

Outcome of Blanket Wrapping as a Deep Pressure Therapy for Children with Autism Spectrum Disorder: A Quasi-Experimental Study

By

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**Bangladesh Health Professions
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DECLARATION

- This work has not previously been accepted in substance for any degree and is not concurrently submitted in candidature for any degree.
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List of Abbreviation

Abbreviation	Full Form / Description
ASD	Autism Spectrum Disorder
APA	American Psychiatric Association
ADOS-2	Autism Diagnostic Observation Schedule, Second Edition
CDCP	Centers for Disease Control and Prevention
CRP	Centre for the Rehabilitation of the Paralysed
SAND	Society for Autism and Neurodevelopmental Disorders
DPT	Deep Pressure Therapy
SI	Sensory Integration
ASI	Ayres Sensory Integration
SBI	Sensory-Based Intervention
VAS	Visual Analogue Scale
GAS	Goal Attainment Scaling
OT	Occupational Therapy
SP	Sensory Processing
CNS	Central Nervous System
SD	Standard Deviation
BHPI	Bangladesh Health Professions Institute
SPSS	Statistical Package for the Social Sciences
QOL	Quality of Life
IRB	Institutional Review Board
WHO	World Health Organization
CDC	Centers for Disease Control and Prevention

ABSTRACT

Background:

Deep Pressure Therapy (DPT) is widely used as a sensory integration intervention for children with Autism Spectrum Disorder (ASD). In Bangladesh, occupational therapists frequently prefer blanket wrapping as a DPT technique because it is believed to promote relaxation and improve attention. However, there is limited empirical evidence comparing the effectiveness of blanket wrapping with other commonly used deep-pressure techniques, such as weighted vests, manual compression, and therapeutic brushing.

Aim:

This study examined the effects of structured blanket wrapping on behavioral responses and functional goal attainment in children with ASD, compared with an active control group receiving alternative DPT methods.

Method:

A quantitative, quasi-experimental design was employed involving 36 children with ASD, divided equally into an experimental group (blanket wrapping) and an active control group (other DPT techniques). Immediate behavioral changes following DPT sessions were assessed using the Visual Analogue Scale (VAS) across five domains: calmness, engagement, responsiveness, happiness, and communication. Functional outcomes were evaluated using Goal Attainment Scaling (GAS). Blinding of data collectors and assessors was implemented to reduce bias.

Results:

The experimental group demonstrated significantly greater immediate behavioral improvements on the VAS in calmness (100%), engagement (88.9%), responsiveness (88.9%), and happiness (72.2%) ($P < 0.05$). Improvements in communication were less pronounced (44.4%). In contrast, the control group showed lower rates of significant improvement across all domains, including calmness (56.3%), engagement (37.5%), responsiveness (25%), happiness (18.8%), and communication (12.5%). GAS results indicated statistically significant functional gains in calmness, engagement, and responsiveness ($P < 0.001$) in the experimental group, with modest improvement in happiness and no significant change in communication. The control group showed significant improvement only in calmness.

Conclusion:

Blanket wrapping appears to be more effective than other DPT methods in promoting immediate relaxation, engagement, and responsiveness in children with ASD, although it does not significantly enhance communication abilities.

Keywords: Autism Spectrum Disorder, Deep Pressure Therapy, Blanket Wrapping, Sensory Integration.

CHAPTER I: INTRODUCTION

1.1 Background

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by three different area of impairments such as difficulties in social communication, social interaction and restricted repetitive behavior, interests, or activities (American Psychiatric Association [APA], 2013).

The medical field now recognizes sensory processing sensory information as a fundamental aspect of ASD instead of treating it as an additional aspect. The current diagnostic criteria of the APA (2013) include sensory features that describe both hyper- and hyporeactivity to environmental stimuli and unusual sensory interests which demonstrate the essential role of sensory dysregulation in ASD experiences.

The sensory processing issues which affect 45% to 96% of ASD individuals (Leekam et al., 2007) result in sensory overload which makes children feel overwhelmed by their surroundings through visual and auditory and tactile experiences. The sensory processing issues result in hyperactivity and emotional outbursts and self-injury and social withdrawal which people commonly misinterpret as intentional noncompliance but actually represent the child's attempt to manage overwhelming sensory stimuli. In reality, this observable symptom of neurological regulation problems appear as external behaviors which create major obstacles for learning and social participation and family well-being (Schoen et al., 2019).

