DEVELOPING SENSORY INTEGRATION EDUCATION PROGRAM FOR PARENTS OF CHILDREN WITH AUTISM SPECTRUM DISORDER

Carolyn R. Mahinay
Author
University of Perpetual Help System Laguna
PHILIPPINES
c19-3017-799@uphsl.edu.ph

Stephanie L. Piol
Co-Author
University of Perpetual Help System Laguna
PHILIPPINES
stephanie.piol@uphsl.edu.ph

Susana C. Bautista
Co-Author
University of Perpetual Help System Laguna
PHILIPPINES
bautista.susana@uphsl.edu.ph

ABSTRACT

This study was conducted to determine the development of a sensory integration (SI) education program for parents who are having children diagnosed with autism spectrum disorder (ASD). The respondents were composed of (15) parents with children diagnosed with ASD and (5) pediatric SI experts. The study utilized descriptive developmental research method. Researcher-made questionnaire was the main tool in gathering data. Weighted mean was the statistical tool used for analysis and interpretation of results. Data analysis revealed these findings: 1. Respondents displayed a high-level satisfaction among respondents with the SI program (overall weighted mean: 3.15). 2. Respondents identified gaps in the comprehensive integration program, categorizing these issues as serious problems (overall weighted mean: 3.23). 3. Respondents agreed with the recommendations to address the gaps in the comprehensive SI program (overall weighted mean: 3.38). 4. Respondents exhibited high level of general acceptability of the comprehensive SI program (overall weighted mean: 3.35). The following conclusions were drawn, (1) Parents play a vital role in their child's behavior, encompassing improvements in attention, reduced sensory sensitivities, enhanced social interactions, and adaptive skills. (2) The primary challenge identified by respondents emphasizes the potential sensory overload experienced by children with ASD outside the therapy setting. (3) The respondents' recommendations on addressing the gaps in the comprehensive SI education program received a high level of support. (4) The respondents emphasize the importance of recognizing the uniqueness of each child with ASD and acknowledging diverse sensory needs and responses to interventions. To develop this kind of education program for parents, active involvement of parents, continuous professional development, close healthcare professional collaboration, increase program availability can significantly enhance the programs level of satisfaction, and acceptability. This study is believed to be a beneficial reference in developing an enhanced SI education program for parents of children with ASD.

Keywords: Sensory Integration, Parent Education Program, Autism Spectrum Disorder

INTRODUCTION

In recent years, there has been a growing recognition of the pivotal role that parents play in the holistic development of children diagnosed with autism spectrum disorder (ASD). Early identification and intervention for developmental disorders, delays, or vulnerabilities are critical to the well-being of children and their families and fall under the responsibility of health and education services and professionals (Lipkin et al., 2020). Autism Spectrum Disorder (ASD) is defined by challenges in social interaction and communication, coupled with repetitive, restricted, and stereotyped behaviors, interests, and activities (Parmeggiani, 2019). While some individuals with ASD achieve independence, others experience profound disabilities necessitating lifelong care and support. The spectrum's impact on education and

employment opportunities is notable, and families providing care often face substantial demands. Societal attitudes and the support from local and national authorities emerge as crucial elements influencing the quality of life for individuals with autism (WHO, 2021). The adoption of sensory integration (SI) developed by Ayes was guided by the principle that 'intersensory integration is foundational to function (Kilroy et.al.,2019). SI is an innate neurobiological process in which the brain integrates and interprets sensory stimulation from the environment. According to Ayres theory, one of the underlying causes of behavioral problems in autism spectrum disorder (ASD) children is a lack of sensory integration. (Guarded et.al.,2021). It is estimated that 90 to 95 percent of ASD children have sensory processing issues. (Randell et al. 2019). Although it is believed that sensory processing features predominate in autism spectrum conditions (Bang, Igelström et al. 2023) other scientific sources have indicated that they are not unique to autism: it is a feature that often occurs in individuals with intellectual disabilities.

In the realm of autism spectrum disorder (ASD), where each child's journey is distinctly shaped by challenges in sensory processing, there is a growing acknowledgment of the pivotal role parents play in nurturing the overall development of their children (Jurevičienė, Kaffemanienė et al., 2023). Grasping the intricate dynamics of ASD, particularly in terms of sensory integration, becomes paramount for parents in providing effective support. As awareness of sensory processing challenges in ASD has progressed, there is an increasing demand for educational programs that empower parents with the knowledge and skills required to cater to their children's unique needs. Mulligan, Douglas, & Armstrong (2021) describe that Sensory Integration (SI) contributes significantly to children's ability to regulate behavior, aligning with the demands and expectations of their surrounding environment. Dr. Ayres identified fundamental sensory functions that form the basis for development and participation, encompassing sensory discrimination, sensory-based postural-ocular-bilateral functions, sensory-based praxis, and sensory reactivity. Ayres's model of SI processing illustrates how interactions among sensory systems—auditory, vestibular, proprioceptive, tactile, and visual—contribute to the emergence of increasingly complex behaviors (Bundy & Lane, 2020).

Gaps in integrating sensory information impact various functions, affecting physiology, cognition, motor skills, emotions, and regulation, ultimately influencing social relationships and daily life participation (Lane, Mailloux et al., 2019). The term "sensory integration difficulties" is used to describe barriers faced by individuals with challenges in sensory processing. Occupational therapists, particularly concerned with how these difficulties affect the successful participation of children and families in daily life, prioritize addressing these challenges (Novak and Honan, 2019). The sensory integration program involves enhancing the neurophysiology of stimulus processing, thereby promoting the organization of an individual's body sensations and their perception of the surrounding environment. Likewise, it is emphasized that interventions targeting the improvement of bodily functions are crucial (Wuang et al., 2020). This program, applied both at home and in a clinical setting, prioritizes the therapist-child-parent relationship and employs play-based sensory-motor activities to enhance sensory processing and integration. It incorporates various sensory inputs such as tactile, vestibular, proprioceptive, auditory, and visual stimuli to elicit adaptive motor responses (Randell et al., 2019). Active involvement and participation of parents in interventions serve to enrich family understanding of their child's condition, contribute to parental self-growth, enhance parenting skills, and bolster knowledge about treatment modalities. Acquiring insights into their child's developmental and functional skills is imperative. Sensory Integration Therapy (SIT) stands out as a prevalent therapeutic approach

designed to amplify a child's ability to perceive and integrate sensory input, fostering more organized and adaptive behaviors (Randell, Wright et al., 2020). SIT manifests positive effects across various domains, including motor skills, social interactions, attention, behavior modification, linguistic and pre-linguistic communicative skills, reading mastery, engagement in play activities, and self-identification. However, there is little information as to what satisfaction of the respondents on the comprehensive sensory integration, gaps, recommendations and general acceptability on the comprehensive sensory integration (Keptner & McCarthy, 2020). Moreover, this lack of information regarding on the comprehensive sensory integration education program for parents having children with autism spectrum disorder may be attributed to a lack of a platform to facilitate exchange of ideas among occupational therapy and parents as there is none at present. Thus, the study attempted to determine developing a sensory integration education program for parents who are having children diagnosed with autism spectrum disorder.

Objective of the Study

The overall objective of this study was to develop a comprehensive program in educating parents about sensory integration. Specifically, the study had the following aims (1) determine the level of satisfaction of the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder, (2) investigate the gaps identified by the respondents on the comprehensive sensory integration program, (3) ascertain the recommendations of respondents regarding the gaps on the comprehensive sensory integration program, and (4) identify the general acceptability of the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder.

