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Sleep Promotion in Children with Developmental Disabilities: Implications for Occupational Therapy Practice

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**Sleep Promotion in Children with Developmental Disabilities:
Implications for Occupational Therapy Practice**

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A doctoral project submitted in partial fulfillment of the requirements for

The Doctor of Occupational Therapy,

St. Catherine University, St. Paul Minnesota

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Abstract

Sleep is foundational for the health and well-being of children. The Occupational Therapy Practice Framework, Domain and Process, 4th Edition (American Occupational Therapy Association, 2020) has categorized rest and sleep as an occupation within the occupational therapy domain. Rest and sleep are defined as “Activities related to obtaining restorative rest and sleep to support healthy, active engagement in other occupations” (p. 32-33). Within this occupation domain, factors related to rest and sleep include rest, sleep preparation, and sleep participation. Rest is a time to relax and engage in quiet actions that do not induce stress or effort. Sleep preparation engages in routines that prepare one for sleep and prepare the environment for rest. And sleep participation is taking care of personal needs for sleep. Sleep is a foundational activity affecting a child’s environment, routines, performance skills, and individual preferences.

Current research suggests that children with disabilities experience sleep disturbances at a higher rate than children without disabilities. Research also examines the relationship between sleep and occupational performance in children. When children do not get enough sleep, they tend to experience difficulties with engagement in school and academics and delays in attention and focus (Claerkin & Creaven, 2013). Findings from an extensive literature review found evidence-based interventions to promote sleep in children. There are also sleep screening tools that can be utilized to gather information on a child’s sleep behavior. This paper examines evidence-based interventions and sleeps screening tools that can assist children and families in sleeping better. The paper also examines occupational therapy's role in treating behavioral sleep disturbances in children. Gaps in research to practice are identified, demonstrating a lack of confidence among occupational therapy practitioners in treating children who may have a sleep

disturbance. This doctoral project aims to find the most effective non pharmacological interventions to promote sleep in children with developmental disabilities.

Three knowledge translation projects disseminated the research and findings gathered during an extensive literature review. The first knowledge translation project was a virtual continuing education class presented through a collaborative event held by the Minnesota Occupational Therapy Association and St. Catherine University. The second project was again a collaborative presentation held by the Minnesota Occupational Therapy Association and St. Catherine University in the form of a virtual poster presentation. The third project is an article titled “*Occupational Therapy’s Role in Sleep Promotion in Children with Developmental Disabilities: Assessment and Intervention,*” submitted to OT Practice magazine.

Completing the three knowledge translation projects increased awareness of sleep interventions and screening tools that Occupational Therapists (OTs) can utilize to treat sleep disturbance in children. This doctoral project identified a lack of confidence among some OTs about providing sleep interventions and encouraged practicing therapists to become more educated in this area of practice. Some of the implications for practice include more research to develop specific sleep questionnaires/screening tools that evaluate the effect of a lack of sleep on performance. Other research opportunities include evaluating the effectiveness of occupational therapy for improved sleep in the pediatric population and, finally, investigating the physiological effects of improved sleep in children with disabilities.

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Chapter 1. Introduction and Background

Background

My interest in the topic of sleep is rooted in my passion for occupational therapy, which involves providing comprehensive care for a client's mental, physical, emotional, and spiritual health wellbeing. OTs are allowed to consider all aspects of an individual's life and incorporate these factors into a plan to help people improve function and participation in desired and meaningful activities. The occupational therapy practice framework (American Occupational Therapy Association [AOTA], 2020) provides a foundation for all factors and contexts affecting a person's life. Many internal and external influences encompass an individual's situation. These influences can be positive or negative. A therapist's job is to look at all factors affecting an individual's participation ability. OTs then create solutions, including adaptations and modifications, to increase an individual's ability to participate in meaningful activities. A focus for anyone providing care for an individual should include considering the role of sleep, which impacts a client's well-being in ways ranging from total energy levels to psychological and physical health (Chow, 2020). Since sleep is considered a foundational occupation it was important to ask the following clinical question: What are the most effective non pharmacological interventions to promote sleep in children with developmental disabilities? With inquiry into interventions, it also became necessary to address assessment of sleep behaviors by examining sleep screening assessments that can be utilized.

Being a pediatric therapist for many years, I can see how a child's family and external environment impact their growth and development. I see children with many different diagnoses that encompass many different symptoms. Looking at symptoms and how they affect a child's ability to participate in preferred environments is a starting point for devising an appropriate

treatment plan to begin therapy. The children I treat tend to experience either mental or physical disorders that warrant adaptation or modification of the environment or require adding some equipment to allow the child to be more independent. My interest in sleep has evolved as I continue to grow and mature as a therapist; I realize I need to explore areas within occupational therapy and become more knowledgeable. I see an opportunity to learn more about the occupations a child experiences and how these occupations and factors affect children. I am passionate about providing all-inclusive treatment to children, and sleep is an area that I need to learn more about. I believe that with increased knowledge of sleep, I will be able to positively affect my pediatric clients and the profession of occupational therapy.

Occupational therapy practice is broad and covers many areas, but one of the points of greatest focus is the use of assistive technology (AT). In rehabilitation, AT is defined as any technological aid that assists a person in functioning physically (Rawashdeh & Reimann, 2022). Assistive technology (AT) is an almost boundless topic that involves high- and low-tech devices and equipment. On the low-tech end of AT, a pencil grip can be considered effective and impactful for a student needing to write better; high-tech AT can help an immobile person move a wheelchair with just an eye movement. Throughout my career, I have always been in awe of OTs who can create AT from simple items found in one's home or just lying around the clinic or school. I feel that success with AT comes from finding solutions for children using simple, low-cost items that may help them perform a task that is important to them. High tech AT also allows people to complete important tasks, however, it tends to be expensive, and obtaining more expensive technology tends to be more complicated. I continue to be motivated and passionate about learning more about AT and incorporating all aspects of AT into my practice.

My love of learning and interest in assistive technology brought me to a job at a medical supply company in the Twin Cities that specialized in providing mobility equipment to adults and children with disabilities. I did not know much about AT or how people obtained it, so my early days on the job were spent understanding all involved with different types of equipment, manufacturers, and the algorithm for obtaining equipment. After some time, I decided to pursue a specialty certification. I studied for several months and took the certification test to become an assistive technology professional (ATP). I attended evaluations and made recommendations for individuals' equipment with this certification. I worked with both adults and children during evaluations. I typically made recommendations to support daytime activities that involved mobility, such as wheelchairs, standers, and scooters that provided patients with postural support.

During my work at the medical supply company, I contacted a manufacturer representative who was excited about a new popular product in Europe. The company was looking for a supplier in the United States. The product included pillows, wedges, and cushions that helped children find a comfortable position to sleep in. Specifically, these devices helped reduce pain while sleeping. The manufacturer representative was curious if our company would be interested in providing this equipment to patients. After becoming acquainted with the company, I was invited to assist with research into postural care systems. I acted as a clinical rater and, in that role, learned more about how such systems assisted with sleep. After my time as a clinical rater, I continued to be interested in nighttime positioning for children as I entered my post-professional occupational therapy program.

Nighttime postural care is a non-pharmacological intervention that can be integrated into a child's routine during the night when they are sleeping. The idea behind this equipment is that it is important to provide pressure relief for people at night just as proper seating and wheelchair

positioning are provided during the day. Nighttime postural care is an emerging intervention that may help children sleep better, especially children with cerebral palsy (Reed, 2019). There is, however, limited research to support this intervention as a strategy to improve sleep in children with cerebral palsy or other developmental or neurodevelopmental disabilities. A systematic review by Blake and colleagues (2015) found that sleep positioning systems showed no significant difference in sleep quality indicators based on the lack of randomized trials investigating nighttime postural care outcomes. The authors also indicated that the quality of evidence in this area is very low. They indicated that more robust research needs to be completed to help families and caregivers make informed decisions about this intervention. Similar findings were made in a second systematic review by Humphreys and colleagues (2019). These authors found some evidence for potential benefits in hip stability, improved sleep quality, and improved quality of life for patients that can tolerate using a sleep positioning system, but the quality of the evidence is poor.

Further, the reliance on secondary data meant that no specific tools were identified specifically by which ratings were given (Humphreys et al., 2019). Overall, the authors point out a lack of high-quality evidence for sleep positioning systems and state that future research is necessary to provide sufficient evidence on patients' potential benefits and characteristics who can tolerate the equipment and adhere to treatment. Nighttime postural care is an emerging intervention that may positively affect sleep in children. However, further research is needed. I am interested in continuing research in this area and exploring how a child's quality of sleep can be affected by additional non-pharmacological interventions.

Sleep is considered an occupation and is foundational in the growth and development of children. As an OT, I feel I can research this topic further and address the current gaps in process

and procedure. It has become evident that therapists and families of children with developmental disabilities would benefit from more education and information on sleep, sleep disorders, and interventions to promote sleep in children.

Review of the Evidence

The occupational therapy practice framework (AOTA, 2020) defines rest and sleep as an occupation. Quality sleep contributes to each person's health and well-being. It allows all individuals to participate in work, school, and leisure activities with engagement and motivation. Sleep as an occupation is an emerging practice area for many OTs. Since many OTs work in pediatrics with children who have neuro and developmental disabilities, they must be familiar with the role of occupational therapy in sleep. Research studies indicate that children with developmental disabilities tend to have more sleep issues than nondisabled children during this project. The research was explored that found examples of sleep questionnaires to assist therapists in evaluating sleep disorders in children they see. Evidence indicates sleep disorders tend to hurt a child's ability to participate in functional tasks and negatively affect occupational performance. Strong evidence from the literature review also indicates that when parents/caregivers are involved in sleep education and interventions with their child, the child tends to improve sleep. Finally, a gap in research-to-practice was revealed from the review of studies that indicated that many OTs do not feel comfortable or confident with sleep. Many feel that they do not know about evidence-based assessments or interventions to assess sleep in children with developmental disabilities.

Higher Incidence of Sleep Disorders in Children with Developmental Disabilities

Sleep disorders are prevalent among most children. However, children with developmental disabilities experience sleep disorders at a much higher rate than non-disabled children (Aishworiya et al., 2018). This theme was emphasized in all studies examined for this project. For example, between 50 – 80% of children with autism spectrum disorder experience sleep problems (Reynolds and Malow 2011.) Proof of the higher incidence of sleep disorders among children with developmental disabilities is explained in a systematic review by Phillips et al. (2020), who reports, “Sleep disturbances are up to three times more common in children with neurological (i.e., traumatic brain injury, epilepsy, cerebral palsy, etc.) and neurodevelopmental (i.e., attention-deficit/ hyperactivity disorder [ADHD], autism spectrum disorders [ASD], etc.) disorders (NNDDs) than in the general population (approximately 60%–80% vs. 25%)” (p. 2). Agar and colleagues (2021) report that sleep disorders affect individuals with intellectual disability (ID) at 8.5–31.4% for adults and 16–42% for children. These are higher rates than seen among individuals in the general population. These statistics warrant recognition from OTs as an opportunity to impact and treat children with developmental disabilities who suffer from sleep disorders.

Contributing to a higher incidence of sleep disorders among children with developmental disabilities are certain environmental factors. Some of these environmental factors include a noisy household or lack of a comfortable bed and bedding. Household routines such as a family choosing to go to bed late each night without a set bedtime can negatively affect a child’s sleep. A child with cerebral palsy may experience increased muscle tone at night and find it difficult to find a comfortable spot on their bed to fall asleep. And finally, client factors such as family values and beliefs may interfere with a good night’s sleep for a child. Some families believe in

co-sleeping, and this belief could impact a child's ability to get enough sleep. Many factors contribute to a child's ability to find quality sleep. It is important to look at all these factors from an OT perspective to help families find ways to improve the environmental factors the child exists in.

Sleep Questionnaires

To recognize sleep disorders in children with developmental disabilities, therapists need to have tools, interventions, and strategies available to them to use during evaluations and treatment. Although there are no specific sleep questionnaires related to occupational therapy, the following examples are quick and simple sleep questionnaires that can help therapists assess sleep behavior in children. One questionnaire is The Children's Sleep Habits Questionnaire (CSHQ) (Owens et al., 2000), and it is appropriate for children aged 4-10. This is a 45-item parent questionnaire that includes items related to several key sleep domains. The Tayside Children's Sleep Questionnaire (TCSQ) (McGreavey et al., 2005) is a sleep questionnaire for children aged 1-5 years and focuses on assessing for disorders of initiating and maintaining sleep. The BEARS sleep screening tool is another sleep questionnaire that OTs could utilize. This is a quick 5-item screening that can be used with children aged 2-18 (Owens & Dalzell, 2000). This tool includes questions in 5 major sleep domains and can be completed by parents, caregivers, or children, depending upon their age. An answer of yes on this questionnaire warrants follow-up by family or a therapist since a sleep issue may be present in the child. It may also be useful for therapists to suggest families complete a sleep diary for one to two weeks. A sleep diary is simply writing down the sleep routine a child has from morning until bedtime. This strategy can indicate issues present during the child's bedtime and morning routine.

Identification of sleep disorders is important, as it impacts all aspects of a child's life and can affect a child's occupational performance.

Sleep Difficulties Impact Occupational Performance

Sleep difficulties can negatively impact occupational performance in children with developmental disabilities. According to The Occupational Therapy Practice Framework, Domain and Process, 4th Edition (AOTA, 2020), performance skills are necessary for individuals to complete tasks. These tasks range from participating in school sports activities to completing self cares. To complete tasks children are required to utilize both gross and fine motor skills. OTs assess how skilled children are at performing these tasks and analyze the underlying issues that may impact task performance. The goal is to find what is meaningful to a child and enhance a child's ability to participate in a desired activity.

One of the underlying issues that may be present in children with developmental disabilities struggling with decreased occupational performance is disordered sleep. Strong evidence indicates that a lack of sleep negatively impacts children's behavior, mood, and performance. Up to 50% of children will experience a sleep problem (Carter et al., 2014, as cited in Owens et al., 2000 and Liu et al., 2005). Poor sleep negatively affects all children's occupational performance, especially children with disabilities (Carter et al., 2014). Difficulty sleeping has been associated with mood problems, emotional dysregulation, behavioral problems, cognitive deficits, and academic difficulties in children. (Phillips et al., 2020). Conversely, increased sleep improves a child's well-being. In one study, an increase of just 27 minutes of extra sleep resulted in improvements in daytime sleepiness, emotional lability, and restless-impulsive behaviors in school children (Gruber et al., 2012). Increases in sleep duration can be achieved by changing a child's routine and environment (Gruber et al., 2012)

It is in the best interest of families and children with developmental disabilities to have OTs address the occupation of sleep and incorporate more evidence-based practice and intervention strategies to improve sleep in children. Since children are dependent upon their parents or caregivers for their care, people who interact closely with children must be educated and informed about sleep issues in their children and given appropriate strategies and interventions to use to help children sleep. Children learn new skills and develop patterns early in their lives, requiring education and routines to be presented to them at a young age. It is most effective if strategies are presented to children during early childhood. These routines and patterns can then be established and utilized as children develop and grow.

Parental Education Can Promote Sleep in Children

Occupational therapists work in several domains to provide support to their clients. The Occupational Therapy Practice Framework (AOTA, 2020) explains that occupational therapy domains are occupations, contexts, performance patterns, performance skills, and client factors. All areas of the domain have influential interrelatedness. All aspects are of equal value and interact to affect occupational identity, health, well-being, and participation in life. Children depend upon parents and caregivers to make positive choices regarding each domain. All domain areas can be set up with factors and influences that can create health and benefit children. Setting up a child's environment for quality sleep can positively affect children to improve sleep. Parents and caregivers have a significant influence on this factor. There are many things they can change in the child's environment to impact.

