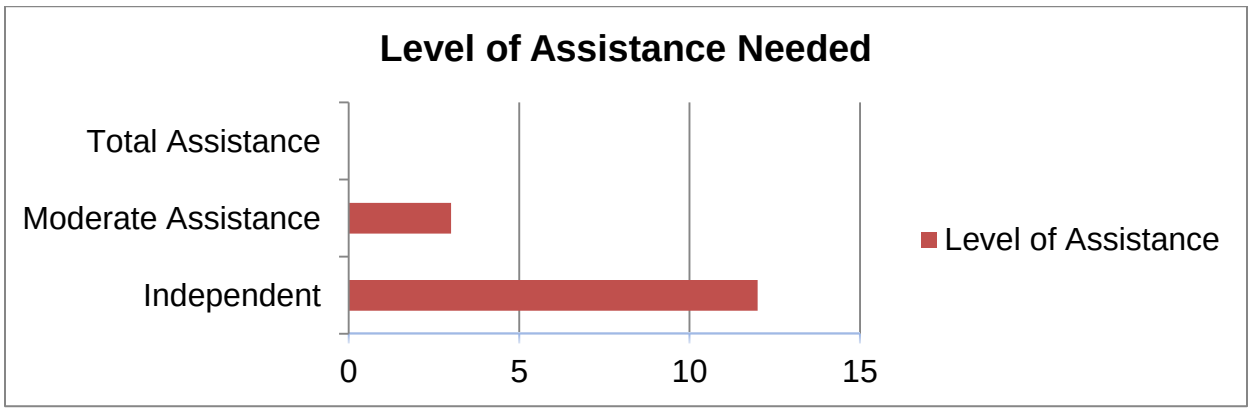


Table 4 presents the paired t-test results on the SUDS differences in pre- and post- patient and staff ratings of perceived distress levels. These t-tests show that there is a significant

difference ($p < .05$) in SUDS ratings. Again, the results showed that patients did experience a decrease in their levels of distress in the time from entry to exit of the sensory room.

Table 4

*Paired T-tests for SUDS Ratings Differences**

	n	t
Participants	15	5.454
Staff	15	10.983

NOTE: * $p < 0.0001$

Table 5 displays the remainder of the data regarding mean and standard deviations for patient and staff SUDS ratings via paired t-tests. Interestingly, the mean SUDS rating by patients and staff was almost equal.

Table 5

Paired T-tests for SUDS Ratings

	Mean	Std. Deviation	Std. Error Mean
Patient SUDS Ratings	3.40000	2.41424	.62335
Staff SUDS Ratings	3.53333	1.24595	.32170

Though the ACL scores ranged from 4.2 – 5.0, the majority of patients scored a 4.4 (7) or 4.6 (2), with one 4.2, three patients with 4.8, and only one with 5.0 (see Table 1). People with scores of 4.4 or 4.6 generally either live with someone, but can be alone part of the day with procedure for obtaining help by phone or from a neighbor, or they may live alone with daily assistance. At either score, the person needs assistance to monitor personal safety, check on the environment, remove safety hazards, solve any new problems, and provide a daily allowance

(refer to Appendix D for Cognition and Level of Care and Appendix E for Summarized ACL Modes 4.4 & 4.6). Though there were no significant correlations via SPSS data analysis, these ACL scores generally indicate less personal insight. For patients with ACL scores of 4.4 or 4.6 (with the exception of two), staff consistently rated the patients' distress levels higher than the patients did themselves, again indicating that they had less personal insight.

Discussion

Data analysis confirms that the use of a sensory room and sensory-based treatment approaches had positive effects among patients of varied ages, diagnoses, and ACL scores. Eighty percent of the patients reported a positive change and twenty percent reported no change in self-perceived distress levels. This is congruent with the results of several other research studies where more than eighty percent of participants reported reductions in distress level after use of a sensory room (Chalmers, et al., 2012; Champagne & Stromberg, 2004; Cummings, Grandfield, & Coldwell, 2010; Lloyd, King, & Machingura, 2014; Novak, Scanlan, McCaul, MacDonald, & Clarke, 2012; and Sivak, 2012). Similar to the study by Bjorkdahl and colleagues (2016), the outcomes of this study align well with person-centered and recovery-oriented mental healthcare that supports the patient's preferences, responsibility and accountability, and oversight of their own recovery.