LITERATURE REVIEW

Sensory Integration

Sensory integration theory, proposed by Ayres (cited in Pergantis & Drigas, 2023), explains the brain's organization of sensory information for effective use. This theory suggests that difficulties in sensory integration can hinder children's intentional behavior, impacting their ability to learn, focus, engage in activities, and form positive social interactions. Ayres and other scholars support this theory with evidence from clinical and basic science research, highlighting its validity for understanding and addressing sensory challenges in children. Sensory integration is the neurological process of coordinating sensations within oneself and the environment, crucial for optimal body use. Ayres emphasized its role in perception, modulation, and integration of sensory information, forming the basis for engagement in various activities.

The research conducted by Hemant and Zarrin (2020) suggests that sensory integration therapy is effective in addressing sensory processing problems among children aged 5-12 years with ADHD, yielding positive outcomes. Ghanizadeh's (2019) review study emphasizes the intricate relationship between sensory problems and hyperactivity, highlighting the favorable effects of sensory processing programs in mitigating anxiety and symptoms of oppositional defiant disorder. Mulligan, Douglas, and Armstrong (2021) further imply that sensory integration contributes to enhancing children's ability to regulate behavior in accordance with the demands and expectations of their surrounding environment. These findings collectively imply the potential significance of incorporating sensory integration interventions for children with ADHD, indicating positive impacts on both sensory

processing challenges and associated behavioral outcomes. Bundy and Lane (2020) emphasize that Ayres's model of sensory integration processing elucidates the interconnectedness of sensory systems (auditory, vestibular, proprioceptive, tactile, and visual), illustrating their role in shaping progressively intricate behaviors. The study highlights Ayres SI model, showing how sensory systems contribute to complex behaviors. For example, sensory reactivity affects rest and sleep (Lane, Leão, & Spielmann, 2022), and play and social participation involve sensory reactivity, discrimination, somatopraxis, and vestibular integration (May-Benson et al., 2020). Understanding Ayres's model guides targeted interventions for improved outcomes in areas like sleep, play, and social engagement (Lane, Leão, & Spielmann, 2022). This implies that understanding the interactions among these sensory systems according to Ayres's model is crucial for comprehending the development of complex behaviors.

In addition, Randell et al., (2019) concurred that SIT is a therapy that involves face-to-face interaction with play, sensory motor activities, and appropriate challenge from skilled and licensed occupational therapists and other health professions that can modify and reduce child distress levels, improve child coordination, adaptive responses, concentration skills or interpersonal interaction. Moller (2023) suggests that Sensory Integration Therapy aims to enhance sensory processing and responses in individuals with autism, improving overall functioning and quality of life. The therapy involves tailored sensory-rich activities, providing the right sensory input for gradual adaptation. The focus is on creating a "just right" sensory experience to optimize responses. Consistent sessions aim to develop efficient sensory processing skills, leading to improved self-regulation and behavior. Sensory Integration Therapy, often led by specialized occupational therapists, ensures individualized treatment plans aligned with unique sensory needs and developmental goals.

Randell et al. (2022) conducted a parallel group randomized controlled trial (SenITA) to determine the behavioral, functional and quality-of-life outcomes of SIT for children with autism and sensory difficulties as compared to usual care in children in mainstream primary school with an autism diagnosis and having processing difficulties. Exclusion criteria included children that had previous SIT, and/or current applied behavior analysis therapy. A total of 138 children were randomized via randomized permuted blocks, with 69 each assigned to the intervention group and comparator. The primary outcome assessed was improvement in problem behaviors (irritability and agitation). Secondary outcomes assessed were adaptive behavior, function and socialization, stress of carers, functional change, and sensory processing. The intervention used Ayres Sensory Integration® therapy administered in one-hour sessions over 26-week period via two sessions per week for 10 weeks, then two sessions per month for 2 months and then one telephone session per month for 2 months.

Studies of Bevans, Piller, & Pfeiffer, (2020) have revealed a notable prevalence of sensory integration (SI) difficulties in both diagnosed and undiagnosed children. The research indicates that a substantial proportion, including 88% of children with disabilities, 96% with autism spectrum disorder (ASD), 40-50% with attention deficit hyperactivity disorder, and 39-52% of prematurely born infants, experience challenges related to SI (Yeung & Thomacos, 2020). Notably, 5-20% of children without diagnosed disabilities also exhibit SI difficulties (Galiana-Simal et al., 2020). Hence there is a need for a comprehensive understanding of SI challenges across diverse populations. It also emphasizes the limitation of relying solely on commonly used developmental screening tools, which may not effectively identify more subtle issues like SI dysfunction. Efforts to refine assessment approaches could enhance the early identification and intervention for children experiencing

SI difficulties. Omairi, Mailloux et al. (2022) found that improvements in sensory integration not only aid children in successful activity engagement but also enhance families' task completion and participation in preferred activities. Using Ayres Sensory Integration in Occupational Therapy, their study addresses both underlying sensory issues and daily participation challenges. This holistic approach, covering assessment, clinical reasoning, goal setting, treatment planning, direct treatment, and adaptations to daily routines, suggests that sensory integration interventions have broader positive effects. These not only benefit individuals directly involved but also extend advantages to their families, promoting improved daily life participation and functioning. In the qualitative study by May-Benson and Easterbrooks-Dick (2023), findings indicate that children with sensory processing challenges who receive Ayres Sensory Integration (ASI) services tend to perform within the typical range of sensory processing functioning as adults. The severity of sensory processing challenges notably decreased over time, with 50% of participants functioning in the typical range in adulthood. Only 27% reported definite difficulties in overall sensory processing, and auditory processing persisted as a notable problem into adulthood. Interestingly, auditory processing in both childhood and adulthood was significantly related to tactile processing, social–emotional processing, and total scores. These results suggest the potential positive impact of ASI services on long-term sensory processing outcomes, while highlighting the need for continued attention to auditory processing challenges in intervention strategies.

In a scoping review conducted by Peña, Ng et al. (2021), sensory processing involves the management of incoming information by the central and peripheral nervous systems from various sensory sources. This includes internal senses like proprioception and the vestibular system, as well as external senses such as vision, hearing, taste, smell, and touch. Individuals with autism are commonly characterized by atypical processing of sensory information. The review defines sensory processing alterations as atypical perceptions or reactions to sensory stimuli, encompassing both hyper- and hypo-responsiveness (Sasson, Gal, et al., 2019). Hence, the need for a comprehensive understanding of sensory processing in individuals with autism, emphasizing the diverse ways they may perceive and respond to sensory stimuli. Extensive scientific literature, as highlighted by Peña and Ng (2021), establishes that up to 90% of children diagnosed with autism spectrum disorder (ASD) exhibit deficits in sensory processing skills. While there is a prevailing belief that sensory processing features are predominant in autism spectrum conditions (Bang and Igelström, 2023), other scientific sources, such as Pickard and Hirsch (2020), suggest that these features are not unique to autism but are also prevalent in individuals with intellectual disabilities. Hence, the need for a nuanced understanding of sensory processing challenges, recognizing that they may extend beyond autism and be associated with various developmental conditions.