Studies reviewed for this project provided strong evidence to suggest that having parents involved in treating sleep issues improves sleep in typically developing children and children with developmental disabilities (Bonuck et al., 2016; Wilson et al., 2014). The following studies

emphasize incorporating healthy sleep education for parents and families when children are young. Although not all these studies are specific to children with disabilities, the strategies explained can be useful for children and families who have a child with a disability. Bonuck and colleagues (2016) report that sleep habits are established when children are young and that this is a time when parents still have some control of their child's sleep schedule. The authors detail a study on sleep health literacy with head start families in New York City. The analysis results concluded that there was limited sleep health literacy among parents of children in the head start program. There was a disconnect between practices and perceptions. Most parents believed their child had healthy sleep habits (81%), and few parents reported any sleep problems (10%). "Unhealthy bedtime practices and insufficient sleep for age were reported in 50% and 33% of children, respectively" (Bonuck et al., p. 6). This investigation points to an opportunity to educate parents on sleep issues.

Parents can be positively influential in all occupational therapy domains by providing healthy and safe options for children in all environments. Another example of a sleep education program for parents and children is a study with a Head Start preschool program in Lansing and Detroit, Michigan. The program provided families and teachers with a one-time interactive power point presentation that emphasized the importance of sleep and the appropriate number of hours of sleep based on a child's age. Students were also educated in their classrooms over two weeks. This study found that children had a 30-minute increase in sleep duration at a one-month follow-up. Parent knowledge about sleep was not sustained after one month, suggesting that continued follow-up and interaction may be needed to sustain lasting results (Wilson et al., 2014). Evidence from these two research studies emphasizes the positive impact of providing

sleep education early in a child's life and the importance of parents involved in sleep education to improve sleep in children.

Sleep education has been effective in helping children with developmental disabilities improve the quality and quantity of sleep. Parents or caregivers are encouraged to engage in this education to help children learn new strategies to get more sleep. A systematic review found strong evidence supporting occupation and activity-based interventions, including sleep education coaching and structured physical activity to improve sleep routines and sleep quality (Beisber & Laverdure, 2020). Having parents and teachers involved in activities within the child's natural environment will encourage children to get better sleep.

OTs Need Increased Education on Sleep

OTs do not feel fully equipped with the knowledge, skills, and training to treat a patient with sleep difficulties. A survey published in the American Journal of Occupational Therapy polled pediatric OTs regarding their current practices in assessment and intervention methods for sleep. Results from the survey indicated that therapists did not feel equipped to address sleep with their clients. Few therapists reported using formal assessment methods to evaluate sleep, and most respondents reported using parent/client interviews to gather information. The survey explained that many pediatric OTs feel there is a lack of evidence of effective interventions in addressing sleep as an occupation of childhood (Piller et al., 2020).

Although there is evidence to support occupational therapy's role in addressing sleep problems, sleep continues to have limited space within occupational therapy and occupational science. It may be beneficial for occupational therapy students to have more education on sleep incorporated into the OT curriculum at universities. Practicing therapists may benefit from

increasing their sleep knowledge by attending workshops that address interventions to optimize sleep led by professionals in sleep and rehabilitation (Fung et al., 2013).

Evidence-based practices and interventions will allow therapists to make the best decisions about evaluations and treatment protocols that produce the best outcomes. As therapists, we continue to have opportunities to improve our practice and incorporate research-based strategies into our treatment routines. Further development of sleep management from an occupational therapy perspective will strengthen the role of sleep within clinical practice, education, and research domains (Ho & Siu, 2018). Educating professionals within the practice of OT and those professionals outside of occupational therapy practice will encourage more comprehensive assessment and intervention with the benefit of improved outcomes for children (Tester & Foss, 2018).

The review of evidence completed in this project emphasizes the importance of occupational therapy's role in sleep. Understanding the prevalence of sleep disorders in children with developmental disabilities, the negative consequences of poor sleep on occupational performance, and the necessity of including caregivers in behavioral interventions that promote sleep in children provide important context for this project. A gap in research-to-practice was made clear that OT students, practicing OTs, and parents would benefit from education on sleep and interventions that may help children with disabilities sleep better.

Significance and Innovation

When children do not get enough quality sleep or experience sleep difficulty, it affects them, their families, peers, teachers, and therapists who work with them. A lack of sleep can reduce a child's ability to learn and remember material at school; it can negatively affect a child's ability to sustain attention and increase behaviors such as aggression, hyperactivity, and

impulsivity (Halal & Nunes, 2014). These negative effects of a lack of sleep increase stress on families, teachers, and the child (Halal & Nunes, 2014). Yet sleep quality does not get the same attention in occupational therapy as other work does (Tester & Foss, 2018). For example, during a school or outpatient evaluation, many parents or teachers comment on a child's fine/visual motor skills, delays in processing sensory information, or difficulty trying new and different foods. It is rare to see the question asked of families related to sleep. There appears to be a lack of education on sleep among parents/caregivers, teachers, and therapists. Addressing sleep difficulties in children is important to address right now since our world and atmosphere continue to become more stressful and complicated. When a child experiences a lack of sleep, it reduces a family's quality of life and puts more stress on the family unit. It is important to address the lack of education that parents, teachers, and therapists experience regarding sleep so that children's sleep difficulties can be identified and addressed quickly. Expanding the evidence base for existing occupational therapy interventions and the need to focus efforts on finding new ways to improve sleep are important strategies in promoting occupational therapy's role in sleep (Tester & Foss, 2018).

The current research will add to the body of sleep research by building on prior studies while extending the research to children with developmental disabilities. Prior work indicated that one avenue of future sleep research should emphasize the importance of sleep to caregivers (Moss et al., 2014). Research indicates that when parents/caregivers are educated on sleep, children increase sleep duration and quality of sleep. When parents were educated in a manualized sleep education program that employed behavioral, sensory, and communicative strategies, children made significant improvements in sleep, indicated by a decrease in the total sleep disturbance scale on the children's sleep habits questionnaire (Moss et al., 2014). Sleep

screening tools have been developed to improve how sleep quality is measured in children, but the emphasis on sleep's importance is rarely communicated to caregivers. OTs are in a unique position to support improved sleep quality by integrating sleep interventions that may include parental involvement to achieve improved sleep quality among children with developmental disabilities.

Aims

The first knowledge translation project aimed to share findings from an evidence-based project related to sleep interventions for children with developmental disabilities with occupational therapy students and practicing OTs. These findings were shared through a 30-minute virtual continuing education session via The Minnesota Occupational Therapy Association (MOTA).

The second knowledge translation project aimed to inform occupational therapy students and practicing therapists about evidence-based sleep questionnaires and interventions that can be useful in gathering sleep information about children's sleep habits and behaviors. With this knowledge, therapists are encouraged to investigate and treat sleep difficulties in children. This information was obtained through a literature review and was presented via a virtual poster/power point presentation on April 20, 2022, from 6-7 PM. This was a collaborative event between St. Catherine University and the Minnesota Occupational Therapy Association.

The third knowledge translation project aimed to increase OTs' awareness of sleep disorders among children with developmental disabilities. This was done by providing a case example that discussed the entire evaluation and treatment process a family would go through at an outpatient clinic. This information was aimed to inform occupational therapy students and

practicing therapists. This information will be disseminated through an article submitted for publication in AOTA's *OT Practice* magazine.

Chapter 2: Non-Pharmacological Interventions to Promote Sleep in Children with Developmental Disabilities: A Virtual Knowledge Translation Project Presentation

Aim

The first knowledge translation project aimed to guide occupational therapy students and practicing OTs through the steps of the evidence-based process and to share findings from a literature review related to research related to effective behavioral sleep interventions for children with developmental disabilities. These findings were shared through a 30-minute virtual continuing education session via The Minnesota Occupational Therapy Association (MOTA).

Description

The information for this knowledge translation project titled “Sleep Promotion for Children with Developmental Disabilities” was disseminated through a 30-minute continuing education power point presentation via zoom through the Minnesota Occupational Therapy Association (MOTA). The individual evidenced-based project was titled “non-pharmacological interventions to Promote Sleep in Children with Developmental Disabilities.” The event was offered on February 22, 2022, from 6:30-7:00. The research was shared and was systematically gathered following the completion of an evidence-based project. I reported background information on sleep disorders in children, explained my literature review process, the four themes that came out of the literature review and ascertained recommendations and implications for occupational therapy practice. Participants were encouraged to ask questions following the presentation.

Approach

The approach used to disseminate this knowledge translation project was a 30-minute continuing education presentation via zoom. The information was presented virtually in a power point presentation that included 22 slides with corresponding narration (See Appendix A.1.). This continuing education session was recorded for further use on the MOTA website as part of their ongoing efforts to provide on-demand education. Participants were made aware of the recording. Participants were sent a copy of the power point information in an email with their continuing education certificate. Each participant received one continuing education credit for this class.

Audience and Venue

The audience included occupational therapy practitioners, students, and educators. Ten participants registered for the class. Participants were charged \$5 if they were MOTA members and \$25 if they were not members. Our occupational therapy post-professional doctoral cohort members were not charged any fee to attend. Participants received a certificate of attendance via email a few days after the event. The event was moderated and recorded by an employee of MOTA.

Learning Objectives

Three learning objectives were associated with this project.

1. Describe research supporting the occupation of sleep and interventions to promote sleep in children with developmental disabilities.
2. Understand the relationship between sleep and occupational therapy.

3. Examine recommendations for OT practice related to sleep and interventions that are effective in promoting sleep in children with developmental disabilities.

Evidence of Approach Used

I filled out a MOTA Virtual Presentation Application/MOTA Course Application for my presentation (See Appendix A.2.). To understand the effectiveness of the presentation, I created and administered a survey that addressed my ability to identify evidence-based sleep questionnaires and interventions for children with developmental disabilities. This survey helped me determine whether the educational approach I used had the desired effect.

Evaluation Method

To evaluate the effectiveness of my presentation, I requested that participants complete a google survey at the end of my course for feedback. The survey was included in the chat box at the end of the presentation. The survey consisted of five questions formatted in a five-point Likert scale with options to choose a category of “Not well” (1) to “Very Well” (5). The first three questions addressed whether the three learning objectives were met. The fourth question asked for a rating on the presenter’s ability to communicate the material. The final question asked if the content of the material was organized (See Appendix A.3.).

Chapter 3: Evidence-Based Interventions and Screening Tools for Sleep Promotion in Children with Developmental Disabilities: A Poster Presentation

Aim

The second knowledge translation project aimed to inform occupational therapy students and practice therapists about evidence-based sleep questionnaires and interventions that can be useful in gathering sleep information about children's sleep habits. The information gathered about sleep behavior was used to encourage therapists to find ways to promote sleep in children. This information was obtained through a literature review and was disseminated through the presentation of a virtual poster/power point presentation on April 20, 2022, from 6-7 PM. This presentation was a collaborative event with St. Catherine University and the Minnesota Occupational Therapy Association.

Description

For this knowledge translation project, I presented a professional poster and a 10-minute power point slide presentation with narration to the Minnesota Occupational Therapy Association. This poster disseminated information on evidence-based interventions and sleep screening tools that can be used to assess and treat sleep disorders in children with developmental disabilities. The poster was titled "*Evidence-Based Interventions and Sleep Screening Tools for Sleep Promotion in Children with Developmental Disabilities.*" The poster explained the background on sleep, the clinical question, methods used to compile research literature, sleep questionnaires available for use, sleep hygiene interventions, and implications for OT practice and research. References were available on a slide in the power point presentation. Copies of the poster and poster references can be found in Appendix B.1. and Appendix B.2.

Approach

I presented this knowledge translation poster and power point presentation with narration virtually through a collaborative event between St. Catherine University and the Minnesota Occupational Therapy Association. I completed a 3-column poster along with a 13-slide presentation with narration. See slides in Appendix B.4. The template sections included the title, introduction/background, practice dilemma question, method, sleep screening tools, interventions, implications for occupational therapy practice, and research and references.

Audience and Venue

The audience that viewed my virtual power point poster presentation was occupational therapy students, practitioners, and educators that signed up for the event through the Minnesota Occupational Therapy Association. The cost for participants who register for the presentation is \$5 if they are a MOTA member and \$25 if they are a non-MOTA member. The venue was held virtually with my advisor, Dr. Coss being the moderator at MOTA, and my classmates and I presenting from our homes.

Learning Objectives

After viewing my virtual power point poster presentation, participants were asked to answer the following learning objectives.

1. Define how occupational therapy can promote sleep in children with developmental disabilities.
2. Identify one sleep screening tool that can assess sleep difficulties in children.
3. Examine interventions that could be useful in promoting sleep in children with disabilities.

Evidence of Approach Used

I created a narrated poster power point presentation with the guidance of faculty at St. Catherine University. This presentation was accepted by the MOTA and occurred on April 20, 2022, from 6-7 PM. This submission and acceptance process demonstrates effectiveness in my approach.

Evaluation Method

I created a five question Likert scale survey to evaluate the quality of this knowledge translation project presentation (Appendix B.5.) This survey was given to participants in the chat box at the end of my presentation with the request that they fill it out. I used the comments from this survey to assess the quality of my presentation. Results of the survey can be seen in Appendix B.6.

Chapter 4: Occupational Therapy's Role in Sleep Promotion in Children with Developmental Disabilities: OT Practice Magazine Article

Aim

This knowledge translation project aims to inform occupational therapy students and practice therapists about occupational therapy's role in sleep promotion in children with developmental disabilities. Information on sleep disorders and interventions is discussed in this article. This information was obtained through a literature review and will be disseminated by submitting an article to OT Practice magazine.

Description

I have written and plan to submit an article to the OT Practice magazine for this knowledge translation project. All author guidelines presented in The American Occupational Therapy Association *OT Practice* magazine have been followed. The title of this article is "Occupational Therapy's Role in Sleep Promotion in Children with Developmental Disabilities: Assessment and Intervention." This article details evidence-based knowledge on sleep assessments and interventions that I have found throughout my work in the doctoral program.

Approach

The approach I used to complete this knowledge translation project was by writing a manuscript about occupational therapy's role in sleep promotion in children with developmental disabilities, including assessment and intervention. See the article in Appendix C.1. This article will be submitted to the editor of *OT Practice*. Contact has been made with the editor, who emailed me a response stating that my topic sounds interesting and she would be happy to edit a draft of the article once I submit it. The editor also included information on how to submit an article to the magazine. The email contact can be seen in Appendix C.2.

Audience and Venue

The audience for this article is occupational therapy students and practitioners who read *OT Practice*. Audience members can access this magazine through print or virtually by being a American Occupational Therapy Association member. Individuals can subscribe to the magazine without being a member of the association. *OT Practice* is a publication that covers a wide range of topics and age ranges and provides comprehensive and practical information for OTs and occupational therapy assistants.

Learning Objectives

After reading this article, practitioners will:

1. Define occupational therapy's role in sleep promotion in children with developmental disabilities.
2. Identify a sleep screening tool that can be used to assess sleep in children.
3. Describe evidence-based sleep interventions that can be used to promote sleep in children with developmental disabilities.

Evidence of Approach Used

In preparation for writing this article, I reviewed the *OT Practice* magazine guidelines. I looked at the ten areas in this guide to help frame the topic and ideas that will make this article relevant and appropriate for publication. I also consulted my professor, Dr. Darla Coss, for information on an article she wrote so that I could review her process, topic, and approach.

Evaluation Method

The primary method of evaluating this knowledge translation project is the submission and review process set forth by *OT Practice* upon submission of my manuscript. If approved, the publication will edit my article and return it for final review.

Chapter 5: Evaluation Outcomes and Analysis

To make visible the people I intended to educate, the messages I hoped to convey, the goals I wanted to achieve, and the message I hoped to impart from the three knowledge translation projects, I used The Knowledge Translation Template designed by Barwick (2008, 2013, 2018). This template was then used as a point of reference when I later analyzed the effectiveness of my work. Each knowledge translation project was analyzed following the steps presented in the template.