The rising global numbers of ASD cases require immediate action because 1 in 36 children worldwide now have the condition (Centers for Disease Control and Prevention [CDCP], 2023). The situation regarding these challenges becomes more severe in Bangladesh because it operates as a low-resource setting. The shortage of specialists and insufficient resources together with financial limitations create substantial difficulties for families who must handle ASD diagnosis and treatment independently. This context demands a desperate search for a practical and affordable interventions which families can access easily because they need immediate solutions for their children with ASD (Roy et al., 2023; Stein Duker et al., 2024).

1.2 Justification of the study

The treatment of ASD must be started with addressing the underlying sensory processing dysfunctions, which are essential to behavioral and emotional regulation. Jean Ayres (1972) established Sensory Integration (SI) theory as a complete system to explain how sensory processing affects adaptive behavior development. According to Ayres the brain needs to process sensory information effectively to develop proper adaptive responses. The brain's impaired ability to integrate sensory information in ASD patients leads to sensory dysregulation which produces the typical problematic behaviors seen in ASD children (Lane et al., 2019).

Deep Pressure Therapy (DPT) follows Sensory Integration principles by delivering continuous firm, gentle and sustained pressure to the body which creates calming sensation similar to being hugged or swaddled. The therapeutic effects of DPT stem from multiple scientific principles which neuroscience has identified. The brain

receives strong proprioceptive and tactile signals from DPT which helps it manage excessive sensory input and develop better body perception. The application of DPT leads to decreased sympathetic nervous system activity (fight-or-flight response) and increased parasympathetic activity (rest-and-digest state) which produces immediate relaxation effects (Reynolds et al., 2015). The measured physiological changes support the immediate calming effect which parents and clinicians have observed in their practice. The practical application of DPT has been proven successful in various environments including pediatric dental care centers use weighted blankets to decrease patient anxiety and enhance their dental visit experience (Stein Duker et al., 2024). The practical nature of DPT as a non-invasive tool makes it an excellent choice for ASD families in Bangladesh and other low-resource areas.

Despite its theoretical soundness, DPT research has yielded mixed empirical results. For instance, Eron et al., (2020) have reached the conclusion that DPT lacks sufficient scientific evidence because of its inconsistent results. The study by Gringras et al., (2014) along with others found that weighted blankets used in DPT did not enhance sleep quality in autistic children although both parents and children expressed positive feelings about using the blankets.

Similarly, studies by Bestbier and Williams (2017) and Sankar et al. (2020) demonstrates that children exhibit wide-ranging responses to DPT treatment because some experience major benefits while others show little to no improvement. Later, Schoen et al., (2019) introduced a major advancement through their distinction between Ayres Sensory Integration (ASI) and Sensory-Based Interventions (SBIs). The therapy approach of ASI demands strict adherence to established principles and fidelity standards

while SBIs follow a more passive format that depends on adult direction. According to Schoen et al., (2018) the delivery process of sensory input through child-therapist interaction stands as the essential factor for achieving beneficial results.

Given this ambiguity, it is now essential to find out which forms of DPT produce most reliable outcomes. In this case, structured blanket wrapping offers a promising alternative as it provides circumferential, adjustable deep pressure and involves the child actively, aligning with ASI's interactive principles. Moreover, the simplicity and affordability of blanket wrapping make it an ideal intervention for Bangladesh because it requires only a standard blanket which can be reused and fits local cultural practices.

1.3 Operational Definitions

For the purpose of this study, the following operational definitions apply:

1.3.1 Autism Spectrum Disorder (ASD)

A neurodevelopmental disorder defined by deficits in social communication, social interaction, and restricted, repetitive behaviors as per DSM-5 (APA, 2013).

1.3.2 Deep Pressure Therapy (DPT)

A therapeutic intervention applying firm, sustained, and evenly distributed tactile input to the body to induce a calming effect by enhancing proprioceptive and parasympathetic responses (Reynolds et al., 2015).

1.3.3 Blanket Wrapping

A structured form of DPT wherein the child is gently and securely wrapped in a blanket, providing enveloping and adjustable pressure that promotes self-regulation, calmness, and engagement (McGinnis et al., 2013; Nielsen et al., 2022). Unlike weighted blankets, this method allows dynamic adjustment of pressure and active child participation.

1.3.4 Sensory Integration

The process by which the brain organizes sensory input from the body and environment for adaptive responses, as conceptualized by Ayres (1972).

1.3.5 Visual Analogue Scale (VAS)

A tool used to assess immediate changes in behavioral states such as calmness, engagement, responsiveness, happiness, and communication.