Consensus among researchers is that atypical sensory processing leads to challenges in daily social interactions (MacLennan, Woolley et al., 2022). Sensory hypersensitivity in individuals with autism may contribute to the experience of specific anxieties or phobias (Neufeld, Taylor et al., 2021). For instance, heightened sensitivity to smells or sounds can hinder their engagement in social settings and potentially lead to social isolation. Based on the empirical research conducted by Jurevičienė, Kaffemanienė et al. (2023), it was found that interoceptive dysfunction in children is evident through altered and reduced sensations related to pain, satiety, and temperature. Parents of children with autism spectrum disorder (ASD) who were interviewed reported that individuals with ASD exhibit low sensitivity to subjective pain intensity and show diminished emotional aspects of pain sensitivity. Agostine and Ericks (2022), discussing sensory seeking, noted that children with high neurological thresholds employ active self-regulatory strategies, leading to heightened activity levels,

limited spatial awareness (e.g., bumping into objects), and increased distractibility. Conversely, sensory avoidance, indicating a low neurological threshold, involves active self-regulation strategies such as the child hiding or covering their ears when faced with loud, crowded, and overwhelming environments. These findings underscore the importance of recognizing and understanding interoceptive dysfunction in individuals with ASD, with implications for tailored interventions and support strategies. According to study of Vitosh (2022) occupational therapy plays a vital role in identifying and addressing sensory integration issues in children with autism spectrum disorder (ASD). Occupational therapists are well-equipped to provide tools, resources, and support for individuals of all ages, enabling them to engage in meaningful and essential activities for a successful and fulfilling life. With a focus on client-centered facilitation of valued occupations, occupational therapists understand the profound impact of meaningful engagements on health and well-being. Therefore, occupational therapists are trained to address the sensory challenges of individuals with ASD, tailoring interventions based on a thorough analysis of the person, context, and daily tasks to enhance occupational engagement and performance.

Satisfaction for the Sensory Integration Program

The ASI frame of reference suggests that sensorimotor abilities form the basis for higher-level skills and behaviors such as daily living skills, socialization, and learning. The intervention within the ASI framework aims to enhance sensorimotor factors, ultimately improving function and participation in daily life activities (Parham & Mailloux, 2020). Notably, ASI is recognized as an evidence-based intervention for children with autism spectrum disorder (ASD) by the National Clearinghouse on Autism Evidence and Practice (Schoen et al., 2019; Steinbrenner et al., 2020). This recognition underscores the importance and efficacy of ASI in supporting individuals with ASD.

In the study conducted by Omairi, Mailloux et al. (2022), it was discovered that Sensory Integration (SI) is highly relevant for children with autism spectrum disorder (ASD) and their families. The research supports an intervention addressing sensory integration challenges, which are crucial aspects of ASD. These challenges significantly influence children's participation in daily living skills and activities, subsequently impacting their parents' engagement in work and leisure activities, as noted by Williams et al. (2019). Consequently, enhancements in sensory integration not only contribute to the success of children in activities but also play a crucial role in assisting families in accomplishing tasks and participating in chosen activities. In a systematic review for the Agency for Healthcare Research and Quality (AHRQ), Weitlauf et al. (2019) assessed the effectiveness and safety of interventions addressing sensory challenges in autism spectrum disorder (ASD). The review included 3 RCTs and 1 retrospective cohort study focused on sensory integration-based approaches, involving combinations of sensory and kinetic components. While 3 of 4 studies indicated improvements in sensory-related measures and motor skills, the evidence's strength was deemed low due to small sample sizes and short study durations. Methodological limitations, including a lack of blinding in parent-reported outcomes, were noted, highlighting the need for improved rigor in future studies.

Another cross-sectional survey was conducted by McQuiddy, Bates et al (2022) indicating that children who completed the OT-SI program at CCHMC sustained improvements 6-12 months post-intervention. Parent/caregiver interviews revealed strengths and perceived benefits of OT-SI programs, along with areas for improvement. The study underscores the significance of skilled OT services, as children exhibited statistically significant changes in

goal areas immediately after the intervention, with maintenance for 6-12 months, emphasizing the unique value of OT in enhancing function for children with sensory processing challenges. In a qualitative study done by Cemali et al. (2022) conducted a single-blind randomized controlled trial (RCT) to assess the impact of sensory integration interventions on sensory, motor, and oculomotor skills in infants aged 12–18 months with both cortical vision impairment (CVI) and Cerebral Palsy (CP). Thirty-four infants were randomly assigned to control (n = 17) and intervention (n = 17) groups. The intervention group received sensory integration intervention twice a week for 8 weeks alongside conventional physiotherapy, while the control group only received conventional physiotherapy twice a week for the same duration. Sessions for both interventions lasted 45 minutes. The Test of Sensory Functions in Infants (TSFI) evaluated sensory processing functions, and the Alberta Infant Motor Scale (AIMS) assessed motor functions before and after the intervention.

Gaps in Sensory Integration Program

Gaps in integrating sensory information impact various functions, affecting physiology, cognition, motor skills, emotions, and regulation, ultimately influencing social relationships and daily life participation (Lane, Mailloux et al., 2019). The term "sensory integration difficulties" is used to describe barriers faced by individuals with challenges in sensory processing. Occupational therapists, particularly concerned with how these difficulties affect the successful participation of children and families in daily life, prioritize addressing these challenges (Novak and Honan, 2019). Sensory processing challenges impact a child's ability to understand and interact with their surroundings, hindering the development of self-awareness and crucial motor skills (Howard et al., 2020). Motor planning and skills involve not just physical capacity but also cognitive abilities, known as praxis according to Ayres. This highlights the interconnection of sensory processing, cognitive function, and motor development, underscoring the need to address sensory challenges for comprehensive skill acquisition in children.

Individuals, particularly those with autism spectrum disorder (ASD), frequently face sensory processing challenges, creating difficulties, especially for nonverbal individuals, when coupled with anxiety. Interactions within healthcare settings are often less positive for those with special needs. Sensory difficulties are heightened in medical environments, influencing clinical presentations. Providers from various disciplines may come across patients with sensory processing disorders, impacting responses to illness. Acknowledging these challenges is vital for improving diagnosis and management (Kong et al., 2019). In systematic review of Leon as cited in Pergantis & Drigas (2023), found predominantly negative outcomes in investigating the effectiveness of Sensory Integration Therapy (SIT) through single-case studies. Analyzing 17 studies on individuals with developmental challenges revealed weak designs and poor methodologies, with higher-quality studies generally reporting unfavorable findings. The review also suggested that SIT was less effective than functional analysis-based interventions for challenging behavior, based on limited comparative evidence. Furthermore, Novak & Honan's (2019) systematic review, encompassing 129 articles on pediatric occupational therapy interventions for children with disabilities, found SIT to be insufficient in delivering positive outcomes across various observed populations. These findings underscore the importance of critically assessing the methodology and efficacy of SIT interventions, emphasizing the need for further research and careful consideration of alternative therapeutic approaches. A study was conducted by Cohn and Cermak (2021) highlight the significance of parents in sensory integration therapy,

emphasizing their value in understanding their child's sensory integrative functioning. This understanding aids parents in effectively responding to and managing their child's associated challenges. Collaborative and problem-solving approaches, as advocated by Bundy, Szklut, et al. (2020) and Miller, Chu et al. (2020), stress the involvement of parents in therapy. In contrast, impairment- and performance-oriented methods tend to concentrate primarily on the child's needs. It is crucial to acknowledge the impact of sensory integration difficulties on parents, as studies reveal heightened stress levels and daily challenges. Negative coping strategies employed by parents can exacerbate stress for both the parent and the child, underscoring the necessity for comprehensive and collaborative interventions. According to the survey by Pena & Ng (2020), a majority of parents considered Sensory-Based Interventions (SBIs) to be important or very important, finding them helpful in addressing challenging behaviors. However, the uptake of SBIs varied among parents due to perceived high equipment costs, concerns about the appearance of the equipment, and uncertainty about when and how to implement these interventions optimally. Hence, addressing cost concerns and providing clear guidance on implementation may enhance parental engagement with SBIs.