Though many studies regarding sensory rooms have focused on the reduction of seclusion and restraints, this one did not. However, based on research outcomes of several studies in the available literature, sensory rooms and sensory approaches are effective in reducing rates of seclusion and restraint use (Barton, Johnson, & Price, 2009; Champagne & Stromberg, 2004; Lloyd, et al., 2014; Maguire, Young, & Martin, 2012; and Sivak, 2012). This Capstone Project focused more on the patient's well-being and quality of life. Results of this

project show that overall, patient distress levels decrease with use of a sensory room and identification of sensory items that work for the individual, thereby improving the patient's well-being and quality of life, which aligns well with AOTA's Vision 2025 (AOTA, 2016). By redirecting the attention of patients in distress to the immediate environment and their own sensory experiences and sensations through sensory interventions, the patients become distracted from their distress level. This distraction allows them to self-regulate their emotions and adapt their environment, thus thinking more clearly and monitoring their own destructive behaviors (Sutton, et al., 2013).

OT plays a vast role in mental healthcare, and valued expertise in sensory approaches greatly strengthens that role. In decreasing distress levels and improving patient well-being and quality of life via use of sensory approaches, OT meets the occupational needs of the mental health population with evidence-based intervention, which aligns with AOTA's Centennial Vision (AOTA, 2007). This study and the results also add to the limited available research literature on sensory and OT in adult mental healthcare, ensuring that the profession is science-driven and more widely recognized in this aspect of healthcare (AOTA, 2007).

In addition, in learning that sensory approaches work in de-escalating patients and reducing their distress levels in a mental health setting, staff may be more willing to let go of some of their own control in order to provide more recovery-based care, in which the patient has primary control over decisions about their own care and treatment. Sensory approaches allow for increased patient autonomy, self-management, and self-confidence by empowering patients to be partners in their own recovery (Bjorkdahl, et al., 2016; Chalmers, et al., 2012; Wiglesworth & Farnworth, 2016; and Sivak, 2012). Sensory approaches help teach patients how to cope with anxiety and distress and offer them more recovery-oriented options and tools to calm instead of

medication, seclusion, or restraint use. If individuals with mental illness have greater control and choice in their treatment, they will be able to take increased control, initiative, and responsibility in their lives as they transition from the acute care facility to community and home settings. Thus, the value of the occupational therapist's role in mental health is beneficial.

Strengths and Limitations

The findings provide evidence that use of a sensory room decreases patient distress levels. A strength was that the patients in the study were representative of various ages, gender, and diagnoses. The data presented are from a pilot study of an OT intervention in an inpatient mental health setting. Due to the fact that the sensory room program was just recently implemented and participation in the room was completely voluntary, there were only fifteen participants during the study timeframe. Due to the recent implementation, even though staff were trained, it is questionable whether they highly encouraged patients to participate in using the sensory room. In addition, patients in the facility have the right to refuse any type of active treatment the facility offers (including the sensory room) and cannot be forced to participate if they refuse.

Another limitation of the study was the facility itself. Due to the nature of the facility, safety and contraband concerns and policies restricted the variety of items available in the sensory room to target all five senses. A limitation may also be that several different staff of varying disciplines completed the SUDS ratings on patients who used the sensory room. It is possible that having the same staff person complete SUDS ratings each time might have provided more consistency, however not realistic in daily practice. However, using several staff of varying disciplines may have also been a strength of this study in that all staff who provided

SUDS ratings were familiar with and had some rapport with the patients and worked with them on a daily basis.