1.3.6 Goal Attainment Scaling (GAS)

A method for evaluating individualized functional progress by scoring goal achievement over time.

1.4 Aim of the study

The study aims to evaluate the effectiveness of structured blanket wrapping as a form of Deep Pressure Therapy (DPT) to help children with ASD in Bangladesh by improving self-regulation, engagement and enhancing their functional participation.

CHAPTER II: LITERATURE REVIEW

2. Overview of Deep Pressure Therapy for children with ASD:

Autism Spectrum Disorder (ASD) as a neurodevelopmental disorder which causes people to struggle with social communication and interaction and display restricted repetitive behaviors (American Psychiatric Association, 2013). The main characteristic of ASD according to recent meta-analyses involves abnormal sensory processing which creates substantial difficulties with daily activities and behavioral reactions (Ben-Sasson et al., 2019; Lane et al., 2019).

The review combines existing research about ASD children's sensory processing problems with an assessment of Deep Pressure Therapy (DPT) as a sensory intervention method. The research team performed a database search across PubMed and Google Scholar and the Cochrane Library to retrieve peer-reviewed articles from 2000 to 2025. The research team evaluated 89 articles for inclusion based on their focus on DPT mechanisms and ASD sensory processing and intervention results which resulted in 59 articles meeting the criteria. The research combines 20 clinical trials with 10 systematic reviews and 11 observational studies and 18 theoretical or conceptual papers.

The research presents three main sections which examine (1) ASD neurodevelopmental characteristics and sensory processing patterns and (2) DPT therapeutic foundations and (3) weighted blanket and compression garment and blanket wrapping DPT methods and their specific applications and results. Research shows that DPT shows potential as an effective treatment which helps children with ASD improve

their self-regulation abilities and their engagement levels and life quality. The review demonstrates that children with ASD need personalized intervention methods while researchers should create standardized evidence-based DPT protocols for achieving consistent results in different environments.

2.1 The Uniqueness and Complexity of Sensory Processing in ASD

Autism Spectrum Disorder (ASD) is a complex, heterogeneous neurodevelopmental condition characterized diagnostically by persistent deficits in social communication and social interaction, alongside restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association, 2013). Research has shown that atypical sensory processing functions as a fundamental aspect of ASD while scientists now understand the condition as more complex than its core diagnostic criteria. The medical community now recognizes sensory dysfunction as a fundamental aspect of ASD which affects every aspect of a person's daily activities (Schoen et al, 2019).

Sensory dysfunction which was once seen as a secondary aspect of ASD now stands as a fundamental diagnostic feature because it affects nearly all autistic people in a deeply significant way (Ben-Sasson et al., 2019). Research indicates that sensory symptoms affect 45% to 96% of ASD children who experience daily life disruptions at levels exceeding other developmental disorders (Leekam et al., 2007; Tomchek & Dunn, 2007). Children with ASD show different sensory processing patterns through their behaviors which include both over-responsiveness and under-responsiveness and seeking out sensory experiences. The wide range of sensory processing difficulties in children with ASD appears across different sensory domains including touch and sound and light

and movement which makes it challenging to identify a single dimension for their assessment (Schoen et al, 2019).

These sensory challenges create extensive effects which affect multiple aspects of life. The combination of sensory dysfunction leads to multiple functional problems which include emotional instability and attention problems and hyperactivity and anxiety and behavioral explosions (Schaaf & Lane, 2015; Schaaf et al., 2012). The disruptions affect children's ability to perform daily tasks and their capacity to interact with others and learn in school. Children with ASD face challenges when joining community events because their sensory difficulties reduce their ability to participate in social activities which results in lower life quality. The field of occupational therapy for children with ASD now focuses primarily on sensory-based interventions (SBIs) because these interventions help children develop adaptive behaviors and control their nervous system (Yazıcıoğlu & Bumin, 2025).

2.1.1 Clinical characterization by severity of ASD

The clinical assessment of ASD includes both symptom severity and expressive language/communication abilities which affect how sensory needs should be handled during treatment planning. The DSM-5 supports three support levels which include Level 1 for basic support and Level 2 for extensive support and Level 3 for complete support of social communication and restricted/repetitive behaviors (McCrimmon & Rostad, 2014). The service intensity levels are determined by these categories which researchers use together with standardized observational tools (APA, 2013). The Autism Diagnostic Observation Schedule, Second Edition (ADOS-2) enables users to calculate a Calibrated

Severity Score (CSS) which ranges from 1 to 10 to evaluate autism symptom intensity across different modules and age groups (Lord et al., 2012). The CSS provides a quantitative measurement of total symptom intensity which researchers commonly divide into three categories of lower or mild (1–3), moderate (4–6) and higher (7–10). The ADOS-2 system uses CSS bands to identify three symptom severity categories which help researchers analyze their cohorts (Hus et al., 2015; Gotham et al., 2009). The ADOS-2 assessment requires different modules based on language abilities and age range which makes it responsive to individual expressive communication skills (Lord et al., 2013).