Researchers have observed a high prevalence of sensory integration (SI) difficulties among both diagnosed and undiagnosed children. Approximately 88% of children with disabilities, 96% of those with autism spectrum disorder (ASD), 40-50% of those with attention deficit hyperactivity disorder, and 39-52% of infants born preterm are reported to face SI challenges (Bevans, Piller, & Pfeiffer, 2020; Yeung & Thomacos, 2020). Recent studies indicate that 5-20% of children without diagnosed disabilities also experience SI difficulties (Galiana-Simal et al., 2020; Mulligan, Schoen, & Magalhaes, 2019). Hyposensitivity, a component of sensory processing disorder, involves an under-responsiveness to sensory input. Recognizing this in children, particularly those on the autism spectrum, is crucial as they may struggle to express themselves. Signs of hyposensitivity include clumsiness, excessive fidgeting, and challenges in respecting personal space. Determining the prevalence of over-responsiveness versus under-responsiveness in autistic children is challenging due to the lack of standardized methods for classification. Dysfunction in sensory processing, as highlighted by Taylor et al. (2020) and Rasmussen (2023), can manifest in various ways, impacting activity levels, motor coordination, speech/language development, academic performance, and behavior. Children may exhibit fluctuations between extremes, such as being constantly active or easily fatigued. Behavioral challenges may include impulsivity, distractibility, and difficulty adapting to new situations, potentially leading to frustration, aggression, or withdrawal.

Sensory processing involves the interaction between neurological processing of sensory input and behavioral response, encompassing various sensory inputs. This process, crucial for all ages, can present difficulties, particularly prevalent in populations like autism spectrum disorder (ASD) patients (Kong et al., 2019). Sensory processing issues are linked to anxiety, posing challenges for nonverbal patients expressing anxiety. Individuals with special needs often report less positive provider-patient interactions, especially in medical settings, intensifying their sensory difficulties. Recognizing sensory processing disorders across disciplines is essential, as patients' responses may amplify during illness, complicating diagnosis and management. Being attuned to sensory processing issues enables providers to consider unrelated aspects, contributing to a more comprehensive understanding of patients.
In an article by Belsky (2023) discusses two common types of sensory challenges. The first, oversensitivity, occurs when children become overwhelmed by sensory information, leading to sensory overload. In response, they may avoid stimuli they find intolerable. The second type is undersensitivity, where children seek more sensory stimulation due to a lack of input

from the environment. Children with sensory challenges may exhibit varying reactions to different stimuli, being oversensitive to some and undersensitive to others. These reactions can also change based on their surroundings and the ongoing activities. Barrientos, Badajos et al. (2023) concurred that Filipino Occupational Therapists addressing sensory processing disorders in children with ASD during mealtimes face a lack of evidence-based interventions. The study highlights the common issue of food selectivity in these children, leading to numerous referrals to other healthcare professionals due to a limited food repertoire. Sensory factors such as taste, texture, scent, or temperature contribute to food selectivity, impacting the engagement of children with ASD in daily activities, particularly feeding. Caregivers observe more challenges in these children compared to their typically-developing peers. This underscores the importance for occupational therapists and healthcare professionals to address sensory problems to enhance engagement during feeding, with sensory-based interventions being recommended.

Recommendation in the use of Sensory Integration Program

Occupational therapists use diverse strategies to enhance behaviors and daily functioning in individuals with autism. They address physiological aspects, targeting health variables for disruptive behaviors. Interventions promote positive sleep, eating habits, and interoceptive awareness. Additionally, sensory-focused interventions and environmental modifications enhance functional performance. Establishing habits and routines adds structure. Emotional regulation involves the therapeutic use of self for trust and leveraging client interests, while cognitive aspects enhance understanding and self-awareness. Education on mindful interventions, sensory modifications, and problem-solving aims for generalization. This comprehensive approach improves overall well-being and empowers individuals with autism in their daily lives (Lillas et al., 2019).

In a scoping review done by Mailloux & Roley (2019) Occupational Therapists (OTs) initially focus on sensory integration patterns related to sensory perception. OTs integrate sensory modifications in treatments to enhance functional performance, tailoring approaches through trial and error for each individual (Mailloux & Roley, 2019). They educate clients and their families on incorporating sensory modifications into home and community settings. Additionally, OTs address primitive reflex integration, automatic movements crucial for survival and development in early life. If these reflexes persist, OTs use intervention activities to promote integration, underscoring the importance of early developmental stages in sensory processing. Occupational Therapy considers intervention for sensory integration difficulties from two perspectives. The first approach is defined as impairment orientated and includes Ayres Sensory Integration, a specialized assessment and direct intervention carried out mainly by occupational therapists with specific postgraduate training using procedural and structural criteria as defined by Parham et al. (2020). Impairment-oriented approaches also include sensory-based interventions, a wide range of sensory stimuli, and sensory experiences using “sensory” equipment in specialized settings.

The second approach, termed performance-oriented, prioritizes managing, rather than altering, the sensory needs of individuals. This involves adapting the environment, modifying tasks, or developing strategies for individuals to self-manage tasks. Numerous interventions have been created for children and their families, showing varying effectiveness (Schoen, Lane et al., 2019). This study delves into the parent-focused coaching intervention, an underutilized approach with parents of children facing sensory integration difficulties. The exploration of this approach underscores its potential implications for supporting parents in

managing and addressing the sensory needs of their children. Support and information exchange. Caregiver interventions are acknowledged for leveraging family strengths within natural contexts and daily occupations, fostering goal attainment. These interventions empower families to devise strategies aligned with their routines and capable of generalization to various situations. In a systematic review, Miller, Kuhaneck and Watling (as cited in Allen, Knott et al., 2020) explored outcomes in parent education and coaching for parents of children with autism and sensory integration difficulties. Limited evidence supports parent training, with occupational therapy well-suited for such interventions, emphasizing the potential impact of caregiver support for children with sensory integration difficulties. Occupation-based, client-centered interventions address sensory challenges in children with autism spectrum disorder (ASD), promoting development, self-regulation, and social participation. Effective strategies include visual supports, modeling, and sensory integration (Crabtree et al., 2019). Various sensory-based interventions, cognitive approaches, and video modeling contribute to positive outcomes. Occupational therapy interventions, particularly through parent training, education, and coaching, prove effective in reducing caregiver burden and managing disruptive behaviors for improved daily functioning.