Evaluation Outcomes

Knowledge Translation Project #1: Non-Pharmacological Interventions to Promote Sleep in Children with Developmental Disabilities. A Virtual Continuing Education Course.

Knowledge Users. The knowledge translation users of this project were OTs and occupational therapy students who signed up for this continuing education class through the Minnesota Occupational Therapy Association. Ten participants signed up for this virtual class. The virtual presentation was held on February 22, 2022, hosted by the Minnesota Occupational Therapy Association and St. Catherine University.

Main Messages. Several main messages were presented during this virtual knowledge translation project. Four of the bottom-line actionable messages (BLAM) (Barwick, 2008, 2013,2018) are as follows:

1. Sleep disorders are more prevalent in children with disabilities vs. typically developing children.
2. Sleep disorders negatively affect occupational performance in children.
3. Behavioral interventions that incorporate parent/caregiver education and involvement promote sleep in children.

4. Sleep is an occupation and is within the scope of practice for OTs.

Knowledge Translation Goals. The goals of this knowledge translation project were geared toward informing occupational therapy practitioners and students. The following goals were found to be relevant for each group:

1. Generate awareness that sleep is considered an occupation and warrants intervention by OTs.
2. Impart knowledge of evidence-based behavioral interventions that promote sleep in children with developmental disabilities.
3. Encourage practice change that informs therapists of strategies that may improve a child's occupational performance.

Knowledge Translation Strategies. The strategy used to disseminate information for this knowledge translation project included presenting evidence gathered during an extensive literature search and review in a 30-minute power point presentation to participants who signed up for the continuing education course. This presentation was offered virtually through collaboration between the Minnesota Occupational Therapy Association and St. Catherine University.

Knowledge Translation Evaluation. Evaluation of this knowledge translation project was completed by disseminating a google form Likert scale survey to participants. The Likert scale allowed participants to choose a range of ratings between (1) not well and (5) very well. The survey included five questions total, with three questions inquiring how well the presentation met the stated learning objectives included in the presentation plan. The learning objectives were: 1) describe research supporting the occupation of sleep and interventions to promote sleep in children with developmental disabilities, 2) analyze the relationship between

sleep and the role OT plays with this occupation, and 3) examine recommendations for OT practice related to sleep and interventions that are effective in promoting sleep in children with developmental disabilities. The final two questions related to whether the presenter was able to communicate the material well and how well the content of the presentation was organized. Participants were asked to complete the survey at the end of the presentation included in the chat box. Eight participants responded to the survey. The participants responded with feedback in the 4 and 5 range (very well). Eight out of 10 participants completed the survey. Participants responded with either a rating of 4 or 5 (very well) on all questions from the survey, with a higher percentage choosing a rating of 5. On the question asking about feedback on overall impressions of the presenter's ability to communicate the material, the participants were split 50% between 4 and 5. Results from the actual survey can be seen in Appendix A.4. Participants asked two questions during the presentation. One participant asked if I had found any research related to toilet training and sleep. Another participant asked if I was using my new knowledge and research in clinical practice and how I was doing this. I responded to the first question by stating that I had not run across any research relating to the question. I responded to the second question by responding that I have been talking about my research with my colleagues. I am now asking parents and children more questions about their sleep habits and if they feel that these habits are interfering with their lives. The survey and results from participants can be found in Appendix A.1.

Knowledge Translation Project #2: Evidence-Based Interventions and Screening Tools for Promotion of Sleep in Children with Developmental Disabilities: A Knowledge Translation Project Poster Submission to the Minnesota Occupational Therapy Association Annual Conference

Knowledge Users. The knowledge translation users of this project were OTs and occupational therapy students who signed up for the virtual poster presentation scheduled on April 20, 2022, from 6-7 PM. There were 35 participants. Both members and non-members of the Minnesota Occupational Therapy Association were welcome to sign up for this presentation. This presentation was held virtually since MOTA is not having a live, in-person event this year.

Main Messages. The main messages presented in this poster presentation were to explain that sleep is an occupation and that treating children with sleep difficulties does fall within OTs scope of practice. Other translated messages were that children with disabilities tend to experience sleep difficulties more than children without disabilities. Final messages communicated during this presentation included information about sleep screening tools that therapists can use to assess sleep in children and evidence-based interventions to promote sleep in children with disabilities.

Knowledge Translation Goals. The goals for this knowledge translation project are as follows:

1. Raise awareness about the role of occupational therapy in the occupation of sleep.
2. Share resources for sleep screening tools and evidence-based interventions to promote sleep in children.
3. Inform therapists about the research needs in sleep and occupational therapy.

Knowledge Translation Strategies. The strategies used in this project include a poster that was presented virtually at MOTA since the association is not having an in-person conference this year. A poster was created on a slide and a PowerPoint slide presentation on April 20, 2022, from 6-7 PM. This presentation lasted 10 minutes, with a facilitated discussion at the end of the presentation. Three other students presented their posters during this event.

Knowledge Translation Evaluation. The way that this presentation was evaluated was through the dissemination of a google form Likert scale survey to participants. The Likert scale allowed participants to rate the presentation by choosing between a rating of (1), not well, to a rating of (5), very well, with three options in between. Three of the questions asked how well the presentation answered the three learning objectives that, including 1) defining how occupational therapy can promote sleep in children with developmental disabilities, 2) identifying one sleep screening tool that can be used to assess sleep difficulties in children, and 3) examine interventions that could be useful in promoting sleep in children with disabilities. One question was posed that asked how well the presenter could convey the information in the poster. The final question asked how organized the material was during the presentation. This survey was given to participants in the chat at the end of the presentation requesting feedback. Twenty participants completed the survey. The participants rated the presentation in the Very well (5) range 75%-95% of the time. There were questions asked at the end of the session. One question asked was how I use this new information in my current practice. Another question asked if there were adult sleep questionnaires available, and a final question was posed about whether the BEARS sleep tool was available for free online. The survey and results can be viewed in Appendix A.2.

Knowledge Translation Project #3 Occupational Therapy's Role in Sleep Promotion in Children with Developmental Disabilities: Assessment and Intervention: A Knowledge Translation Project Submission to the American Occupational Therapy Association's OT Practice magazine

Knowledge Users. The knowledge users of this translation project include people who have access to and read *OT Practice* magazine. Most of the readers of this magazine are OT practitioners and OT students. Members of AOTA can get access to *OT Practice* through their membership AOTA. A basic membership allows practitioners to receive a digital copy of the magazine and a plus membership allows practitioners to receive a print copy of the magazine. Nonmembers of AOTA can subscribe to *OT Practice* for \$275. AOTA is a national organization that publishes the *OT Practice* magazine. Therapists and OT students are offered essential insights into practice trends and articles, including hands-on techniques, policy updates, career advice, and job opportunities.

Main Messages. The main messages present in this knowledge translation project are that occupational therapy has a role in assessing sleep disorders in children since sleep is an occupation. The other messages conveyed in this article include information on sleep screening tools available to gather information on sleep behavior in children. And evidence-based interventions are documented. The article included a case study example to help explain the ideas more clearly.

Knowledge Translation Goals. The goals of this knowledge translation project are as follows:

1. Raise awareness about the importance of sleep in the occupational therapy assessment process.

2. Share knowledge on sleep screening tools and evidence-based interventions that OTs can use in practice.

Knowledge Translation Strategies. The strategies that will be used to complete this project are to work with the editor of *OT Practice* to revise drafts of the article, communicate with my faculty advisor, Dr. Coss, for assistance on any revisions and consult my mentor, Dr. Jenny Hutson, for advice on writing this article. All requirements that are included in the article submission guidelines will be followed. I will include my email and all contact information for contact about revisions and submission.

Knowledge Translation Evaluation. The main evaluation method used in this project is the peer-reviewed manuscript submission process. All steps of this submission process will be followed, and continued communication with the editor of *OT Practice* to ensure that my article has a good chance of being selected to be published. I will include all my contact information in the article to allow readers the opportunity to contact me with questions or comments.

Evaluation Analysis

When examining the thirteen elements included under comprehensiveness in the knowledge translation template (Barwick, 2008, 2013, 2018) I found my project work to be good to excellent. Elements were clearly stated and explained. Alignment of the three knowledge translation projects can be considered excellent since all 5 features were clearly stated and related to each other. The feasibility of the three projects can be considered good to excellent since all were completed using a minimal budget, each required minimal resources and the benefit to knowledge users is clear. Further discussion of strengths and weaknesses is discussed here.

Comprehensiveness

A major strength of this doctoral project is that three knowledge translation projects were presented at both a state and national level. This allowed knowledge users from different parts of the state and the country to view evidence and information. Main messages and goals were presented that were clear and concise to knowledge users and related directly to occupational therapy practice. Users could take simple and transferable information to use immediately in practice via a continuing education class, a poster presentation, and an article. The continuing education class and poster presentation were available virtually and were recorded. This is a strength of the projects since access to the presentations could reach an even larger audience. Knowledge translation strategies were clearly defined and directly related to the knowledge translation goals presented.

One of the main weaknesses of this doctoral project is the lack of an interprofessional focus, with knowledge users being mainly OTs. Although OTs will benefit from the information presented in this project, interdisciplinary scholars and professionals will also benefit from this information. One of the ways that this information could be disseminated to more professionals is through a presentation at more interdisciplinary venues.

Two of the knowledge translation projects being presented virtually could also be considered a weakness. When presentations are virtual, it limits the amount of audience interaction and energy generated. It can also limit the number of questions asked and potentially limit the rich dialogue between the speaker and the audience.

Alignment

The alignment of the three knowledge translation projects can be considered good to excellent. All three projects stated the main message linked to a knowledge user. Knowledge

translation goals, strategies, and an indicator of how well the goals were achieved were completed with the first two projects. The final/third project has not yet been completed.

The first project was a virtual continuing education presentation to the Minnesota Occupational Therapy Association. Eight participants completed a survey and provided feedback about the content and the quality of the information presented. The feedback from the completed surveys allowed clarity about the project's alignment.

The second knowledge translation project was a poster presentation completed virtually to the Minnesota Occupational Therapy Association. The poster presented a 10-minute PowerPoint presentation with a facilitated discussion afterward. The presentation was done virtually since MOTA did not have a live, in-person conference this year. Twenty surveys were returned with positive feedback regarding the content and quality of the presentation.

The third presentation has not been completed yet. This project will be a manuscript submitted to the *OT Practice* magazine. Once the article has been submitted for publication, alignment will be analyzed.

Feasibility

The feasibility of the three knowledge translation projects can be rated as good to excellent. Two of the three projects were offered virtually, and one of the projects will be submitted for publication in a peer-reviewed journal.

The first project was a continuing education class offered virtually during the evening hours with another student. An entire hour of education could be attained by signing up for this class. The second project was a poster presentation offered virtually as part of MOTA's continuing education series instead of a face-to-face conference this year. These two presentations allowed participants to engage in a topic with new information, ask questions, and

offer comments. This is a highly feasible environment since participants did not have to travel anywhere and could connect to the presentation online from anywhere. The final knowledge translation project is submitting a scholarly article to a peer-reviewed journal. This project has not been submitted to the journal; however, several drafts have been completed. The feasibility of this manuscript submission is high. If the article is selected for publication, it will become easily available for readers to access. The submission process can be done online. There has been contacting made with the magazine's editor, who has stated that she is interested in the article's topic. She also reported that the magazine editors are flexible and interested in assisting new scholarly authors in making changes to their manuscripts and helping to get the article published. A solid draft will be submitted for this final doctoral project; however, the editing process may extend beyond the graduation timeframe.

Chapter 6: Reflection and Recommendations

Reflection on Mission and Vision Statements

This doctoral project addressing sleep problems and interventions and the impact of the knowledge translation projects aligns with the mission and vision of the American Occupational Therapy Association, St. Catherine University Henrietta Schmoll School of Health and the St. Catherine University Department of Occupational Therapy. The project also filled a knowledge gap and advances practice by making clear how sleep questionnaires and interventions can help improve children's sleep habits and behaviors. Additionally, the project has allowed me to grow professionally by improving my knowledge of improving sleep behaviors, which can lead to subsequent health benefits for children in my care.

AOTA's 2025 Vision. My doctoral project aligns with the beliefs of AOTA's 2025 vision in many ways. The vision statement is as follows:

As an inclusive profession, occupational therapy maximizes health, well-being, and Quality of life for all people, populations, and communities through effective solutions that facilitate participation in everyday living. The five pillars are as follows:

- **Effective:** Occupational therapy is evidence-based, client-centered, and cost-effective
- **Leaders:** Occupational therapy is influential in changing policies, environments, and complex systems
- **Collaborative:** Occupational therapy excels in working with clients and within systems to produce effective outcomes
- **Accessible:** Occupational therapy provides culturally responsive and customized services

- Equity, Inclusion, and Diversity: We are intentionally inclusive and equitable and embrace diversity in all its forms (AOTA, 2019)

Improving sleep in children allows them and their families to gain health and well-being and contributes to a good quality of life. The occupation of sleep is important to address since this occupation affects occupational performance in all aspects of life. The information presented in this doctoral project has been accessed and analyzed in a systematic and scholarly manner. Each step of the evidence-based project produced relevant and specific evidence to support the clinical question or dilemma. In this way, my doctoral project aligns with AOTA's vision regarding the pillar of effectiveness. It also aligns with the pillars of leadership and collaboration because I have focused on the occupation of sleep, which affects everyone. Sleep is an important occupation that occupational therapy practitioners can address in many environments and with the help and collaboration of other professions, including physical therapists, speech therapists, educators, psychologists, nurses, and doctors. Education on sleep can be disseminated to make changes in practice and intervention to produce positive outcomes for children. Since sleep is an occupation that children of all races and cultures engage in, my doctoral project aligns well with the last two pillars of AOTA's vision 2025: Accessible and Equity, Inclusion, and Diversity. Sleep screenings and interventions can be customized to accommodate any individual child's family or cultural situation to provide equitable care for the entire family.

St. Catherine University Henrietta Schmoll School of Health. There is significant alignment between my doctoral project and the vision presented by the Henrietta Schmoll School of Health at St. Catherine University. The vision states:

The Henrietta Schmoll School of Health educates diverse learners and engages clinical and community partners to influence health, health systems, and health policy. The school is

distinguished by an emphasis on relationship-centered care, socially responsible leadership, and interdisciplinary initiatives” (St. Catherine University, 2020, p. 9)

My doctoral project aligns with the vision statement of St. Catherine University Henrietta Schmoll School of Health in the fact that my project highlights the importance of sleep as an occupation and the important role that occupational therapy plays in treating sleep disorders. My knowledge translation projects immediately highlighted useful information for practitioners, such as the sleep screening tools and sleep interventions that can be easily incorporated into a child’s sleep routine.

St. Catherine University Department of Occupational Therapy. My doctoral project follows the tenets set forth by the Occupational therapy department at St. Catherine University in several ways. The vision is as follows:

The Department of Occupational Therapy provides an excellent education in occupational therapy to students from diverse backgrounds, conducts a scholarly inquiry on human occupation, and serves the broader community by promoting occupational health and well-being. We prepare students to respect the dignity of every individual, value humans as occupational beings, understand the development of occupational competence, apply ethical, spiritual, and social justice principles, engage in a healthy balance of life occupations, and lead and influence the advancement of occupational therapy (St. Catherine University, 2020, p. 9-10)

My doctoral project follows the tenets of the mission and values of the occupational therapy department at St. Catherine University department of occupational therapy in the fact that I have demonstrated scholarly inquiry into the human occupation of sleep. Occupational therapy views occupation as an imperative aspect of people. OTs believe everyone should be

able to participate fully in everyday living. Having meaning and meaningful activities in one's life is at the core of what OTs strive to find for the people they work with. Improved sleep increases the health and well-being of children. Better sleep can increase occupational performance and change an individual's quality of life. My doctoral project reveals that sleep is an occupation and is within the scope of practice for OTs to assess and treat. Sleep is something that all people experience and need. This doctoral project highlights sleep and the skill OTs have in specializing in sleep care according to each person's specific culture, neurodiversity, age, and needs.