Lastly, using ACL scores was a strength of the study because these allowed comparison of patient SUDS ratings to their individual levels of personal insight. Though there was no significant correlation between these in data analysis, the standardization of the assessment tool itself and the research associated with cognitive levels, insight, and level of assistance needed suggest that a relationship does exist. However, as mentioned previously, a limitation of the study could also be the limited or lack of insight of patients due to acute mental illness. In the acute stages of mental illness, patients tend to have very limited insight into their overall state of health, including their emotions. A final strength of this pilot study was that patients learned new coping skills to use when in distress to help regulate their own emotions.

Implications for Practice and Future Research

Due to this being a pilot study with a small number of participants, future research should focus on studies with larger sample sizes, longer data collection periods, and possibly longitudinal and/or multi-site studies. Scanlan and Novak (2015) are in agreement that other research may also include the investigation of whether particular sensory approaches are more effective than others and whether they may aid in the creation of a "hierarchy of sensory interventions in mental health" (p. 284).

The analysis of data collected through this pilot study for OT program evaluation suggested that sensory interventions have a definite role in regulating emotions in the adult mental health setting. The use of such interventions expands the range of effective options for patients in managing aggression as well. This aligns well with Daffern and colleagues' (2010) suggestion that clinicians "should explore methods for effectively engaging, treating, and

managing patients" who are at risk for aggression (p. 378). The results provided preliminary support for the relationship between sensory interventions and self-reported levels of distress. The results indicate that sensory interventions can be implemented effectively and can have many positive outcomes. Thus, the value of program evaluation is reinforced. The analysis also suggests that the sensory room program is working and is not only positively reducing patient distress levels, but is also effective in reducing patient aggression within twenty-four hours after use.

Though they have been more recently highlighted in policy initiatives to reduce seclusion and restraint, sensory modalities have been largely overlooked in research and theoretical summaries on aggression management (Huckshorn, 2006, as cited in Sutton, et al., 2013). The available literature on this subject is on the rise with many populations. However, research on sensory modalities in adult mental health settings is still in the early phases of development, though it is growing, and further research would be beneficial. It is recommended that research be completed on relationships between use of sensory approaches (including the sensory room) and seclusion and restraint use in this mental health setting through standard research studies and program evaluation in clinical practice.

The sensory room promotes healthy development of coping skills and healthier behaviors for this population. This OT program improves the overall health of this population by providing a healthy alternative to seclusion and restraints and helping individuals learn to use healthy strategies and coping skills to calm themselves when upset. In addition, this pilot study added to the OT literature base, particularly pertaining to the role of OT in mental health services. Based on the results of this study, sensory interventions provide person-centered, recovery-based, and trauma-informed care in the acute adult mental health setting. These results support previous

research in that sensory-based approaches are effective in managing negative emotions and/or behaviors in an adult mental health setting and that use of such interventions needs to be further explored and utilized.

There continues to be limited available research on the use of sensory rooms in psychiatric settings and there is a need for additional research regarding the validity of using sensory interventions with this population. Additionally, further research is needed on the use of sensory assessments in assisting staff and patients to use sensory rooms. Such research would be beneficial in discerning valuable assessment tools.

Summary

The purpose of this Capstone Project was to retrospectively evaluate the OT sensory room program offered in a mental health facility. A quantitative design was utilized within a PRECEDE-PROCEED program evaluation model. The project addressed whether use of the sensory room and the elements within the room at an inpatient mental health hospital reduced perceived levels of distress and acting out and/or aggressive behaviors of patients with mental illness. The study hypothesized that patients show a decrease in their levels of distress from the time they enter the sensory room to the time they exit the room. This Capstone Project also hypothesized that patients displayed no physically aggressive behaviors (ex: hitting, kicking, biting, spitting, etc.) during the 24 hours following their participation in the sensory room. Lastly, it hypothesized that there is a positive correlation between patient level of insight via the ACLS score and perceived levels of distress.