Conducting sensory assessments is crucial for school-based occupational therapy practitioners to understand a child's sensory needs in an educational setting (Benson et al., 2019). A survey of 94 school-based OT practitioners in Pennsylvania revealed that sensory assessments played a significant role in comprehending children's sensory needs. Despite the small sample size, evidence supports the relevance of Sensory-Based Interventions (SBIs) in schools, as reported by school-based OT practitioners. However, only 55.56% felt comfortable providing sensory-based assessments, and 13.33% indicated a lack of training for conducting such assessments and interventions. Occupational therapists (OTs) recommend sensory-based interventions, aligning with Ayres sensory integration theory and other relevant approaches (Peña et al., 2021). Following a referral, OTs conduct an initial evaluation to observe the child's behavioral patterns and skills, identifying primary concerns. Subsequently, they may employ sensory interventions based on Ayre’s sensory integration and/or Miller’s sensory therapies and research center (STAR) approach, using protocols with various techniques to address system dysregulation. Therapists often suggest these techniques as home exercise programs for caregivers to implement and help calm or balance sensory experiences at home.

Parents providing home-based interventions reported an improvement in their child's overall well-being and a reduction in sensory abnormalities, according to Padamanabha et al. (2019). However, parents noted challenges in implementing suggested interventions due to factors such as equipment accessibility, time constraints, difficulty, and cost (Peña et al., 2021). While acknowledging the helpfulness of sensory interventions, parents found them difficult to use, not always recommended by occupational therapists, and faced challenges in obtaining the necessary equipment at home. This highlights a significant gap in understanding how to effectively utilize sensory-based interventions, choose appropriate interventions, and access cost-effective equipment for home use. Children experiencing sensory-processing differences, as outlined by Piller & Barimo (2019), may struggle with attention and understanding their environment. This can impact the development of crucial communication skills. Occupational therapists (OTs) are pivotal in addressing these sensory issues, assisting children with Autism Spectrum Disorder (ASD) to enhance attention and engagement. Hence, the child's sensory needs have significant implications for the interprofessional team, informing tailored strategies to support the child's overall

development. The American Occupational Therapy Association (2019) recommends incorporating sensory-based strategies following an occupational therapist's assessment of a child's sensory processing. Collaboration between speech-language pathologists (SLPs) and OTs is encouraged to implement effective strategies for children with Autism Spectrum Disorder (ASD). Mismatches between a child's alertness level and task demands can hinder treatment success. For instance, a child in a heightened state of alertness due to sensory stimuli may struggle with speech-language tasks. OTs employ various sensory strategies, including movement, proprioceptive, and tactile inputs, to regulate arousal levels and optimize conditions for learning and communication in children with ASD. Authentic assessment involves evaluating children's functional competence in their natural environments, such as home and community, aiming to accurately reflect the reality of the child and family. Macy, Bagnato, and Weiszhaupt (2019) emphasize that this assessment approach relies on observations, reports, and perceptions from familiar and knowledgeable caregivers in a child's life. Professionals should then use the evaluation results to plan interventions tailored to the specific characteristics, needs, and priorities of both the family and the child. The authentic assessment, rooted in real-life contexts and perspectives, allows for more targeted and personalized interventions that better serve the unique circumstances of each child and family.

Ayres Sensory Integration Ayres (as cited in Lucas, Pereira, 2023) explains how the brain processes sensory input for motor and behavioral responses. Sensory Integration (SI) involves detecting, modulating, and processing sensory information for appropriate responses in daily life. Ayres identified key sensory functions, including sensory discrimination, postural functions, praxis, and reactivity. Bundy and Lane (2020) highlight Ayres SI model, showing how sensory systems contribute to complex behaviors. For example, sensory reactivity affects rest and sleep (Lane, Leão, & Spielmann, 2022), and play and social participation involve sensory reactivity, discrimination, somatopraxis, and vestibular integration (May-Benson et al., 2020). Understanding Ayres's model guides targeted interventions for improved outcomes in areas like sleep, play, and social engagement (Lane, Leão, & Spielmann, 2022).

Early sensory issues in young children increase the likelihood of developmental challenges in school age (Chen, Sideris, Watson, Crais, & Baranek, 2023). Recognizing the reciprocal relationship between Sensory Integration (SI) and development/occupational participation underscores the importance of early identification to mitigate the impact on self-care, play, sleep, emotion regulation, and school participation. In essence, screening and identifying SI challenges are crucial for timely referral to early childhood intervention services. Additionally, Cakmak (2021) posit that effectively managing sensory overload involves identifying triggers to prepare for potential occurrences. Children with sensory sensitivities, particularly related to smell, may exhibit intolerance to human or object odors, leading to avoidance and repetitive behaviors. Some may also have heightened sensitivity to food smells and tastes, resulting in refusal to eat. Autistic children with vestibular sensory overload may struggle with walking on uneven surfaces, while those with proprioceptive sensory overload may exhibit difficulties in body positioning and manipulating small objects. Recognizing these triggers is crucial for proactive preparation and support. Bagatell et al. (2020) suggest a nuanced approach to providing ball chairs for children with autism spectrum disorder (ASD), emphasizing consideration of individual characteristics. While ball chairs may improve in-seat behavior for those with vestibular-proprioceptive seeking tendencies, they could have negative effects on individuals with poor postural stability. Conversely, studies indicate limited benefits from the use of weighted or pressure vests. Occupational therapists

recommended sensory processing strategies have shown superior outcomes for parents of ASD children, especially in the preschool age group, compared to biweekly hospital treatments (Hanft & Shepard, 2020). Previous research investigating sensory processing strategies has explored interventions like weighted vests, seat cushions, and ball chairs. Bagatell et al. (2020) and other studies emphasize the positive impact of weighted vests on goal-directed play and reduced nonengagement play in children with developmental disorders. Additionally, using a cushion has been linked to improved attention, while ball chairs show favorable effects on in-seat behavior and productivity, particularly in individuals with attention deficit-hyperactivity disorder or autism spectrum disorder. The study stresses the importance of considering individual characteristics, such as vestibular-proprioceptive seeking tendencies or poor postural stability, when implementing these interventions. It is crucial to note that, despite these positive findings, some studies suggest no significant effects from using weighted or pressure vests, underlining the need for personalized approaches in sensory processing strategies.

Acceptability of the Respondents on the Comprehensive Sensory Integration Program

The results of the study conducted by Peña, Ng et al. (2020) suggest that parents generally appreciate and find value in interventions of this nature. A majority of parents expressed the importance of Sensory Integration (SI) and found it helpful in addressing challenging behaviors. However, the uptake of SI varied among parents, attributed to perceived high equipment costs, concerns about the appearance of the equipment, and uncertainty about the optimal timing and implementation of these interventions. These aspects highlight potential gaps for future research. Notably, massage emerged as the most commonly employed Sensory-Based Intervention (SBI) by parents to manage challenging behaviors in their children with autism spectrum disorder (ASD), aligning with a growing body of evidence supporting massage as a potentially promising SI for behavior management in this population. In the survey conducted, parents were asked about the significance of Sensory-Based Interventions (SBIs) in managing challenging behaviors, a majority, approximately three-quarters, expressed that they perceived the use of SBIs to be important or very important. Regarding the effectiveness of the recommended SBIs in addressing challenging behaviors, more than half of the respondents reported finding them helpful. However, a portion of parents, specifically 20%, did not find SBIs to be beneficial. The remaining respondents indicated that SBIs were either sometimes helpful, they were uncertain about their effectiveness, or they never had an opportunity to use them.