Reflection on Knowledge Translation as a Focus for Advanced Practice

Before starting this doctoral program, I was unfamiliar with what knowledge translation was. I could surmise that some information was being disseminated. However, I was unfamiliar with how specific and dynamic the knowledge translation process is. All the courses in this program helped me realize how important processes, systems, and environments are. Having a solid template with proven ideas and processes, such as a knowledge translation template, allows all stakeholders and participants to have a clear idea of what is being proposed, how this event will happen, who is involved, and the outcomes. Before participating in this program, I felt that other people had a handle on the processes and that I should just follow these guidelines. In my experience, I have encountered people who are pronounced as leaders; however, they do not follow procedures or processes, and messages become unclear. This creates doubt and uncertainty among groups of people.

Engaging in the entire knowledge translation process has afforded me the tools and confidence to feel that what I have to say is important and will impact people. I can confidently say that I have researched my topic and can provide evidence-based information, and will make

positive changes in children who have sleep disorders. Knowledge translation is a process that ensures that the project is comprehensive, informing the right knowledge users with the right main messages that have goals and strategies that are feasible to initiate. This became relevant when I presented a poster for one of my knowledge translation projects. As a pediatric therapist, I felt that it was important to educate therapists on the evidence that there are sleep screening tools that are quick and easy to use as well as sleep hygiene interventions that can easily be implemented into a child's sleep routine. This information was presented in a clear and concise format that will improve practice for pediatric therapists who may not be familiar with sleep or ways to assess and treat sleep disorders in children.

Overall, I feel that participating in the process of knowledge translation has improved my skills and has allowed me to feel confident in passing along information that I feel is important. I am no longer stagnant in my practice. I have renewed enthusiasm and skills to motivate other practitioners to advance their practice to improve assessment, intervention, and outcome measures. I am excited to see more children being able to sleep better.

Reflection on Professional Development

One of the biggest realizations I have made during this doctoral project is how much I do not know. I have been pushed beyond the limits I thought I could reach. I now have a refreshed feeling of motivation and excitement for my practice area. I have a plethora of resources to access and use now. I also have a bigger network of people and connections that will allow me to continue to expand my practice. With access to more resources, I also have more confidence in developing ideas and expressing my opinion about processes and procedures. From some of the classes I have taken, such as program evaluation, I feel that I can look at how things are done and

make suggestions for improvement. I now have the skills and knowledge to contribute to programs and assessments confidently and intelligently.

This doctoral project has made clear to me that professional development is fluid, ongoing, and necessary to understand and embrace change. Along with this, it is also important to understand the basic, unchanging tenets of the practice of OT. It has allowed me to reflect on my past and current practice: Why did I become an OT? What do I want to accomplish during the treatment period with my client/student? I have realized that I have always loved the concepts and ideas of what OT is, and I continue to strive to bring these concepts into the therapy I offer my children each day.

I feel that my work on this doctoral project has expanded my professional development to the point that I have become a leader in this area. I can provide practitioners and families with resources related to sleep. Participation in this doctoral program has increased my confidence overall immensely. I now feel more comfortable joining groups and having conversations with leaders in the field. I have joined a special interest group through the Rehabilitation Engineering Society of North America (RESNA), an international group of scholars and professionals that discusses 24-hour postural care. I also feel that this project has renewed my research interest, and I can look at research in a new way with more of a scholarly eye. I have been asked to co-author an article related to assistive technology this summer with my mentor. I also plan to complete a webinar series with an allied health organization. Additionally, I plan to attend continuing education classes to maintain my Assistive Technology Professional (ATP) credential.

Recommendations

Summary of Needs for Future Knowledge Translation. One of the themes that have become evident during my research project has been the fact that not all occupational therapy

practitioners are aware that sleep is an occupation, according to the Occupational Therapy Practice Framework (AOTA, 2020). Even those therapists who are aware that sleep is within occupational therapy's scope of practice may not feel equipped with evidence-based assessments and interventions to provide their patients. This may mean that practicing therapists may be missing the opportunity and obligation to treat children who have sleep disorders. Since research has shown that sleep disorders can impact a child's mood, behavior, and occupational performance, this gap in research to practice must be addressed.

OTs are experts in many areas, and human occupation is a major theme of the OT Practice Framework. It is important that the occupational therapy curriculum at universities educates all occupational therapy students on the physiology of sleep and how sleep is a crucial part of a person's life at all stages of development. This education can be further emphasized by presenting sleep assessments and interventions that would be appropriate to use with children specifically.

One of the needs that became clear during this doctoral project regarding sleep is the lack of information on specific OT-related sleep assessments and interventions available to parents/caregivers, teachers, and occupational therapy practitioners. Knowledge translation must be concise, easy to use, and produce positive results even in the smallest form if possible. Keeping in mind that there are tools and resources to help those new to knowledge translation ensure quality outcomes and projects (Barwick, 2008, 2013, 2018).

One Proposed Future Knowledge Translation Project: Live Webinar Presentation for Allied Health Education. Webinar Presentation on Assessment and Intervention for Sleep Promotion with Children with Developmental Disabilities

Knowledge Users. The knowledge users who would use the information in this future knowledge translation project would be parents/caregivers, OT practitioners, and other interdisciplinary professionals such as physical therapists, speech therapists, psychologists, and medical doctors. The users would be able to find information on sleep assessments that would be beneficial for gathering information about sleep in children. They would also be educated on evidence-based interventions that could be useful in treating sleep disorders in children.

Main Messages. The three main messages that would be conveyed to users include:

1. Raise awareness that sleep is an important occupation and can affect occupational performance.
2. Impart knowledge on evidence-based sleep assessments and interventions available that can help promote sleep in children.
3. Inform professionals that occupational therapy can address sleep issues in children with developmental disabilities.

Knowledge Translation Goals. This knowledge translation project aims to disseminate evidence-based information on sleep assessments and interventions that can be utilized with pediatric clients and students.

Knowledge Translation Strategies. The strategies that would be used to complete this knowledge translation project would be to create a live webinar that included information about the evidence gathered during this doctoral project. The webinar would consist of slides with information about the increased incidence of sleep disorders among children with disabilities and

discuss how sleep disorders can affect occupational performance in children. These present different sleep questionnaires that can assess children's sleep habits and behaviors and behavioral interventions to promote sleep in children with developmental disabilities.

Knowledge Translation Evaluation. This project could be evaluated similarly to the projects I completed in this doctoral project using a brief survey, distributed through a google form, utilizing Likert scale questions. Each participant would be asked to complete the survey that requests feedback about how well the presentation could fulfill the learning objectives presented. Additionally, a short quiz could be created for users immediately following the seminar. This could help provide feedback about the effectiveness of the webinar and whether the content of the webinar was concise and clear for the participants to complete their tests successfully.

Reflection on COVID-19 and The Doctoral Program

I started this post-professional doctoral program in the summer of 2020. At that time, COVID-19 was beginning to impact the world since many events were being canceled, and people were not allowed to enter certain buildings and businesses. I was not concerned about this fact since my program was online. I continued to be able to go to work with the proper personal protective equipment (PPE). As the pandemic continued, I noticed that I was becoming fatigued and tired due to the overall stress of people dying and getting sick. I began to worry about my family members who had compromised immune systems and hoped they would stay healthy. My mother had just been diagnosed with small cell lung cancer. During this two-year program, most of the country shut down, and people were not allowed to go anywhere. That was a scary and depressing time.

I have had COVID-19 twice during this two-year program. The first time I got very sick in between the time I received my first and second Covid vaccine. I felt mentally and physically

drained and experienced severe muscle pain. I continued to attend school. However, I was mentally not focused and had difficulty concentrating. I also experienced severe headaches. I honestly do not remember much from the class I had during this time. I experienced extreme anxiety, guilt, and depression during this time. It was hard to feel hopeful that I would be able to complete this program since I felt so awful and had no energy. I was also fearful about giving my loved ones and friends the virus.

The pandemic has impacted my ability to complete my knowledge translation projects. Two of my projects (continuing education course and a poster presentation) were held virtually at the Minnesota Occupational Therapy Association (MOTA) due to Covid-related procedures. My third project has not been affected since it is a manuscript that I am writing to submit for publication through *OT Practice*, and this can be submitted online. Before completing this section of my paper, I did not feel that the pandemic had affected me significantly; however, after writing down what happened, it has had a large impact on my experience in this doctoral program. Experiencing such an impactful world event has made me appreciate what I have accomplished. I am impressed with my cohorts in this program, my professors, and myself for continuing to work hard through intense adversity and uncertainty.

One of the biggest lessons I learned from attending a doctoral program during a pandemic is that anything is possible with hard work, patience, gratefulness, and motivation. Everyone has had to be flexible, patient, and understanding about everything. Since none of us experienced an event like a pandemic, all procedures, and policies needed to be developed without a template. I think this caused confusion and stress for people since the rules and regulations were changing so rapidly. The financial impact of this pandemic has been severe. Many businesses had to shut down and let their employees go. Businesses also shortened their open hours, and some have not

offered regular hours yet. People who worked in hospitals and nursing homes have seen significant death and illness. These front-line workers have also been limited with long work hours and fatigue. I am grateful for these people who continue to go to work to take care of all of us. An unexpected benefit that I have thought about occurred while attending a doctoral program is that I had something stable and predictable to look forward to every week. This fact comforted me that I needed to feel more in control of my life when everything seemed out of control. I am grateful for the opportunity to have completed this doctoral program during an uncertain time. I am certain that I will always remember my program experience, and I will work to use this education in productive and meaningful ways.

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ASCD.

Appendix A.1. MOTA Continuing Education Session Slide Presentation**Slide 1**

NON-PHARMACOLOGICAL INTERVENTIONS
TO PROMOTE SLEEP IN CHILDREN WITH
DEVELOPMENTAL DISABILITIES

Paula M. Stommes, MA, OTR/L, ATP
St. Catherine University
Dr. Kathleen Matuska

Slide 2

Describe Describe research supporting the occupation of sleep and interventions to promote sleep in children.

Analyze Analyze the relationship between sleep and occupational therapy .

Examine Examine recommendations for occupational therapy practice related to sleep and interventions that are effective in promoting sleep in children with developmental disabilities.

LEARNING
OBJECTIVES

Slide 3**INTRODUCTION/BACKGROUND**

- ❖ Sleep is an occupation that allows us to rest and recuperate. It affects our mood, behavior and participation in meaningful activities . (Ho & Siu, 2018)
- ❖ Sleep disorders affect children with developmental disabilities at a higher rate than typically developing children.
- ❖ There are interventions that can help promote sleep in children who experience sleep disorders.

Slide 4**PICO AND EVIDENCED BASED
PRACTICE QUESTION****PICO**

- ❖ P- Children with developmental disabilities
- ❖ I- Non-pharmacological interventions
- ❖ C- No comparison
- ❖ O- Improved sleep

**EVIDENCE -BASED
PRACTICE QUESTION**

- ❖ What are the most effective non-pharmacological interventions to promote sleep in children with developmental disabilities?

Slide 5

AOTA RESOURCES AND INTERDISCIPLINARY RESOURCES

AOTA RESOURCES

- ❖ Two fact sheets on sleep and OTs role with sleep
- ❖ Two critically appraised topic articles on sleep interventions for children 0 -5 and 5-21
- ❖ One OT Practice article on OTs role in addressing sleep problems in children

INTERDISCIPLINARY RESOURCES

- ❖ Information from the CDC on sleep and children with developmental disabilities
- ❖ Information from the National Sleep Foundation on sleep quality and duration
- ❖ Articles from the journal, *Pediatrics*
- ❖ Information on students and sleep in the classroom. Wolfe, P. (2010). *Brain Matters: Translating Research into Classroom Practice, 2nd edition* ASCD. Alexandria, VA

Slide 6

REVIEWS OF RESEARCH

DATABASES

- ❖ PubMed
- ❖ CINAHL Complete
- ❖ Google Scholar
- ❖ Cochrane Library
- ❖ ERIC

KEYWORDS

- ❖ Child/pediatrics
- ❖ Disability
- ❖ Sleep promotion
- ❖ Limited Sleep
- ❖ Non- drug
- ❖ Non- pharmacological
- ❖ Sleep Quality
- ❖ Sleep Hygiene

Slide7

PRIMARY RESEARCH STUDIES PROCESS


DATABASES

- ❖ Articles were obtained from 3 main databases
- ❖ Pubmed
- ❖ CINAHL Complete
- ❖ Google Scholar

SEARCH STRATEGY

	PICO Terms	Search Terms	Search Strategy
Patient	Children with a disability	Children, pediatric, disability, disabled	(child* OR pediatric*) AND (disable* OR disabit) AND
Intervention	Sleep interventions (non pharm)	Sleep, sleep hygiene, sleep promotion, non pharmacological, non-drug	(Sleep OR sleep improvement OR sleep hygiene OR sleep promotion) AND (Non- Pharm OR non- drug OR behavior* OR habit* AND
Comparison	NA		
Outcome	Improved sleep	Sleep hygiene	Sleep improve*

Slide 8



RESULTS OF SEARCHES:
QUALITY AND QUANTITY OF EVIDENCE

The results from level I and II searches provided studies of several systematic reviews and randomized controlled trials. The evidence strength was moderate to strong in these studies. There were very few studies with low levels of evidence. There were 4 studies that were level II and III.

- ❖ PubMed search provided 21 relevant articles.
- ❖ CINAHL complete search provided 48 articles with 15 articles chosen that related to the PICO question most specifically.
- ❖ Google Scholar also provided 19 studies.

Slide 9

REVIEWED RESEARCH ARTICLE

APA Reference:

Gronski, M., & Doherty, M. (2020). Interventions Within the Scope of Occupational Therapy Practice to Improve Activities of Daily Living, Rest, and Sleep for Children Ages 0-5 Years and Their Families: A Systematic Review. *The American journal of occupational therapy: official publication of the American Occupational Therapy Association*, 74(2), 7402180010p1–7402180010p33. <https://doi-org.pearl.stkate.edu/10.5014/ajot.2020.039545>

Purpose: To examine the effectiveness of interventions within the scope of occupational therapy practice to improve activities of daily living, rest, and sleep for children ages 0–5 yr. and their families.

Research Design: Systematic review

Conclusion: Occupational therapy practitioners should consider the use of interventions with moderate or strong evidence as described in this review.

Slide 10

APA Reference:

Moss, A.H.B., Gordon, J.E. & O'Connell, A. Impact of *Sleepwise*: An Intervention for Youth with Developmental Disabilities and Sleep Disturbance. *J Autism Dev Disorder* 44, 1695–1707 (2014). <https://doi.org/10.1007/s10803-014-2040-y>

Purpose: This study looked at the effectiveness of the *Sleepwise* program to improve sleep in children with developmental disabilities.

Research Design: Prospective Cohort Study

Conclusion: This study highlights the effectiveness of a parent-assisted treatment for sleep disturbance and demonstrates that older children and adolescents with developmental disabilities can benefit from interventions, despite often having chronic sleep problems.

REVIEWED
RESEARCH
ARTICLE

Slide 11

REVIEWED
RESEARCH
ARTICLE


APA Reference:
Phillips, N. L., Moore, T., Teng, A., Brookes, N., Palermo, T. M., & Lah, S. (2020). Behavioral interventions for sleep disturbances in children with neurological and neurodevelopmental disorders: a systematic review and meta-analysis of randomized controlled trials. *Sleep*, 43(9), zsaa040. <https://doi-org.pearl.stkate.edu/10.1093/sleep/zsaa040>

Purpose: This systematic review examined the efficacy of behavioral sleep interventions (BSIs) for children with neurological and neurodevelopmental disorders (NNDDs) and comorbid sleep disturbances.