The results of this study suggested that the objectives of this study were met and that the hypotheses were proven true. Further, future study replication opportunities exist to add to the available literature, along with other pertinent research to ascertain the validity of sensory

interventions with the mental health population. Occupational therapists possess a vital role in shaping mental health interventions with their foundational knowledge in neuroscience and sensory processes. Further, this example of how to evaluate a program reinforces the role of clinically based research in practice. Sensory approaches provide strategies to empower staff and patients to construct more effective and collaborative relationships that emphasize self-management of emotions and distress through the use of simple, positive, and economical tools, which can also be carried over to use in the community post discharge from the hospital environment.

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Appendix A

Sensory Cabinet Items

1. Weighted vest
2. Fidget items (tangle, koosh ball, puffer ball)
3. Stress balls
4. Ear plugs
5. Glider rocker
6. Coloring pages
7. Journals
8. Crayons/markers/pencils
9. Scent diffuser
10. Handheld massager
11. Weighted lap pads
12. Play-doh
13. Scented lotions
14. Scented hand sanitizers
15. Slam balls
16. Weighted medicine balls
17. Exercise/stability ball
18. Flavored oral swabs
19. White noise machine
20. Radio
21. Theraputty

Appendix B

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)

(Wolpe, 1958)

Appendix C

Sensory Room Documentation Note

Patient Name:	**Unit:**	**Date:**	**Time:**
Patient SUDS self-rating at start of session:	**Staff SUDS rating of patient at start of session:**		
Level of assistance needed to engage in room: ☐ Independent (completed by self) ☐ Moderate assistance (required some help from staff) ☐ Total assistance (required 100% help from staff)			
Room elements utilized: ☐ Radio ☐ Ear plugs ☐ Exercise/stability ball ☐ Stress ball ☐ Slam ball ☐ Weighted medicine ball ☐ Scented hand sanitizer ☐ Scented Lotion ☐ Tangle fidget toy ☐ Weighted vest ☐ Glider rocker ☐ Dim lighting ☐ Bright lighting ☐ Koosh ball ☐ Play-Doh ☐ White noise machine ☐ Hand held massager ☐ Puffer ball ☐ Weighted lap pad ☐ Magazines ☐ Mint oral swab ☐ Lemon oral swab ☐ Journal ☐ Coloring sheet(s) ☐ Scent diffuser ☐ Other: _____			
Patient SUDS self-rating at end of session:	**Staff SUDS rating of patient at end of session:**		
Patient identified helpful element(s) needed for room in future: ☐ N/A			
Comments: ☐ N/A			
Staff Name (please print):			

Appendix D (cognition and level of care)

Cognition and Level of Care

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COGNITION AND LEVEL OF CARE

Level 0: Coma

0.8 Generalized Reflexive Actions

Level 1: Awareness

1.0 Withdrawing from Noxious Stimuli
24-hour nursing care for artificial feeding and turning to maintain skin integrity.

1.2 Responding to Stimulation
24-hour nursing care as at 1.0

1.4 Locating Stimulation
24-hour nursing care to feed regular diet and initiate rolling for skin care.

1.6 Rolling in Bed
24-hour nursing care to place cup and spoon in hand and sustain eating, establish route for voiding, and bathe.

Level 2: Gross Body Movements

2.0 Overcoming Gravity
24-hour nursing care to transfer from bed to chair, provide food, and do bathroom activities.

2.2 Righting Reaction
24-hour nursing care to prevent standing if unable to weight bear, transfer on sliding board or a pivot transfer, provide food, and do bathroom activities.

2.4 Aimless Walking
24-hour nursing care to initiate and assist with all activities of daily living and prevent wandering.

2.6 Directed Walking
24-hour nursing care to restrict walking to even surfaces in safe locations such as a room, building, or yard.

2.8 Grabbing
24-hour nursing care to stabilize grab bars, rails, furniture, point out stairs, edge of bathtub, provide food, and bathe.

Level 3: Manual Actions

3.0 Grasping Objects
24-hour nursing care to elicit habitual motions for activities of daily living and to complete motions for an acceptable level of hygiene.

3.2 Distinguishing Objects
24-hour nursing care to place objects needed to do the activities of daily living in front of the patient and to complete motions for an acceptable level of hygiene.