According to the study conducted by Schoen, Lane et al. (2019), parents expressed a preference for using equipment or objects that had a less clinical appearance and were already present in their homes. This suggests that occupational therapists should be mindful of the therapeutic equipment they recommend. By minimizing reliance on expensive sensory equipment and focusing more on utilizing items readily available in the client's home, school, and community environments, there is potential to increase the adoption of Sensory-Based Interventions (SBIs). Clinicians who follow the occupational therapy with a sensory integration frame of reference, as outlined by Miller et al. as cited in Peña, Ng et al.(2020), often recommend Sensory-Based Interventions (SBIs). It's important to note that SBIs, while aligned with occupational therapy principles, do not strictly adhere to all core principles of Ayres Sensory Integration® (ASI). ASI® is a highly structured, individualized, and child-led treatment process primarily conducted in clinical settings, as highlighted by Schoen et al. (2019). In contrast, SBIs are typically led by therapists or adults and are implemented in diverse settings such as the child's home, school, or community environments. These

interventions can be applied passively and are not strictly individualized. Unlike ASI®, SBIs may involve either single or multisensory stimulation and can incorporate environmental modifications. For instance, a common SBI practice is recommending noise-canceling headphones to address noxious auditory input experienced by children with Autism Spectrum Disorder (ASD) and auditory hyper-responsivity.

Synthesis of the Reviewed Literature

The literature and studies reviewed by the researcher in this chapter discuss the relevant concepts covered in this study. Among the concepts discussed are those pertaining to the level of satisfaction of the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder, the recommendations of the respondents regarding the gaps noted on the comprehensive sensory integration program and the general acceptability of the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder.

Sensory integration theory, proposed by Ayres (cited in Pergantis & Drigas, 2023), explains the brain's organization of sensory information for effective use. This theory suggests that difficulties in sensory integration can hinder children's intentional behavior, impacting their ability to learn, focus, engage in activities, and form positive social interactions. The research conducted by Hemant and Zarrin (2020) Ghanizadeh's (2019) Mulligan, Douglas, and Armstrong (2021) Bundy and Lane (2020) Lane, Leão, & Spielmann, (2022) Randell et al., (2019) Moller (2023) suggests that Sensory Integration Therapy aims to enhance sensory processing and responses in individuals with autism, improving overall functioning and quality of life. In the study conducted by Omairi, Mailloux et al. (2022), it was discovered that Sensory Integration (SI) is highly relevant for children with autism spectrum disorder (ASD) and their families. The research supports an intervention addressing sensory integration challenges, which are crucial aspects of ASD. These challenges significantly influence children's participation in daily living skills and activities, subsequently impacting their parents' engagement in work and leisure activities, as noted by Williams et al. (2019). Weitlauf et al. (2019) McQuiddy, Angela Bates et al (2022) Cemali et al. (2022) assessed the effectiveness and safety of interventions addressing sensory challenges in autism spectrum disorder (ASD).

Researchers have observed a high prevalence of sensory integration (SI) difficulties among both diagnosed and undiagnosed children. Approximately 88% of children with disabilities, 96% of those with autism spectrum disorder (ASD), 40-50% of those with attention deficit hyperactivity disorder, and 39-52% of infants born preterm are reported to face SI challenges Bevans, Piller, & Pfeiffer, (2020) Yeung & Thomacos, (2020). Recent studies indicate that 5-20% of children without diagnosed disabilities also experience SI difficulties (Galiana-Simal et al., (2020) Mulligan, Schoen, Miller, (2019). In a scoping review done by Mailloux & Roley (2019) Occupational Therapists (OTs) initially focus on sensory integration patterns related to sensory perception. OTs integrate sensory modifications in treatments to enhance functional performance, tailoring approaches through trial and error for each individual Mailloux & Roley, (2019). Schoen, Lane et al., (2019). Reynolds et al. (2020) Miller, Kuhaneck and Watling (as cited in Allen, Knott et al., (2020) Cakmak (2021) Bagatell et al. (2020). They educate clients and their families on incorporating sensory modifications into home and community settings. Additionally, OTs address primitive reflex integration, automatic movements crucial for survival and development in early life. If these reflexes

persist, OTs use intervention activities to promote integration, underscoring the importance of early developmental stages in sensory processing. In regards with the acceptability of the respondents on Comprehensive Sensory Integration Program, Peña, Ng et al. (2020) Schoen, Lane et al. (2019), suggest that parents generally appreciate and find value in interventions of this nature. A majority of parents expressed the importance of Sensory Integration (SI) and found it helpful in addressing challenging behaviors

Gap/s Bridged by the Present Study

Based on the review of literature and studies conducted, the following gaps were determined: (1) There was limited understanding of sensory integration program for parents who are having children diagnosed with autism spectrum disorder general, both in local and international literature. (2) There was a lack of information about the gaps of integration program for parents who are having children diagnosed with autism spectrum disorder more so, the strategies they employ. (3) There were no studies that focused on the interplay of the said variables in the Philippine Context. In view of the identified gaps identified, the study endeavored on the development and evaluation a comprehensive SI program in educating parents about SI.

METHODOLOGY

This study on determining the developing a sensory integration education program utilized descriptive-developmental design, specifically a cross-sectional survey design. Descriptive research is a form of research that aims to describe and interpret phenomena, such as conditions, relationships, and ongoing processes. It seeks to obtain information about the status of a symptom or the state of nature at a point in time. Descriptive research does not involve treatment or hypothesis testing, and it generates qualitative and quantitative data. Developmental research, on the other hand, focuses on documenting, describing, and analyzing the conditions under which infants and children live and learn. It aims to understand variability in development across communities and cultures and generate comprehensive theories of development. Open science practices can be incorporated into both descriptive and developmental research to increase transparency, reliability, and replicability. These practices include preregistration and embracing a scientific culture where descriptive research and open science coexist productively Creswell (2019).

The population was consisting of (15) parents with children diagnosed with ASD and (6) pediatric sensory integration experts. The target population was 21 and the sample size was calculated using the Raosoft calculator utilizing the 95% level of confidence, which was 20. The sampling technique that was employed in this study was purposive sampling and stratified sampling since criteria was set to choose the respondents that was included in this study. The study's expert respondents were subjected to the following inclusion criteria. Respondents were required to be licensed practicing Occupational Therapists with five or more years of clinical experience, OT's who were currently assigned to or tasked with managing children diagnosed with ASD and are certified sensory integration Therapists. The work status of these subjects was not limited to those who were regular employees but could include those who were self-employed. The study was conducted during academic year of 2022 – 2023. The study utilized a self-made questionnaire and was used for collecting data pertaining to the satisfaction, gaps, recommendations and the general acceptability on the comprehensive sensory integration program for parents who were having children diagnosed with autism spectrum disorder. The questionnaire consists of Part-I level of satisfaction

consist of (8 items) Part-2 gaps noted by the respondents on the comprehensive sensory integration (8 items) Part-3 recommendations of the respondents regarding the gaps (8 items) Part-4 General acceptability (8) items.

The questionnaire was created by the researcher, and was validated by three experts: a researcher, statistician, and a professor who were having atleast Masteral studies and expert in the field. They have examined the questionnaire and gave suggestions.

The survey instrument also underwent pilot testing for reliability and used Cronbach's alpha measure of internal consistency. The following alpha measures were obtained: Satisfaction indicators (.707 acceptable internal consistency), Gaps identified indicators (.701 acceptable internal consistency), Recommendation indicators (.781 acceptable internal consistency) and General acceptability indicators (.800 good internal consistency)

Weighted mean was the statistical tool used for the analysis of data and interpretation of results.

RESULTS

Results of the conducted survey answered all the statement of the problem derived from the objective of the study.

What is the level of satisfaction of the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder?