Research Design: Systematic review

Conclusion: Behavioral sleep interventions improve sleep, at least in the short term, in children with NNDDs. Benefits may extend to functional improvements in behavior. More rigorous RCTs involving placebo controls, blinded outcome assessment, longer follow-up durations, and assessment of functional outcomes are required.

Slide 12



LITERATURE MATRIX

Summary

- ❖ The most relevant and inclusive articles were chosen that fit the PICO question.
- ❖ Six of the articles were found on Google scholar with full text provided.
- ❖ One article was found on PubMed with full text available.
- ❖ All articles present moderate evidence to support the four themes presented in this project.

Slide 13

THEME 1
SLEEP DISORDERS ARE MORE PREVALENT AMONG
CHILDREN WITH DEVELOPMENTAL DISABILITIES THAN
IN TYPICALLY DEVELOPING CHILDREN

PARENT ROLE

- ❖ Negative impact on family
- ❖ Reduced quality of life
- ❖ Increased parental stress, reduced parental sense of competence and poor physical health for the family unit

(Kirkpatrick et al., 2018)

EVIDENCE

- ❖ “Sleep disturbances are up to three times more common in children with neurological (i.e., traumatic brain injury, epilepsy, cerebral palsy, etc.) and neurodevelopmental (i.e., attention-deficit/hyperactivity disorder [ADHD], autism spectrum disorders [ASD], etc.) disorders (NNDDs) than in the general population (approximately 60%–80% vs 25%)”.

(Phillips et al., 2020 p. 2)

Slide 14

THEME 2
SLEEP DISORDERS NEGATIVELY AFFECT
OCCUPATIONAL PERFORMANCE IN CHILDREN
WITH DEVELOPMENTAL DISABILITIES

INTERVENTIONS

- ❖ Sleep education coaching
- ❖ Structured physical activity
- ❖ Incorporate caregivers into interventions

Beisbier & Laverdure (2020)

EVIDENCE

- ❖ “The occupation of rest and sleep are also considered foundational and support optimal performance of meaningful daily life tasks”

(American Occupational Therapy Association [AOTA], 2014)

Slide 15

THEME 3
BEHAVIORAL INTERVENTIONS THAT
INCORPORATE PARENT EDUCATION PROMOTE
SLEEP IN CHILDREN

INTERVENTIONS: EDUCATE
PARENTS

- ❖ Bedtime routines
- ❖ Set limits
- ❖ Extinction
- ❖ Positive reinforcement
(Phillips et al., 2020)

INTERVENTIONS CONT.

- ❖ Sleep hygiene education
- ❖ Education on sleep timing, regularity
- ❖ Bedtime routine
- ❖ Strategies to minimize bedtime resistance (behavioral approach)
- ❖ Homework - sleep diary
- ❖ Follow up educational phone calls to parents
(Malow, 2014)

Slide 16

THEME 4
SLEEP HYGIENE TECHNIQUES IMPROVE SLEEP IN
CHILDREN WITH DEVELOPMENTAL DISABILITIES

WHAT IS SLEEP HYGIENE?

- ❖ Sleep hygiene is a set of behavioral, environmental, or cognitive modifications that help to improve a child's sleep.

SLEEP HYGIENE CATEGORIES

- ❖ Sleep timing
- ❖ Bedtime routines
- ❖ Behavior management
- ❖ Environment
- ❖ Physiological
- ❖ Communication adaptations
(Sutton et al., 2021)

Slide 17

RECOMMENDATIONS

- ❖ Occupational therapists would benefit from becoming familiar with the occupation of sleep and begin to incorporate into pediatric evaluations. Also involve parents in the process.
- ❖ Occupational therapists would benefit from becoming familiar with evidence-based interventions that can be used to promote sleep in children with developmental disabilities
- ❖ Occupational therapists can positively contribute to a child's overall progress by communicating with other professionals about sleep

Slide 18

IMPLICATIONS
FOR PRACTICE

- ❖ Sleep education should be emphasized in OT curriculum at universities and among practicing therapists
- ❖ The profession of occupational therapy would benefit from more research on evidence-based procedures to assess sleep in children as well as specific occupation-based interventions that will help promote sleep in children with developmental disabilities
- ❖ There is also a need for more robust research to be completed to examine the impact of comorbidities such as anxiety, depression or pain which may compound sleep disorders in children with specific diagnoses such as cerebral palsy

Slide 19

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Slide 21

ACKNOWLEDGEMENTS

I am grateful to have had the opportunity to be a part of this program with such supportive faculty and students.

I am especially appreciative of the guidance and support from Dr. Matuska during this project.

I am also thankful for my cohort of amazing therapists. Amy, Deb, Jessica, Claire, Elizabeth, Emily and Jennifer, your support and encouragement throughout this program has been so appreciated.

Slide 22

THANK YOU

Questions?



Appendix A2: MOTA Continuing Education Session Application**MOTA Course Application**

Event Name/Course Title: Evidence-based pre habilitation for head and neck cancer populations
and
Evidence-based presentation on non-pharmacological interventions to promote sleep in children with developmental disabilities

Date of Event: Tuesday, Feb 22, 2022

Start Time: 6:00pm **End Time:** 7:00 pm

Category: Presentation – Webinar (virtual but presenters are live)

Timed Agenda:

6:00-6:25 Presentation – EBP: Pre habilitation for head and neck cancer survivors

6:25-6:30 questions

6:30-6:55 Presentation – EBP: Non-pharmacological interventions to promote sleep in children with developmental disabilities

6:55-7:00 Questions

Event Description:

- Presenters will share the evidence found for the topics above, including the search strategy, level 1 and level 2 evidence, summary of themes and recommendations.
- It will be a 25-minute power point presentation

References:**EBP: Pre habilitation for head and neck cancer survivors**

Molassiotis, A., & Rogers, M. (2012). Symptom experience and regaining normality in the first year following a diagnosis of head and neck cancer: A qualitative longitudinal study. *Palliative & Supportive Care*, 10(3), 197–204.
<https://doi.org/10.1017/S147895151200020X>

Treanor, C., Kyaw, T., & Donnelly, M. (2018). An international review and meta-analysis of prehabilitation compared to usual care for cancer patients. *Journal of Cancer Survivorship*, 12(1), 64–73.

<https://doi.org/10.1007/s11764-017-0645-9>

Yun-Jen Chou, Hsuan-Ju Kuo, & Shio-Ching Shun. (2018). Cancer prehabilitation programs and their effects on quality of life. *Oncology Nursing Forum*, 45(6), 726–736. <https://doi.org/10.1188/18.ONF.726-736>

EBP: Non-pharmacological interventions to promote sleep in children with developmental disabilities

Beisbier, S., & Laverdure, P. (2020). Occupation-and activity-based interventions to improve performance of instrumental activities of daily living and rest and sleep for children and youth ages 5–21: A systematic review. *American Journal of Occupational Therapy*, 74(2), 7402180040p1-7402180040p32

Kirkpatrick, B., Louw, J. S., & Leader, G. (2019). Efficacy of parent training incorporated in behavioral sleep interventions for children with autism spectrum disorder and/or intellectual disabilities: a systematic review. *Sleep medicine*, 53, 141-152.

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Speaker Credentials and Biographies:

Claire M. Dolislager, MS, OTRL, CLT-LANA

Claire has been practicing occupational therapy since 2014. She is a graduate of Grand Valley State University and currently works for Holland Hospital (Michigan), specializing in oncology and lymphedema. Claire is enthusiastic about improving client understanding of the cancer process – diagnosis to survivorship and beyond – and advocating for the role of occupational therapy in addressing barriers to participation at any point in that process. Claire enjoys teaching in clinical and academic, inter-, and intra-professional settings. Claire is currently pursuing a post-professional doctorate in occupational therapy at St. Catherine University.

Paula M. Stommes, MA, OTR/L, ATP

Paula has been an OT since 1995. She is a graduate of St. Catherine University and currently works at an urban school district as well as for an outpatient pediatric clinic. Paula is motivated to provide treatment and education to her pediatric clients and their families in both a school and rehabilitative setting. Paula has also obtained her assistive

technology professional certification (ATP) and is interested in how medical equipment can enhance her patient's lives. Paula is pursuing a post-professional doctorate in occupational therapy at St. Catherine University.

Learning Objectives:

EBP: Pre habilitation for head and neck cancer survivors

Participants will:

- Describe research supporting pre habilitative intervention for head and neck cancer survivors
- Identify gaps in current service models
- Analyze the relationship between OT research priorities and pre habilitation
- Examine recommendations for OT practice related to pre habilitation with head and neck cancer survivors

EBP: Non-pharmacological interventions to promote sleep in children with developmental disabilities

Participants will:

- Describe research supporting the occupational of sleep and interventions to promote sleep in children with developmental disabilities
- Analyze the relationship between sleep and the role OT plays with this occupation
- Examine recommendations for OT practice related to sleep and interventions that are effective in promoting sleep in children with developmental disabilities

Target Audience: All

Level of Content: Advanced

AOTA Practice Area Children & Youth and Rehabilitation & Disability,

CEUs presentation – 1 hr.

MOTA Members only? No

Primary Speaker #1 Contact information

- **Name:** Claire Dolislager
- **Phone:** (616) 566-2074
- **Email:** cmdolislager745@stkate.edu

Primary Speaker #2 Contact information

- **Name:** Paula Stommes
- **Phone:**(952) 406- 9713
- **Email:** pmstommes263@st.kate.edu

Would you like to use any additional technology tools on the day you present? These can be set up to use the beginning of the presentation, during the presentation, or at the end.

- Will you be using a Power point or other presentation tool?
 - Yes, I will be using Power point. Please email your presentation to motafunctionfirst@gmail.com at least 24 hours prior to your presentation.
 - No _____

Appendix A3: MOTA Continuing Education Session Survey

4/17/22, 2:53 PM

MOTA Virtual Presentation

MOTA Virtual Presentation

Non-Pharmacological Interventions to Promote Sleep in Children with Developmental Disabilities

Paula M. Stommes PP-OTDs, MA, OTR/L, ATP
February 22, 2022, 6:30-7 PM

Please indicate how well the presentation met the stated learning objectives.
From Not well (1) to Very well (5)

1. Describe research supporting the occupation of sleep and interventions to promote sleep in children

Mark only one oval.

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well

2. Analyze the relationship between sleep and occupational therapy

Mark only one oval.

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well

3. Examine recommendations for OT practice related to sleep and interventions that are effective in promoting sleep in children with developmental disabilities

Mark only one oval.

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well

4/17/22, 2:53 PM

MOTA Virtual Presentation

4. Please indicate your overall impression of the presenter's ability to communicate this material

Mark only one oval.

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well

5. Please indicate how well the content of the presentation was organized

Mark only one oval.

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well

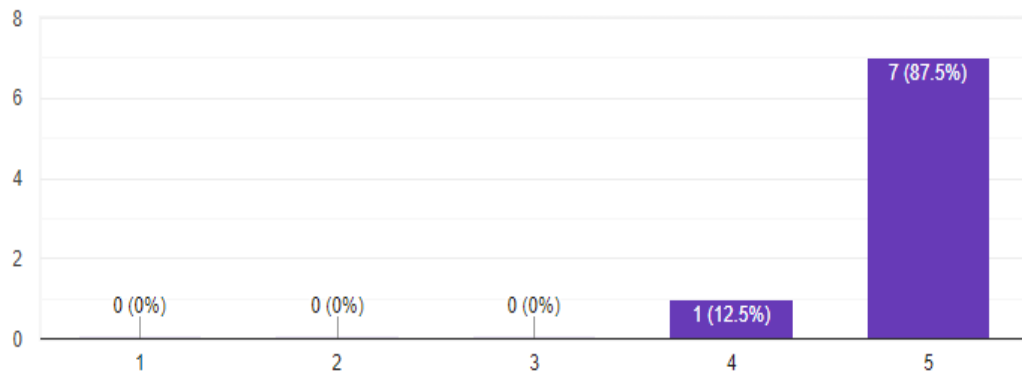
This content is neither created nor endorsed by Google.

Google Forms

Appendix A.4. MOTA Continuing Education Session Survey Results

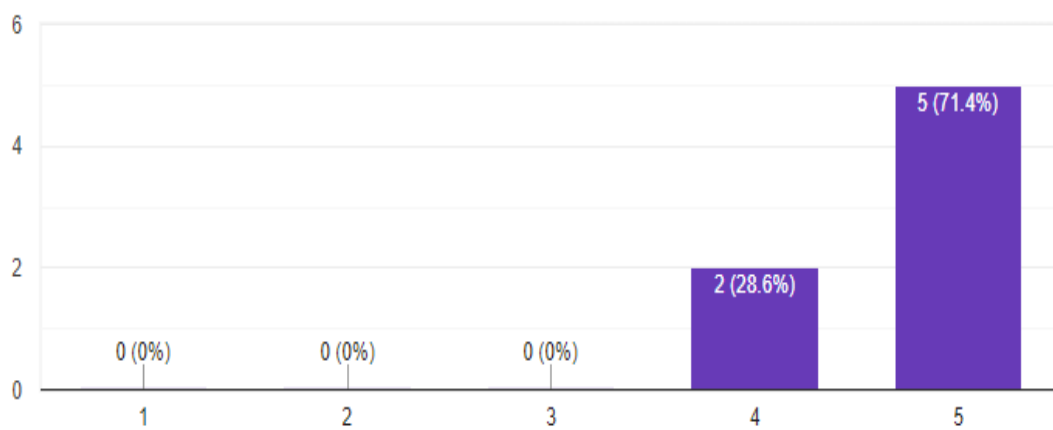
1. Describe research supporting the occupation of sleep and interventions to promote sleep in children

8 responses



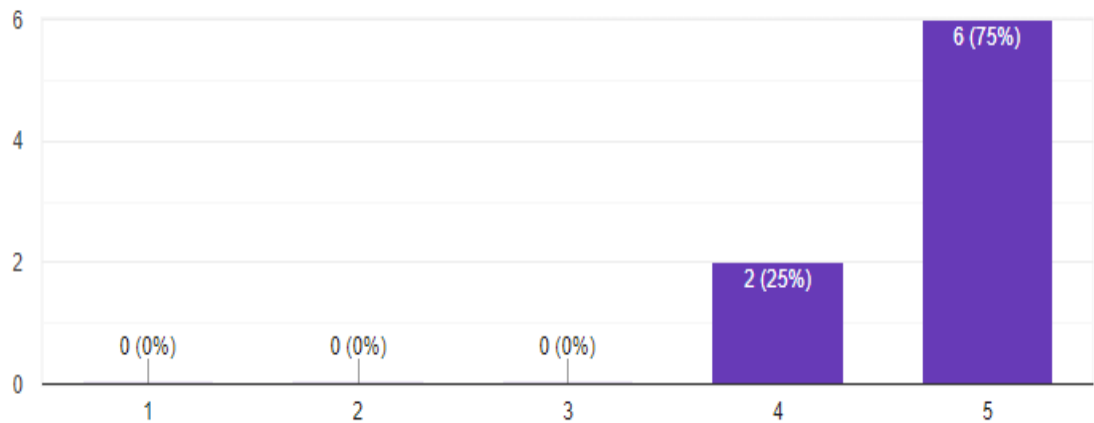
2. Analyze the relationship between sleep and occupational therapy