3.4 Sustaining Actions on Objects
24-hour supervision to place objects needed to do activities of daily living in front of the patient and sequence the patient through the necessary steps to achieve acceptable results. One person can supervise three patient's at a time.

3.6 Noting Effects on Objects
24-supervision to provide the materials needed for activities of daily living, to remind the patient to finish necessary steps, to check results, and to remove access to dangerous objects.

3.8 Using All Objects
24-hour supervision to get materials out that are needed to do activities of daily living, to check results, and to remove dangerous objects.

Level 4: Familiar Activity

4.0 Sequencing
24-hour supervision to remove dangerous objects and solve any problems occurring through minor changes in routine. May fix self a cold meal or snack and make small purchases in the neighborhood.

4.2 Differentiating Features
24-hour supervision to remove dangerous objects outside of the visual field and to solve any problems arising from minor changes in the environment. Patient may spend a daily allowance, walk to familiar locations in the neighborhood, or follow a simple, familiar bus route.

4.4 Completing Goal
Lives with someone who does a daily check on the environment and removes any safety hazards and solves any new problems. May be alone for part of the day with procedure for obtaining help by phone or from a neighbor. May have a daily allowance and go to familiar places in the neighborhood.

4.6 Personalizing
May live alone with daily assistance to monitor personal safety and provide a daily allowance. Bills and other money management concerns require assistance. May require reminders to do household chores, to attend familiar community events, or to do anything in addition to daily household routine.

4.8 Rote Learning
May live alone with daily assistance to monitor safety and check problem solving methods. May get self to a regularly scheduled community activity or succeed in supportive employment with a job coach.

Level 5: Learning New Activity

5.0 Continuous Neuromuscular Adjustments
May live alone with weekly checks to monitor safety and check problem solving. May succeed in supportive employment with a job coach and get to regularly scheduled community activity.

5.2 Discriminating
May live alone with weekly checks to monitor safety and examine potentially dangerous effects of impulsive behavior. May succeed in supportive employment with a job coach and participate in community events.

5.4 Self-directed Learning
May live alone and work in a job with a wide margin of error. May not be safe in jobs with a high potential for industrial accidents.

5.6 Considering Social Standards
May respond to supervision that identifies hazards occurring as secondary effect of their actions. May be relied on to follow safety precautions consistently.

5.8 Consulting
May benefit from assistance in planning for the future. May benefit from discussion of complications such as fatigue, joint protection, functional positioning, etc.

Level 6: Planning New Activity

6.0 Planning without Objects
May consider several hypothetical plans of action and establish abstract criteria for selecting the best plan. May make plans for the future that account for risks to one's health and well-being.

(Allen, 1991)

Appendix E

Summarized ACL Modes 4.4 & 4.6

Level 4: Assistance is required to solve any problems presented by changes in the environment and to protect from any unseen hazards.

4.4: Requires 34% cognitive assistance. Analogous age = 6 years.

- Insight into disability is poor/fair.
- Requires assistance to generate alternative actions.
- Visual field includes only objects at eye level.
- Follows social norms inflexibly and excuses self when norms are broken.
- Not aware of the needs of others.
- Function best within structured and orderly environments and routines.
- Resists change.
- Unsafe living at home without supervision throughout the day.
- Unable to identify real emergencies.
- Must be reminded to bathe and to clean and groom unseen areas (i.e. head, teeth).
- No ability to comprehend diet for medical reasons and objects to special diets.

4.6: Requires 30% cognitive assistance. Analogous age = 6 years.

- Insight into disability is poor/fair.
- Relies on others to reinforce schedule, monitor safety, and assist with money management.
- Inadequate social standards for behavior.
- Follows a routine inflexibly.
- Not aware of the needs of others.
- Tend to be impulsive.
- Uses brute force to change effects on actions.
- Only notices objects in plain sight.
- No understanding of abstract concepts.
- Compliance with special diets must be monitored.
- No thought of consequences prior to actions.

(Allen, 1991; Allen, 1999; Allen, Blue, & Earhart, 1995; Pollard, 2003)