Table 1Respondents' Level of Satisfaction with the Sensory Integration Program

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. can provide valuable insights into their child's behavior, mood, and interactions at home.	3.00	High	7
2. changes in sensory processing, self-regulation, and daily functioning can be reported by parents.	3.00	High	7
3. can provide more objective data to complement subjective parental reports.	3.20	High	4.5
4. can report any positive changes in their child's behavior, such as improved attention, decreased sensory sensitivities, better social interactions, and enhanced adaptive skills.	3.27	High	2
5 assess improvements in daily activities, academic performance, and social engagement can help determine the program's impact on overall functioning.	3.00	High	7
6. Regular communication between parents and professionals, can ensure a comprehensive evaluation of the child's progress.	3.20	High	4.5
7. Long-Term Follow-up to determine the lasting effects of the Sensory Integration Program.	3.27	High	2
8. Interventions should be tailored to the specific needs of each child.	3.27	High	2
Overall Weighted Mean	3.15	High	

Table 1 show that the respondents' level of satisfaction with the Sensory Integration Program reveals an overall high weighted mean of 3.15. This result signifies a positive perception among parents regarding various aspects of the program. The indicators with the highest satisfaction, both ranking at 2, include reporting positive changes in their child's behavior and the importance of tailoring interventions to each child's specific needs. Long-term follow-up to assess lasting effects also received a high rank of 2. The remaining indicators, stressing the significance of parents reporting changes in sensory processing and the objective data they provide, are positioned at rank 4.5. Additionally, indicators emphasizing the value of parental insights into their child's behavior, mood, and interactions, along with assessing improvements in daily activities, academic performance, and social engagement, share a rank of 7.

What are the gaps identified by the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder?

Table 2Gaps Identified by the Respondents on the Comprehensive SI Program

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. SI program may not be readily available in all locations, limiting access for some families.	3.20	Serious Problem	5
2. A one-size-fits-all approach may not address the unique needs of each child, requiring more individualized interventions.	3.20	Serious Problem	5
3. Sensory integration therapy may lack standardized protocols and assessments.	3.20	Serious Problem	5
4. Parents may find it challenging to seamlessly integrate sensory strategies learned in therapy into their child's daily routine.	3.20	Serious Problem	5
5 Parents may require more extensive training and ongoing support to implement sensory strategies effectively at home.	3.20	Serious Problem	5
6.A lack of collaboration can hinder the effectiveness of a comprehensive approach.	3.20	Serious Problem	5
7. Children with ASD may experience sensory overload in various environments outside the therapy setting.	3.40	Serious Problem	1
8. The cost of comprehensive sensory integration programs, including therapy sessions and equipment, can be a barrier for some families.	3.20	Serious Problem	5
Overall Weighted Mean	3.23	Serious Problem	

Table 2 show Gaps Identified by the Respondents on the Comprehensive Integration Program. The results from the respondents indicate an overall weighted mean of 3.23 for the Gaps Identified in the Comprehensive Integration Program, categorizing these issues as 'Serious Problems.' Examining the specific indicators, the most critical concern, ranking at 1, is the potential sensory overload experienced by children with ASD in various environments outside the therapy setting. Conversely, indicators 1, 2, 3, 4, 5, and 8 share the same rank of 5, signifying a consistent perception that the SI program may not be readily available in all locations, a one-size-fits-all approach may not address the unique needs of each child, sensory integration therapy may lack standardized protocols and assessments, parents may find it challenging to integrate learned sensory strategies into their child's routine, and the cost of comprehensive programs can be a barrier for some families.

What are the recommendations to the respondents regarding the gaps on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder?

Table 3 Recommendations to Address the Gaps for Comprehensive Sensory Integration Program

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Advocate for increased availability of comprehensive sensory integration programs in various locations.	3.60	Strongly Agree	1.5
2. Encourage the development of telehealth or online resources to make interventions more accessible to families in remote areas.	3.00	Agree	8
3. Encourage professionals to collaborate with parents to develop strategies that address their child's unique challenges.	3.60	Strongly Agree	1.5
4. Encourage professionals to stay updated on the latest research and incorporate evidence-based interventions into their programs.	3.40	Agree	4.5
5 Offer practical guidance on adapting sensory activities for different environments and situations.	3.20	Agree	7
6. Develop training programs for parents to enhance their understanding of sensory processing challenges and empower them to implement strategies effectively.	3.40	Agree	4.5
7. Establish support groups or online forums where parents can share experiences and advice.	3.40	Agree	4.5
8. Provide resources and guidance to help parents generalize sensory strategies beyond the therapy setting.	3.40	Agree	4.5
Overall Weighted Mean	3.38	Agree	

Table 3 shows the recommendations to address the gaps in the comprehensive sensory integration program, with an overall weighted mean of 3.38 for the categorizing these recommendations as 'Agree.' Examining the specific indicators, the most strongly agree, with a weighed mean of 3.60 ranking at 1.5, is to advocate for increased availability of comprehensive sensory integration programs in various locations. Additionally, professionals are encouraged to collaborate with parents to develop strategies addressing their child's unique challenges, with a rank of 1.5 as well. Following closely, the recommendation to develop training programs for parents to enhance their understanding of sensory processing challenges and empower them to implement strategies effectively, along with staying updated on the latest research, Establish support groups or online forums where parents can share and Provide resources and guidance to help parents generalize sensory strategies beyond the therapy setting with a weighted mean of 3.40 rank of 4.5. fall under the 'Agree' category. Next, Offer practical guidance on adapting sensory activities for different environments and situations with a weighted mean of 3.20 rank 7 Lastly, Encourage the development of

telehealth or online resources to make interventions more accessible to families in remote areas with a weighted mean of 3.00 rank 8.

What is the general acceptability of the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder?

Table 4 General Acceptability of the Comprehensive Sensory Integration Program

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Each child with ASD is unique, and their sensory needs and responses to interventions can differ significantly.	3.60	Very High	1.5
2. Parental beliefs, values, and expectations regarding sensory integration interventions can impact their acceptance.	3.20	High	6.5
3. Parents are more likely to embrace interventions that they believe positively impact their child's well-being, behavior, and quality of life.	3.20	High	6.5
4 A program that involves parents in decision-making and goal-setting may be more acceptable than one with limited involvement.	3.40	High	3.5
5 Cultural factors, including beliefs about health and interventions, may influence the acceptability of sensory integration programs.	3.20	High	6.5
6. Programs that are convenient and fit into the daily lives of families are more likely to be accepted	3.40	High	3.5
7. Parents observe positive changes in their child's behavior, sensory regulation, and overall well-being, they are more likely to find the program acceptable.	3.20	High	6.5
8. Positive testimonials and shared success stories can enhance the perception of the program.	3.60	Very High	1.5
Overall Weighted Mean	3.35	High	

Table 4 show the General Acceptability of the Comprehensive Sensory Integration Program with an overall weighted mean of 3.35 indicating a categorization of 'High' acceptability. Examining specific indicators, the most strongly supported factors, ranking at 1.5, are the recognition that each child with ASD is unique, and their sensory needs and responses to interventions can differ significantly (Weighted Mean: 3.60), along with the positive impact of positive testimonials and shared success stories (Weighted Mean: 3.60). Following closely, with a rank of 3.5, are programs that involve parents in decision-making and goal-setting (Weighted Mean: 3.40) and those that are convenient and fit into the daily lives of families

(Weighted Mean: 3.40). Cultural factors, including beliefs about health and interventions (Weighted Mean: 3.20), parental beliefs, values, and expectations (Weighted Mean: 3.20), as well as observing positive changes in their child's behavior, sensory regulation, and overall well-being (Weighted Mean: 3.20), share the same rank of 6.5.