7 responses



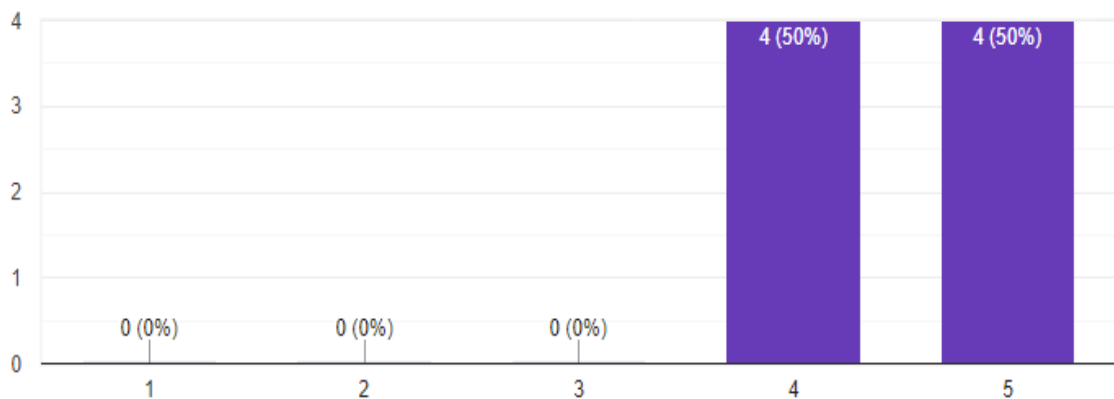
3. Examine recommendations for OT practice related to sleep and interventions that are effective in promoting sleep in children with developmental disabilities

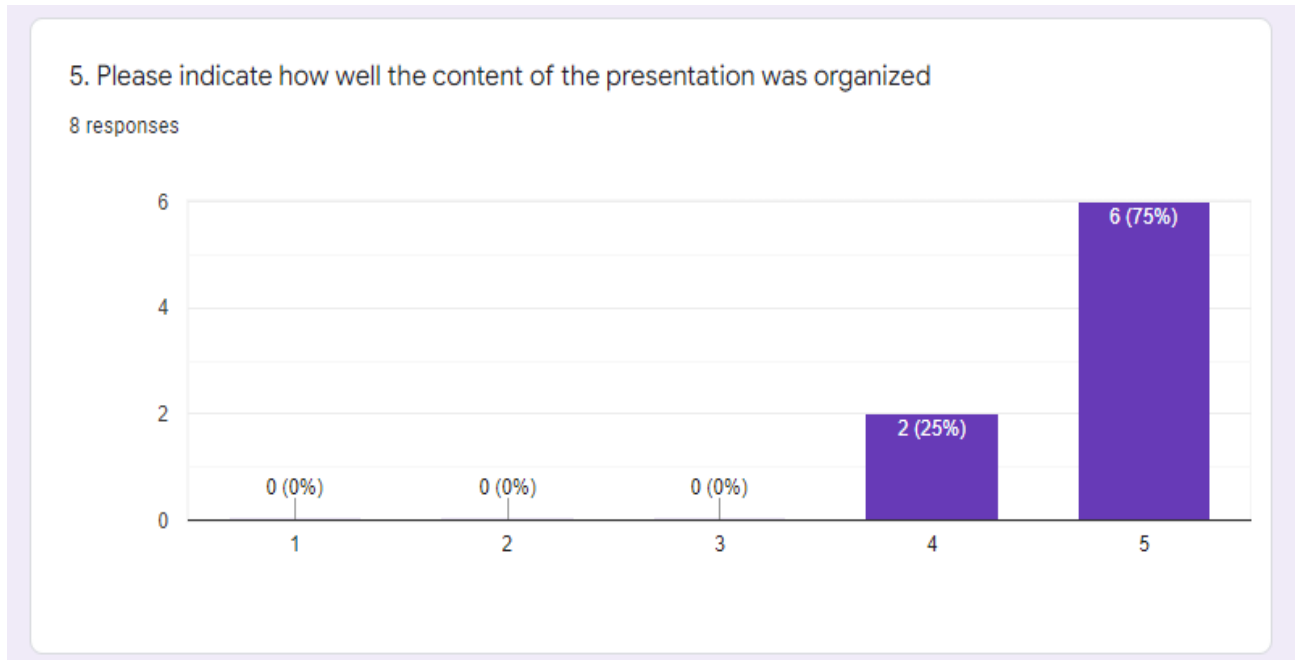
8 responses



4. Please indicate your overall impression of the presenter's ability to communicate this material

8 responses





Questions that were asked after the presentation were as follows

1. How are you incorporating this new knowledge into your current practice?
2. Did you find any research related to sleep disorders and bed wetting?

Appendix B.1. Poster

Evidence-Based Interventions and Screening Tools For Promotion of Sleep in Children with Developmental Disabilities



Paula M. Stommes, MA, OTR/L, ATP
St. Catherine University Doctoral Candidate

Background

The *Occupational Therapy Practice Framework, Domain and Process, 4th Edition (OTPF4)*; American Occupational Therapy Association [AOTA], 2020 defines rest and sleep as an occupation. Sleep is an important part of a child's life since it allows children to feel rejuvenated and contributes to good health and well-being. Getting enough sleep allows children to participate in important activities during their day. All children may experience sleep difficulties during their childhood however evidence shows that children with disabilities experience sleep difficulties at a higher rate than children without disabilities. Occupational therapists are experts in providing interventions to improve occupational performance in children. There are several sleep screening tools that can be utilized by OTs to identify sleep difficulties in children. And, if a sleep difficulty is realized, there are evidenced interventions that can be recommended to promote sleep in children with developmental disabilities.

Clinical Question

What are the most effective nonpharmacological interventions to promote sleep in children with developmental disabilities?

Methods

- ❖ Conducted a level one search for systematic reviews of research using CINHAL complete and Cochrane library databases
- ❖ Conducted level two search for primary research using PubMed & Google Scholar databases
- ❖ Keywords used: child/pediatric, sleep, sleep hygiene, disability, improved sleep

Sleep Screening Tools

- ❖ BEARS Sleep Screening Tool (2-8 years)
- ❖ Tayside Children's Sleep Questionnaire (3 years)
- ❖ Children's Sleep Habits Questionnaire (4-6 years)
- ❖ Sleep Disturbance Scale for Children (5 years)
- ❖ Sleep Diary (all ages)

Interventions

Sleep hygiene techniques

1. Set consistent bedtimes and waketimes
2. Set age appropriate bedtimes
3. Limit bedtime rituals
4. Keep quiet noise levels at sleep times
5. Limit caffeine intake
6. Encourage daily exercise
7. Put child to sleep drowsy

Encourage parent/caregiver education or coaching if sleep disorder is identified

Teach behavioral interventions such as gradual extinction, positive reinforcement, set clear expectations, use social stories, use a visual schedule and provide a relaxing environment for sleep

Implications for Practice & Research

- ❖ Both OT students and practicing therapist are reminded that since sleep has a direct effect on a child's occupational performance, addressing sleep insufficiency falls within the scope of OT practice
- ❖ Occupational therapists can incorporate sleep interventions in a child's treatment plan if a sleep disorder is identified
- ❖ It is important to include family and caregivers in the assessment and intervention of sleep disorders
- ❖ It is important to collaborate with all members of the team and embrace interdisciplinary support
- ❖ More research needs to be done to develop specific sleep assessments and interventions related to occupational performance and occupational therapy
- ❖ An additional area of research is investigating the physiological effects of improved sleep in children with developmental disabilities
- ❖ Further research is needed to examine effectiveness of occupational therapy for improved sleep in the pediatric population

Reference

References available upon request

Appendix B.2. Poster References

- American Occupational Therapy Association. Inc. (2020). Occupational therapy practice framework: Domain and process fourth edition. *The American Journal of Occupational Therapy*, 74(2).
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Appendix B.3. MOTA Poster Presentation Agenda

Knowledge Translation Poster Presentations (SCU)

Wednesday, April 20, 2022

6:00 PM - 7:00 PM CDT

Category: Events


Knowledge Translation Poster Presentations: Sleep Promotion for Children, Social Emotional Learning for Self-Regulation, Interventions for Inpatient Mental Health, and Occupational Participation for Women Experiencing Homelessness

*This event will be held live via Zoom

Timed Agenda:

- 6:00-6:15 Poster Presentation #1 and facilitated Q and A
- 6:15-6:30 Poster Presentation #2 and facilitated Q and A
- 6:30-6:45 Poster Presentation #3 and facilitated Q and A
- 6:45-7:00 Poster Presentation #4 and facilitated Q and A

Event Description:

- Description of content: This is a virtual poster session in which post professional doctoral students from St. Catherine University will share their expertise in specific practice areas.
- Topics include promotion of sleep in children with developmental disabilities, the use of social emotional learning to teach regulation in school based settings, evidence based interventions for inpatient mental health, and best practices approaches to promote occupational participation and independence for homeless women.
- A poster has been created for each topic area, and will be presented to the audience, along with a facilitated discussion. 

Speaker Biographies:

Presenter #1

Paula M. Stommes, MA, OTR/L, ATP

Paula has been an occupational therapist since 1995. She is a graduate of St. Catherine University and currently works at an urban school district as well as for an outpatient pediatric clinic. Paula is passionate about providing treatment and education to her pediatric clients and their families in both a school and rehabilitative setting. Paula has also obtained her assistive technology professional certification (ATP) and is interested in how assistive technology can enhance her patient's lives. Paula is pursuing a post-professional doctorate in occupational therapy at St. Catherine University.

Presenter #2

Jennifer Brady-Johnson, MA, OTR/L, OTD/S

Jennifer Brady-Johnson is a pediatric occupational therapist that currently works in school-based practice in a setting IV school. Her background includes working in rural, urban, suburban, and charter schools. She has also been an administrator, program director, and occupational therapist in an outpatient clinic. Her main interest area has been working with children and youth to address self-regulation and motor planning needs. Her current interest is in developing self-determination in students as they learn self-regulation within social emotional learning programs. Jennifer also enjoys the outdoors, being with her family and friends, and being a lifelong learner.

Presenter #3

Emily Petersen, MA, OTR/L, OTD-S

Emily Petersen, MA, OTR/L, is an occupational therapist (OT) that works in an inpatient psychiatric hospital. After completing her Master's in OT at St. Catherine University in 2008, Emily worked in an early intervention outpatient program for children diagnosed with ASD for ten years before transitioning to inpatient mental health. She has completed several quality initiatives at her worksite, including collaboration with an inpatient Shared-Decision Making project and utilizing technology to enhance patient education. Emily is currently in her second year in the Post Professional OTD program at St. Catherine's University, focusing on evidence-based mental health interventions.

Presenter #4

Elizabeth Campbell, MOT, OTR/L

Elizabeth Campbell, MOT, OTR/L is an occupational therapist (OT) working primarily in the inpatient and acute hospital setting. Throughout her studies at St Catherine's University, Elizabeth has focused on uncovering the evidence to advocate for the benefit and necessity of life skills interventions for homeless women. Elizabeth hopes to assist her local women's transitional housing facility by educating stakeholders on the evidence supporting life skills interventions and the benefits of incorporating occupational therapy services within their facilities.

Learning Objectives:

Participants will

Poster #1

1. Define how occupational therapy can promote sleep in children with developmental disabilities
2. Identify one sleep screening tool that can be used to assess sleep difficulties in children with developmental disabilities
3. Examine interventions that could be useful in promoting sleep in children with disabilities

Poster #2

1. State the themes of SEL that make it valuable in teaching regulation.
2. Understand how components in SEL structure a regulation lesson.

Poster #3

1. Discuss the recovery model and how it connects with the values of OT.
2. Describe the implications for OT related to the recovery model.
3. Identify evidence-based practice recommendations for inpatient mental health settings.

Poster #4

1. Identify the population including characteristics associated with homeless women
2. Describe evidence-based practice approaches recommended for working with homeless women
3. Identify life skills effective in promoting successful participation in meaningful occupations.

Target Audience: OT, OTA, Student

Level of Content: Intermediate to Advanced

AOTA Practice Area: Children & Youth, Health & Wellness, Mental Health, Rehabilitation & Disability

CEUs 1.0 (participation required for full hour)

Fees: \$5/MOTA members, \$25/non-members

[REGISTER HERE](#)

Contact: info@motafunctionfirst.org

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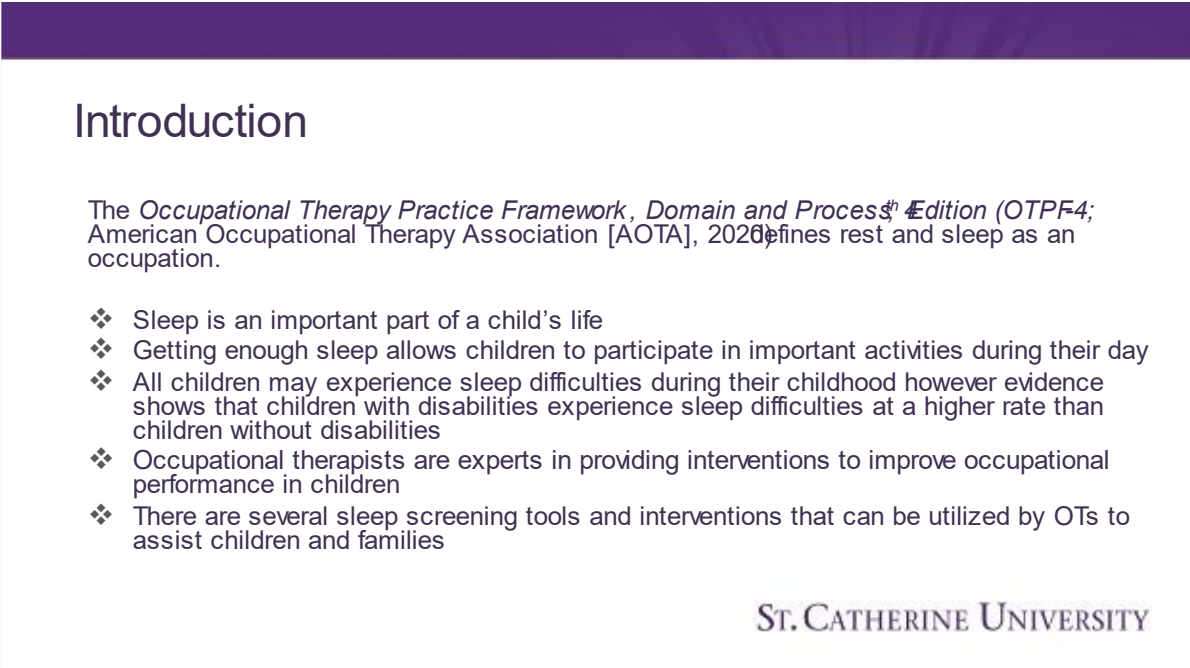
Appendix B.4. MOTA Poster Presentation Slides**Slide 1**

St. Catherine University
Poster Presentations
April 20, 2022

Evidence-Based Interventions and Screening Tools For Promotion of Sleep in Children with Developmental Disabilities

Paula M. Stommes, MA, OTR/L, ATP

ST. CATHERINE UNIVERSITY

Slide 2

Introduction

The *Occupational Therapy Practice Framework, Domain and Process, 4th Edition (OTPF-4; American Occupational Therapy Association [AOTA], 2020)* defines rest and sleep as an occupation.

- ❖ Sleep is an important part of a child's life
- ❖ Getting enough sleep allows children to participate in important activities during their day
- ❖ All children may experience sleep difficulties during their childhood however evidence shows that children with disabilities experience sleep difficulties at a higher rate than children without disabilities
- ❖ Occupational therapists are experts in providing interventions to improve occupational performance in children
- ❖ There are several sleep screening tools and interventions that can be utilized by OTs to assist children and families

ST. CATHERINE UNIVERSITY

Slide 3

Clinician Question

What are the most effective non-pharmacological interventions to promote sleep in children with developmental disabilities?