DISCUSSION

Based on the results of the data gathered, analysis, inferencesandinterpretations were discussed.

What is the level of satisfaction of the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder?

The respondents displayed a very high level of satisfaction among respondents with the Sensory Integration Program with an average weighted mean of 3.15. In summary, the overall high average weighted mean of 3.15 indicated a high level of satisfaction among respondents with the Sensory Integration Program. This suggests that parents could effectively report positive changes in their child's behavior, including improvements in attention, decreased sensory sensitivities, enhanced social interactions, and adaptive skills. The importance of long-term follow-up to assess lasting program effects and the need for tailored interventions to meet each child's specific needs are also highlighted by these positive satisfaction levels.

To a certain extent, the study results support the study made by Omairi, Mailloux et al. (2022), emphasizing the significant relevance of Sensory Integration (SI) for children with autism spectrum disorder (ASD) and their families. The current research supports the necessity of interventions addressing sensory integration challenges, crucial aspects of ASD. Weitlauf et al. (2019) also examined the effectiveness and safety of interventions targeting sensory challenges in ASD, supporting the importance of such interventions. Additionally, a cross-sectional survey conducted by McQuiddy, Bates et al. (2022) indicated sustained improvements 6-12 months post-intervention for children who completed the OT-SI program at CCHMC. These collective findings underscore the value and positive impact of sensory integration interventions for children with ASD, emphasizing their lasting benefits over time.

What are the gaps identified by the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder?

The respondents identified Gaps in the Comprehensive Integration Program, categorizing these issues as 'Serious Problems" with an average weighted mean of 3.23.In summary, the overall average weighted mean of 3.23 categorizing these issues as 'Serious Problems. The most critical challenge highlights the potential sensory overload experienced by children with ASD in diverse environments outside the therapy setting. Conversely, indicators share the same rank, indicating consistent perceptions about limited program availability, the inadequacy of a one-size-fits-all approach, potential lack of standardized protocols in sensory integration therapy, challenges for parents in integrating strategies into daily routines, and the cost as a barrier for some families. The study aligns with Lane, Mailloux et al. (2019), who outline the challenges faced by individuals experiencing difficulties in sensory processing. Occupational therapists, particularly focused on the impact of these challenges on children and families' daily life participation, prioritize addressing these issues (Novak and Honan,

2019). Sensory processing challenges, as illuminated by Howard et al. (2020), impede a child's ability to comprehend and engage with their surroundings, hindering the development of self-awareness and crucial motor skills. Nonetheless, Pergantis & Drigas (2023) present predominantly negative outcomes in their exploration of the effectiveness of Sensory Integration Therapy (SIT) through single-case studies, underscoring the need for a nuanced understanding of the therapy's overall efficacy.

What are the recommendations to the respondents regarding the gaps on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder?

The respondents agreed on the recommendations to address the gaps in the comprehensive sensory integration program, reflected in an overall weighted mean of 3.38.To sum up, the overall weighted mean of 3.38 the the respondents agreed on the recommendations to address the gaps for comprehensive sensory integration program. This suggests overwhelming support for advocating increased availability of comprehensive sensory integration programs in various locations. Furthermore, there is a shared endorsement for encouraging professionals to collaborate with parents in developing strategies tailored to their child's unique challenges, as well as emphasizing the importance of staying updated on the latest research and incorporating evidence-based interventions into programs. These findings highlight a collective acknowledgment of these recommendations as essential steps to enhance the effectiveness of comprehensive sensory integration programs. The respondents' perception aligns with Mailloux & Roley's (2019) discussion, emphasizing Occupational Therapists' initial focus on sensory integration patterns related to sensory perception. Additionally, Reynolds et al. (2020) characterize coaching as a structured process involving emotional support and information exchange. A systematic review by Miller, Kuhaneck, and Watling (as cited in Allen, Knott et al., 2020) explored outcomes in parent education and coaching for parents of children with autism and sensory integration difficulties, highlighting the significance of such approaches in enhancing understanding and support for families.

What is the general acceptability of the respondents on the comprehensive sensory integration program for parents who are having children diagnosed with autism spectrum disorder?

The respondents exhibited high level of General Acceptability of the Comprehensive Sensory Integration Program with an overall weighted mean of 3.35.In summary, the overall weighted mean of 3.35 indicated that the General Acceptability of the Comprehensive Sensory Integration Program was high. These findings suggest that recognizing the uniqueness of each child with ASD and acknowledging diverse sensory needs and responses to interventions is crucial. Additionally, the positive impact of positive testimonials and shared success stories enhances the perception of the program. Furthermore, programs involving parents in decision-making and goal-setting are more acceptable than those with limited involvement. These insights emphasize the importance of tailored approaches and parental engagement in ensuring the acceptability and success of the Comprehensive Sensory Integration Program. The study aligns with the findings of Peña, Ng et al. (2020), indicating that parents generally appreciate and find value in interventions related to Sensory Integration (SI). A majority of parents expressed the importance of SI and found it helpful in addressing challenging behaviors. The study conducted by Schoen, Lane et al. (2019) further supports these findings, noting that parents prefer using equipment or objects with a less clinical appearance and that are already present in their homes. The clinicians' adherence to

occupational therapy with a sensory integration frame of reference, as outlined by Miller et al. (as cited in Peña, Ng et al., 2020), reinforces the relevance and effectiveness of such interventions.

CONCLUSIONS

Based on the salient findings of the study, the following conclusions were drawn: (1) Parents play a vital role in reporting positive changes in their child's behavior, encompassing improvements in attention, reduced sensory sensitivities, enhanced social interactions, and adaptive skills. (2) The primary challenge identified by respondents emphasizes the potential sensory overload experienced by children with ASD in various environments outside the therapy setting. Additionally, consistent perceptions are noted regarding challenges.(3) The respondents' recommendations to address the gaps in the comprehensive sensory integration program received a high level of support. This indicates a strong endorsement for advocating increased availability of comprehensive sensory integration programs in various locations. Furthermore, there is a shared consensus on encouraging professionals to collaborate with parents in developing strategies tailored to their child's unique challenges.(4) The respondents emphasize the importance of recognizing the uniqueness of each child with ASD and acknowledging diverse sensory needs and responses to interventions. Additionally, programs involving parents in decision-making and goal-setting are deemed more acceptable than those with limited involvement.

In light of the findings and conclusions, the following are offered as recommendations for possible actions. (1) For occupational therapists, to continue providing tailored and long-lasting sensory integration educational program, in order to meet high level satisfaction of primary stake holders.

(2) For occupational therapists, to stay updated with the latest research in sensory integration therapy through continuous professional development, so as to effectively guide parents on how to manage sensory overload outside the therapy setting.

(3) For occupational therapists, to address the gap of therapist and parent collaboration such as continuous parent educational programs, regular meetings utilizing digital platforms, so it can foster a cohesion and unity. (4)For parents, to always consult with certified sensory integration occupational therapists, in order to obtain valuable strategies to effectively address specific sensory needs of their child. (5)For future researchers, to conduct study with larger number of respondents delving into parents' experiences and perspectives, so as to enhance sensory integration parent educational program.

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