ST. CATHERINE UNIVERSITY

Slide 4

Learning Objectives

- ❖ Define how occupational therapy can promote sleep in children with developmental disabilities
- ❖ Identify one sleep screening tool that can be used to assess sleep difficulties in children
- ❖ Examine interventions that could be useful in promoting sleep in children with disabilities

ST. CATHERINE UNIVERSITY

Slide 5

Method

- ❖ Conducted a level one search for systematic reviews of research using CINHAHL complete and Cochrane library databases
- ❖ Conducted a level two search for primary research using PubMed & Google Scholar databases
- ❖ Keywords used: child/pediatric, sleep, sleep hygiene, disability, improved sleep

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Slide 6

Sleep Screening Tools

- ❖ BEARS (2-18 years)
 - ❖ Bedtime problems
 - ❖ Excessive daytime sleepiness
 - ❖ Awakenings during the night
 - ❖ Regularity and duration of sleep
 - ❖ Sleep disordered breathing

Owens & Dalzell (2005)

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Slide 7

Sleep Screening Tools

- ❖ Tayside Children's Sleep Questionnaire (1 -5 years)
- ❖ Children's Sleep Habits Questionnaire (4 -10 years)
- ❖ Sleep Disturbance Scale for Children (6-15 year)
- ❖ Sleep diary (all ages)

(McGreavey et al. 2005, Owens et al. 2000, Bruni et al. 1996)

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Slide 8

Interventions for Sleep Promotion

Sleep hygiene techniques

1. Set consistent bedtimes and waketimes
2. Set appropriate bedtime
3. Limit bedtime rituals
4. Keep quiet noise levels at bedtimes
5. Limit caffeine intake
6. Encourage daily exercise
7. Put child to sleep drowsy

(Sutton et al. 2021)

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Slide 9

Interventions to Promote Sleep

- ❖ Encourage parent/caregiver education or coaching if sleep disorder is identified
- ❖ Teach behavioral interventions such as gradual extinction, positive reinforcement, set clear expectations, use social stories, use a visual schedule and provide a relaxing environment
(Moss et al. 2014)

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Slide 10

Implications for Practice

- ❖ Both OT students and practicing therapists are reminded that since sleep has a direct effect on a child's occupational performance, addressing sleep insufficiency falls within the scope of OT practice
- ❖ Occupational therapists can incorporate sleep interventions in a child's treatment plan if a sleep disorder is identified
- ❖ It is important to include family and caregivers in the assessment and intervention of sleep disorders
- ❖ It is important to collaborate with all members of the team and embrace interdisciplinary support

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Slide 11

Implications For Research

- ❖ More research needs to be done to develop specific sleep assessments and interventions related to occupational performance and occupational therapy
- ❖ Further research is needed to examine effectiveness of occupational therapy for improved sleep in the pediatric population.
- ❖ An additional area of research is investigating the physiological effects of improved sleep in children with developmental disabilities

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Slide 12

References

- American Occupational Therapy Association. Inc. (2020) *Occupational therapy practice framework: Domain and process fourth edition*. *The American Journal of Occupational Therapy*, 74(2).
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- Sutton, J. et al. (2021). A sleep intervention for children with developmental disabilities. *Nursing Times* [online]; 117:1, 32-36.

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Slide 13

Thank you!

Facilitated discussion and questions

Email

pmstommes263@stkate.edu

ST. CATHERINE UNIVERSITY

Appendix B.5. MOTA Poster Presentation Survey

4/24/22, 10:36 PM

MOTA Doctoral Knowledge Translation Poster Presentations

MOTA Doctoral Knowledge Translation Poster Presentations

Sleep Promotion for Children
Paula M. Stommes MA, OTR/L, ATP, OTD/S
April 20, 2022 6-7 PM

 paula.stommes@gmail.com (not shared) [Switch account](#)



* Required

Please indicate how well the presentation met the stated learning objectives.

Not well (1) to Very well (5)

1. Define how occupational therapy can promote sleep in children with developmental disabilities *

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well

2. Identify one sleep screening tool that can be used to assess sleep difficulties in children with developmental disabilities *

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well



4/24/22, 10:36 PM

MOTA Doctoral Knowledge Translation Poster Presentations

3. Examine interventions that could be useful in promoting sleep in children with disabilities *

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well

4. Please indicate your overall impression of the presenter's ability to communicate this material *

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well

5. Please indicate how well the content of the presentation was organized *

	1	2	3	4	5	
Not well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very well

Submit

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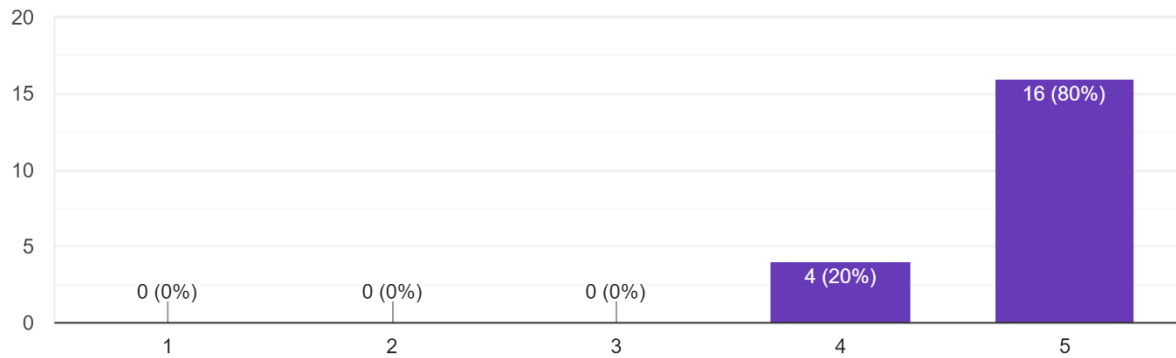
Google Forms



Appendix B.6. MOTA Survey Results

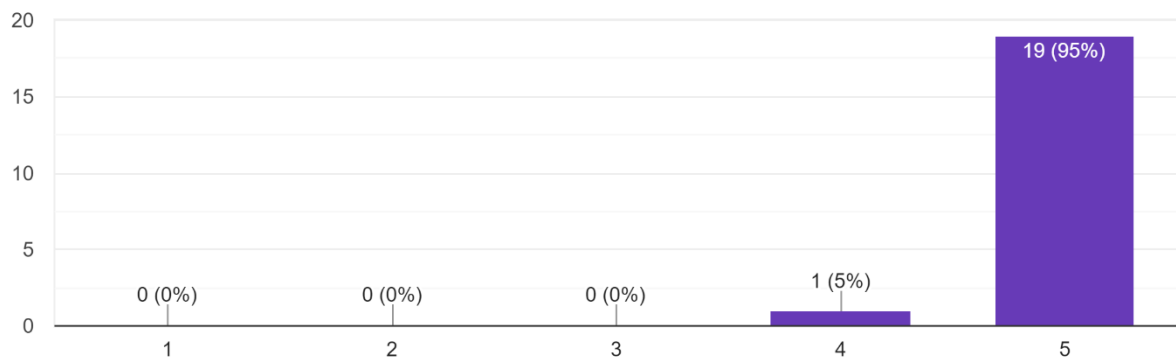
1. Define how occupational therapy can promote sleep in children with developmental disabilities

20 responses



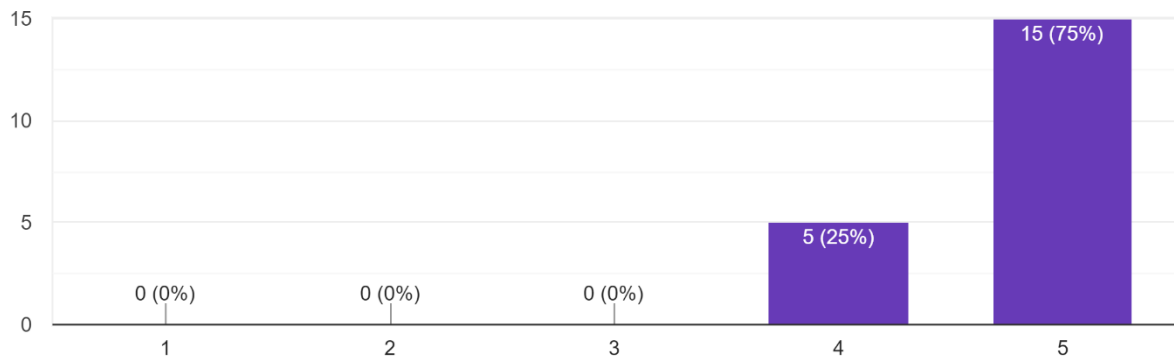
2. Identify one sleep screening tool that can be used to assess sleep difficulties in children with developmental disabilities

20 responses



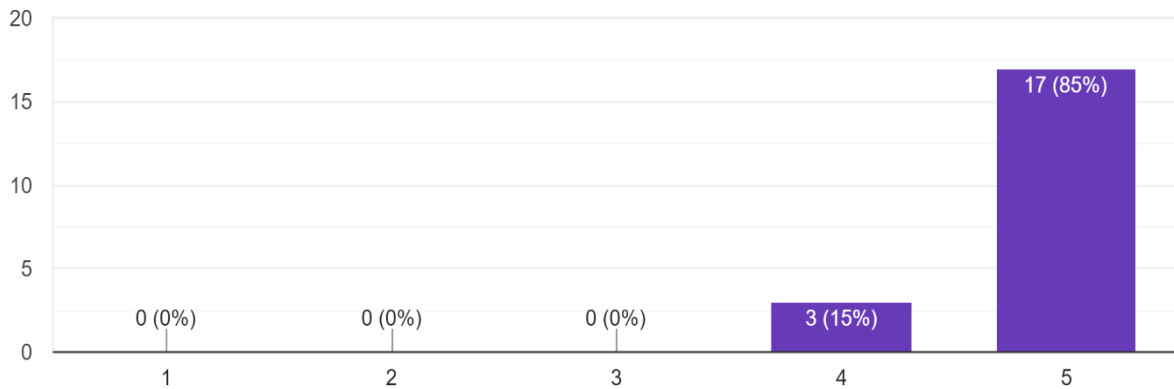
3. Examine interventions that could be useful in promoting sleep in children with disabilities

20 responses



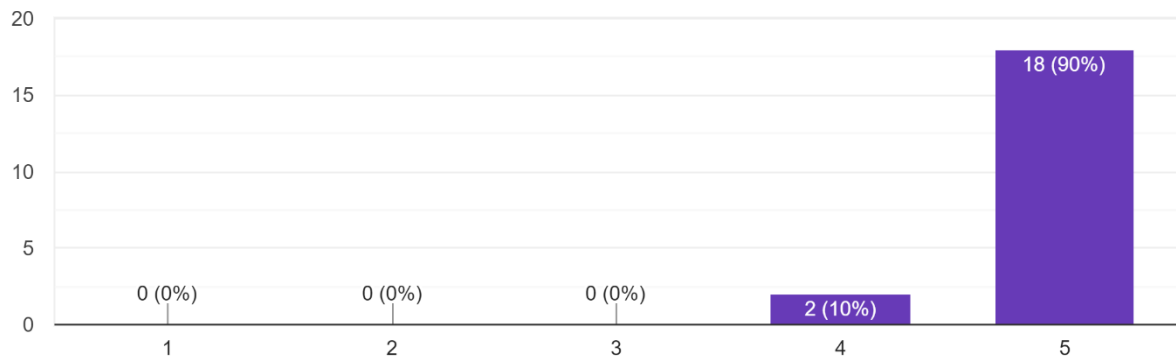
4. Please indicate your overall impression of the presenter's ability to communicate this material

20 responses



5. Please indicate how well the content of the presentation was organized

20 responses



Appendix C.1. OT Practice Article

Occupational Therapy's Role in Sleep Promotion in Children with Developmental Disabilities: Assessment and Intervention

Paula M. Stommes, OTD, MA, OTR/L, ATP is a pediatric therapist in both a school and outpatient setting

Occupational Therapy's Role in Sleep Promotion in Children with Developmental Disabilities: Assessment and Intervention

The Occupational Therapy Practice Framework, Domain and Process, 4th Edition (American Occupational Therapy Association [AOTA], 2020) has categorized rest and sleep as an occupation within the occupational therapy domain. Rest and sleep are defined as “Activities related to obtaining restorative rest and sleep to support healthy, active engagement in other occupations”, (p. 32-33). Within this occupation domain factors related to rest and sleep include rest, sleep preparation and sleep participation. Rest is defined as a time to relax and engage in quiet actions that do not induce stress or effort. Sleep preparation is engaging in routines that prepare one for sleep and prepare the environment for rest. And sleep participation is taking care of personal needs for sleep. Sleep is a foundational activity affecting a child's environment, routines, performance skills and individual preferences.

Sleep is an important part of a child's life. Quality sleep contributes to a child's health and well-being. It allows children to be able to participate in home, school, and leisure activities with engagement. Most parents can agree that sleep difficulties are common among children at some point in their development however sleep difficulties are more prevalent for children who

are diagnosed with a neuro or neuro developmental disorder. Phillips and colleagues (2020) report that “Sleep disturbances are up to three times more common in children with neurological (i.e., traumatic brain injury, epilepsy, cerebral palsy, etc.) and neurodevelopmental (i.e., attention-deficit/hyperactivity disorder [ADHD], autism spectrum disorders [ASD], etc.,) disorders (NNDDs) than in the general population (approximately 60%-80% vs 25%)” (p. 2). The fact that there is an increased incidence of sleep issues among children with developmental disabilities presents an opportunity for OTs to assess sleep and rest as an occupation and provide interventions to children and families if sleep disturbances are found to be present.

Evidence indicates that a lack of sleep may negatively impact children in several ways. Phillips and colleagues (2020), explain, “Sleep disturbances can have a detrimental impact on child development, everyday functioning, and quality of life” (p. 2). The authors go on to explain that sleep disturbance can be associated with mood problems, emotional dysregulation, behavioral problems, cognitive deficits, and academic difficulties. The authors further conclude that sleep disorders have been associated with causing children to have difficulty with all aspects of their home and school environments.

Because a lack of sleep may interfere with a child’s occupational performance it becomes important for OT practitioners to recognize that addressing and treating sleep disturbances is an important step during the occupational therapy assessment process. Gathering information about a child’s sleep behavior can be done through completion of a sleep diary. Families complete a log documenting a child’s sleep behaviors for approximately two weeks and discuss results with a therapist to develop a treatment plan. Another quick and simple sleep screen tool that can be used to identify a potential sleep disturbance is completion of the BEARS screening tool (Owens & Dalzell, 2005) for assessment of sleep in children. This tool includes screening questions in 5

major sleep domains and can be filled out by parents/caregivers or children. It is a helpful screening tool to assess whether a child is experiencing a sleep difficulty.

Interventions

“Sleep hygiene consists of a set of behavioral, environmental, or cognitive modifications to improve sleep” (Jefferson et. al., 2005). Sleep hygiene interventions are considered first line strategies to treat behavioral sleep disturbances in children. They are considered first line interventions since they are quick, inexpensive, and easy to incorporate into a child’s bedtime routine.

OTs can provide strategies to improve sleep hygiene in children with techniques included below:

- Set a consistent bedtime and waketime
- Avoid late-afternoon napping
- Set a relaxing bedtime routine
- Limit bedtime rituals
- Put child to sleep drowsy
- Ensure darkened bedroom

Case Example: Mathilde

Evaluation

Mathilde is a 6 year, 6-month-old girl diagnosed with attention deficit disorder (ADHD) and potential fine motor and self-care skill delays. Mathilde was brought to a pediatric outpatient therapy clinic by her mother to complete an occupational therapy evaluation. During the

evaluation, Mathilde's mother reported that she had concerns about Mathilde's ability to participate in school. Mathilde's teacher had reported delays in Mathilde's ability to participate in structured activities specifically during writing and drawing projects. Mathilde's handwriting is illegible. Mathilde's teacher also commented on the fact that Mathilde had difficulty donning and doffing her coat when it was time to go to recess or at the end of the day. She was unable to fasten buttons or engage a zipper without full assistance from the teacher. Mathilde's mother reported that her daughter has difficulty going to sleep and staying asleep at night. She reported that Mathilde is extremely tired, irritable, and upset in the morning. She stated that Mathilde tends to maintain this mood throughout the day. Mathilde's mother reported that on average she feels her daughter is only getting about 6 solid hours of sleep and she is waking up more than 4 times per night.

The OT completed an assessment that included administration of the Bruininks-Oseretsky Test of Motor Proficiency, Second Edition (BOT-2). Only the fine motor subtest areas were completed which include fine motor precision, fine motor integration, manual dexterity, and upper limb coordination. A self-care skills checklist was completed by family and the family was asked to complete a sleep diary for the next two weeks to document sleep behaviors. Results from the BOT-2 indicated that Mathilde obtained scaled scores in the below average range in the areas of fine motor precision, fine motor integration and manual dexterity. She obtained an average score in upper-limb coordination. With delays in the three fine motor subtest areas, Mathilde would have difficulty coordinating her arms and hands to complete goal directed activities involving precise movements such as handwriting or completing more precise self-care tasks involving fasteners. The completed self-care skills checklist revealed that Mathilde was avoiding all activities that required more precise use of her hands such as fasteners, donning of

socks and shoes and shoe tying. The results of the sleep diary revealed that Mathilde avoided going to bed and did not have an established bedtime routine, she tended to get up often during the night and ate snacks, the family kept a loud television on during bedtime hours, Mathilde and her mother fought every night before bed, and Mathilde did not have an established morning routine.

Goal Development

Results from Mathilde's occupational therapy evaluation indicate that she has fine motor delays affecting her ability to complete academic tasks at school as well as self-care tasks. The sleep diary indicated that Mathilde does not have a good sleep routine and she is not getting enough quality sleep at night. This is negatively affecting her mood and ability to participate in meaningful tasks at home and school. It is also affecting her relationship with her family. Goals are written that emphasize improvement of upper extremity strength and motor coordination. This will improve her ability to complete fine motor tasks such as handwriting and completion of self-care tasks such as fastening buttons and zippers. Goals related to sleep were incorporated into the treatment plan that incorporate parent and child education on sleep, sleep hygiene techniques such as establishing a set bedtime a set bedtime and morning routine and emphasizing the importance of not eating or drinking in the middle of the night.

Occupational Therapy Services

Occupational therapy services were initiated with Mathilde and her family one time per week for a 60- minute session for 9 months. Therapy emphasized incorporating strength activities for Mathilde's core, arms, and hands. She was encouraged to participate in functional tasks that required precise, goal-directed movement of her hands and fingers. An extensive home

program was established that emphasized strength, writing and self-care task completion. The home program also consisted of incorporating sleep hygiene strategies to improve and promote quality sleep for Mathilde. After review of the sleep diary, it was established that Mathilde's family would first work on changing environmental factors in their home. They purchased room darkening blinds for Mathilde's room, turned off all noise before bedtime, and started running a small fan in Mathilde's room at night to block out any outside noise. The family then worked with the OT to establish a workable bedtime and morning routine. An entire bedtime routine was established that included setting an actual bedtime, listing activities that would occur before bedtime such as a warm bath, reading, and procedure for nighttime waking. A morning routine was also established that included a set wake up time, dressing, breakfast, organization of items needed for school and departure to the bus. Mathilde was responsible for organizing her backpack the night before and making sure she had everything she needed for school the next day.

Throughout the time Mathilde was in occupational therapy, the therapist and family discussed progress each week regarding sleep goals. The family continued to receive education on what strategies could be updated or changed to improve Mathilde's sleep. Therapy was ongoing and ever changing depending upon the progress Mathilde made each week and with new environmental or personal factor that arose.

Outcomes

With occupational therapy intervention and consistent parental involvement in home programming, Mathilde made significant progress in her fine motor and self-care skills as well as improved sleep behaviors. Mathilde improved her ability to complete writing tasks at school and is now writing with 75 % legibility. She can fasten buttons and zippers with minimal assistance

from an adult. She improved the quality of her sleep by being able to go to bed with an established routine and, on average, sleeps 8 hours per night only waking up one time per night on an average of 2 nights per week. She has improved her mood overall and only argues with her family about going to bed one out of 7 nights per week. She understands her bedtime and morning routine and requires only minimal assistance from her family to complete all activities within her schedule.

Conclusion

Sleep difficulties in children affect overall health, development, and occupational performance. OTs can assist children and families who are struggling to deal with a sleep disorder by analyzing sleep behavior in a sleep diary. Environmental and sleep hygiene strategies and interventions can be incorporated into a child's routine to make positive changes that can promote sleep in children. Parental/caregiver involvement and education are important to emphasize for success in improving a child's ability to participate in all meaningful activities in their life.

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Appendix C.2. Correspondence with OT Practice Editor**journal article**

Lisa Gwaltney (AOTA Customer Service Support) <customerservice@aota.org> Tue, Apr 12, 2022, at 2:43 PM
Reply-To: AOTA Customer Service Support <customerservice@aota.org>
To: Paula Stommes <pmstommes263@stkate.edu>

##- Please type your reply above this line -##

Your request (111142) has been updated. To add additional comments, reply to this email.

Lisa Gwaltney (AOTA Customer Service)

Apr 12, 2022, 3:43 PM EDT

Hi Paula,

Thank you for your email. As far as topics that would be the most beneficial for readers, really there are a wide variety of ways OT can assist clients, so most likely any topic could be of value. Your article idea / topic sounds very interesting. Unfortunately, I cannot provide much feedback or input until I read a draft of the article.

Here are some important tips that might help in crafting an article:

- Tell us your story. Why is this topic important?
- Don't write about things practitioners *could* or *should* do. Write only about what they *are* doing.
- Provide strategies that readers can apply the next day.
- Where appropriate, include approaches that didn't work, or lessons learned. This provides a broader picture of your intervention.
- Use case examples to demonstrate your points.
- Use the active voice.

I want to also point out that *OT Practice* is a magazine, not a journal. It is not peer-reviewed and doesn't have the same rigorous requirements that a journal does. Instead, *OT Practice* focuses on news and practical information that occupational therapy practitioners need to succeed professionally. Articles should include concrete examples and demonstrate the distinct, unique contribution and expertise of occupational therapy practitioners. Submissions to *OT Practice* should support occupation-based

practice by reflecting the language of the *Occupational Therapy Practice Framework: Domain and Process*.

I am happy to email back and forth with you, so feel free to shoot me an email with any other questions you may have.

All the best,
Lisa

Lisa Gwaltney

Editor, *OT Practice*

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Appendix D.1. Final Presentation

Slide 1

Sleep Promotion in Children with Developmental Disabilities: Implications for Occupational Therapy Practice

Doctoral Committee

Dr. Darla Coss, OTD, OTR/L, CHT

Dr. Jennifer Hutson, PhD, OTR/L, ATP

Dr. Teresa Wickboldt, OTD, OTR/L

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Slide 2

Introduction and Background

- ❖ Pediatrics
- ❖ Sleep is foundational for the health and well-being of a child



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Slide 3

Need for Knowledge Translation

- ❖ Knowledge translation Knowledge translation is important when a gap between available research and practice is identified (Olson & Oudshoorn, 2020.)
- ❖ Need for knowledge translation comes from questions? Why are we not addressing sleep in pediatric evaluations? What are some evidence-based interventions that will help children improve sleep?

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Slide 4

Occupational Therapy Practice Framework ("Occupational

Therapy Practice Framework: Domain and Process — Fourth Edition," 2020b)

Occupations	Contexts	Performance Patterns	Performance Skills	Client Factors
Sleep and Rest	Environmental and Personal factors	Habits and Routines	Motor, process and social interaction skills	Values, beliefs, body functions and structures

What are the most effective non-pharmacological interventions to promote sleep in children with developmental disabilities?

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Slide 5

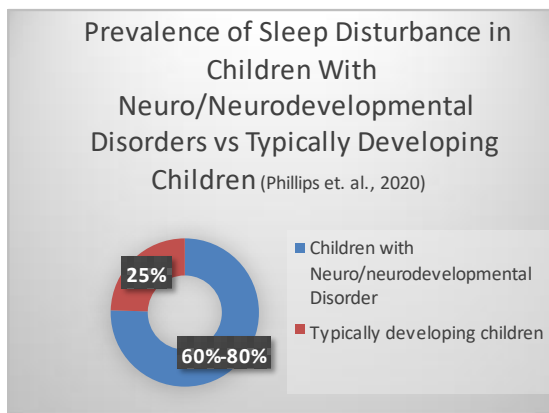
Themes & Evidence From PICO Question

1. There is an increased prevalence of sleep difficulties among children with developmental disabilities as compared to typically developing children.
2. Sleep difficulties can have a negative impact on occupational performance.
3. Parent/caregiver education on sleep can promote sleep in children
4. OTs would benefit from increased education on sleep. Discussion of sleep questionnaires

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Slide 6

Increased prevalence of sleep difficulties among children with developmental disabilities as compared to typically developing children



In children with autism and intellectual disabilities the rates of sleep disturbance is between 50%-80% (Reynolds & Malow, 2011).

In children with intellectual disabilities, the rates of sleep disturbance were found to be 16%-42% (Agar et. al., 2021).

Children with cerebral palsy can experience sleep disturbance at rates as high as 46% (Dutt et al., 2015).

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Slide 7

Sleep Difficulties Can Affect Occupational Performance

A sleep issue can affect a child's ability to participate in desired and meaningful tasks.

Difficulty sleeping has been associated with the following behaviors (Phillips et. al., 2020)

- ❖ mood problems
- ❖ emotional dysregulation
- ❖ behavioral problems
- ❖ cognitive deficits
- ❖ academic difficulties

By changing a child's environment and routine increased sleep can be achieved with positive results.

- ❖ An increase of just 27 minutes of extra sleep resulted in improvements in daytime sleepiness, emotional lability, and restless impulsive behaviors in school children (Camer et. al., 2012).
- ❖ By changing a child's routine and environment, increased sleep duration can be achieved with a positive outcome of improved sleep (Gruber et. al., 2012).

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Slide 8

Parent/Caregiver Education on Sleep Can Promote Sleep in Children

Parents and caregivers can positively influence domains in the OT practice framework.

- Create a safe, positive, and healthy sleep environment
- Establish good rest, sleep preparation and sleep participation routines
- Address any delays or issues with motor or social participation skills
- Emphasize healthy values surrounding sleep, body function and structure

Families can be educated in sleep hygiene techniques. Strategies include:

- Setting consistent bedtimes and waketimes
- Limit bedtime rituals
- Set, and stick to limits
- Ensure darkened bedroom
- Encourage daily exercise
- Ensure bed is comfortable (consider sleep system) (Sutton et. al., 2021)

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Slide 9

Occupational Therapists Would Benefit From Increased Education on Sleep

Sleep is recognized as an occupation in the OT Practice Framework.

Therefore, OT has a role in addressing sleep in practice. There is a lack of confidence among some therapists in their skills related to this topic.

Further development of sleep management from an occupational therapy perspective will strengthen the role of sleep within clinical practice, education, and research domains (Ho & Siu, 2018).

Pilleret. al., 2021, conducted a survey published in the American Journal of Occupational Therapy with the following results:

- therapists did not feel equipped to address sleep with their pediatric clients
- few therapists reported using formal assessment methods to evaluate sleep
- most respondents reported using parent/client interviews to gather information.
- many pediatric OTs feel there is a lack of evidence of effective interventions in addressing sleep as an occupation of childhood

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Slide 10

Sleep Questionnaires

Sleep questionnaires can assist therapists in gathering information on a child's sleep behavior for appropriate treatment planning.

Sleep Diary -log of sleep behavior for one to two weeks.

Sleep diary questions:

- Where does your child sleep
- Average hours of sleep per night
- What does your child need to fall asleep
- How often does your child wake up at night
- Timing and length of naps
- How do you comfort and console your child when they wake up at night

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Slide 11

BEARS sleep questionnaire (Owens and Dalzell, 2000)

	Preschool (2 to 5 years)	School-aged (6 to 12 years)	Adolescent (13 to 18 years)
Bedtime problems	Does your child have any problems going to bed? Falling asleep?	Does your child have any problems at bedtime? (P) Do you have any problems going to bed? (C)	Do you have any problems falling asleep at bedtime? (C)
Excessive daytime sleepiness	Does your child seem overtired or sleepy a lot during the day? Does he/she still take naps?	Does your child have difficulty waking in the morning, seem sleepy during the day, or take naps? (P) Do you feel tired a lot? (C)	Do you feel sleepy a lot during the day? In school? While driving? (C)
Awakenings during the night	Does your child wake up a lot at night?	Does your child seem to wake up a lot at night? Any sleepwalking or nightmares? (P) Do you wake up a lot at night? Have trouble getting back to sleep? (C)	Do you wake up a lot at night? Have trouble getting back to sleep? (C)
Regularity and duration of sleep	Does your child have a regular bedtime and wake time? What are they?	What time does your child go to bed and get up on school days? Weekends? Do you think he/she is getting enough sleep? (P)	What time do you usually go to bed on school nights? Weekends? How much sleep do you usually get? (C)
Sleep-disordered breathing	Does your child snore a lot or have difficulty breathing at night?	Does your child have loud or nightly snoring or any breathing difficulties at night? (P)	Does your teenager snore loudly or nightly? (P)

Slide 12

Knowledge Translation- from the evidence a need for knowledge translation

Overall objective of 3 knowledge translation projects

To identify sleep difficulties in children with developmental disabilities and provide treatment with evidence-based interventions

First KT project

Aim: Share findings from an evidence-based project related to sleep interventions for children with developmental disabilities to occupational therapy students and practicing occupational therapists through a 30-minute virtual continuing education session via The Minnesota Occupational Therapy Association (MOTA).

Slide 13
Knowledge translation

Second KT project

Aim: Inform occupational therapy students and practicing therapists about evidencebased sleep questionnaires and interventions that can be useful in gathering sleep information about children's sleep habits and behaviors through a poster presentation at MOTA

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Slide 14
Knowledge translation

Third KT project

Aim: Increase awareness among occupational therapy students and practicing therapists about the role of occupational therapy in sleep promotion in children with developmental disabilities through an article submitted for publication in *OT Practice*

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Slide 15

Implications for OT Practice

1. Evidence supports the role of OT in treating sleep disturbances in children.
2. OT practitioners can incorporate sleep questionnaires in evaluation to obtain sleep behavior information.
3. Evidence supports parental/caregiver involvement and education to promote sleep in children.
4. OT practitioners will benefit from seeking out education on sleep if needed.

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Research Opportunities

1. Occupational therapy will benefit from more research related to occupation-based interventions.
2. Therapists will benefit from further research to develop specific sleep assessments related to occupational performance and occupational therapy.
3. Further research is needed to examine effectiveness of occupational therapy for improved sleep in the pediatric population.
4. Another area of research that is needed is investigation of the physiological effects of improved sleep in children with developmental disabilities.
5. Further research could investigate the effects of a lack of sleep in children on the family unit.

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Reflection

“What you get by achieving your goals is not as important as what you become by achieving your goals.”— Henry David Thoreau



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Next Steps

- Revise doctoral paper
- Submit article to *OT Practice*
- Collaborate with Dr. Hutson on article
- Continue to recognize sleep in my pediatric clients
- Create webinar with Allied Health

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Acknowledgement

- ❖ Thank you to my doctoral committee, Dr. Matuska and all faculty at St. Kate's
- ❖ I am appreciative that my family has been so patient and supportive of me
- ❖ I am grateful for my fellow classmates who have been supportive and strong for the past two years

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Slide 21



Thank you!

Thank you for attending my presentation.

Any questions please email me at
pmstommes@stkate.edu

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