The clinical assessment of children with ASD shows three main communication levels which include verbal and minimally verbal and non-verbal. The intervention-based research shows that 25-30% of school-aged ASD children maintain minimal verbal abilities (Tager-Flusberg & Kasari, 2013). The placement descriptor of communication level determines which ADOS-2 module to use while also influencing how well a child responds to interventions and their ability to participate in classroom activities (Kasari et al., 2014). The combination of sensory defensiveness and seeking behaviors in minimally verbal children leads to difficulties with joint attention and imitation which form the basis of learning.

The combination of severity assessment with communication profile evaluation enables healthcare providers to understand sensory characteristics and create individualize support plans and predict treatment outcomes. Children who show higher scores on the ADOS-2 CSS or who have minimal verbal abilities need stronger co-

regulated sensory approaches to reach their best arousal state before starting social-communication or academic work.

2.1.2 Sensory integration as a theoretical lens

The complete comprehension of sensory dysfunction in ASD requires knowledge that goes past basic sensory reactivity. The Sensory Integration (SI) theory developed by Ayres (1972) cited in Bochner S (1978) establishes a comprehensive model to understand these difficulties. The brain requires proper sensory information processing and interpretation and integration abilities to achieve adaptive behavior according to SI theory. Children with ASD experience disrupted sensory processing which results in their brains creating incomplete or incorrect perceptions about themselves and their environment. The breakdown in sensory processing creates multiple developmental problems that affect motor skills and social conduct and everyday life activities.

Empirical work supports this account. Roley et al. (2015) built upon this concept by establishing a sensory-praxis profile which describes children with ASD. The researchers employed Sensory Integration and Praxis Tests to demonstrate that children with ASD showed major deficits in their ability to perform somatosensory based praxis and their vestibular-bilateral integration and somatosensory perception. The research established that social participation directly relates to the extent of these sensory processing deficits. The research demonstrates that sensory processing functions as a fundamental requirement for social interaction and communication skills because sensory deficits create obstacles to these advanced abilities.

The developmental cascade of autism includes sensory processing difficulties which create a sequence of early sensory and motor problems that result in social and adaptive challenges (Kojovic et al., 2019; Lane, Molloy, & Bishop, 2019). The relationship between sensory difficulties and sleep problems exists as a common challenge that affects children with ASD (Lane et al., 2022). The widespread connection between sensory problems in children with autism requires treatment approaches that focus on their fundamental developmental needs.

2.2 The Role of Sensory-Based Interventions (SBIs)

Occupational therapy professionals widely implement Sensory-Based Interventions (SBIs) because sensory dysfunction stands as a core element of ASD. The main goal of these interventions is to deliver specific sensory inputs which help regulate the nervous system and enhance adaptive responses. Deep Pressure Therapy (DPT) stands out as a leading intervention because experts recognize its ability to reduce sensory overload while creating a soothing impact on nervous system function. The application of Deep Pressure Therapy (DPT) uses weighted blankets and compression vests to deliver sustained firm tactile and proprioceptive body contact according to Roy et al., (2021) and Grandin (1992).

The theoretical framework of DPT matches the principles of Sensory Integration theory which states that proper nervous system operation depends on sufficient sensory input. The application of deep pressure through sustained tactile and proprioceptive stimulation helps control autonomic arousal according to theoretical models. The treatment enables children to maintain emotional control and behavioral stability which

enhances their ability to interact with their environment and join activities (Ayres, 1972). Research conducted by Schaaf et al., (2013) demonstrates that DPT produces therapeutic effects which help children with ASD manage their anxiety and enhance their attention span and reduce their hyperactive behavior.

The scientific evidence supporting DPT usage in clinical practice shows inconsistent results while generating ongoing debate among experts. The scientific evidence supporting DPT remains weak despite numerous reports from clinical practice and parent and clinician testimonials about its effectiveness. The systematic reviews conducted by Case-Smith et al., (2014) and Lang et al., (2012) analyzed existing research but found major flaws in study design and insufficient sample sizes and weak outcome measurement methods. The studies have questioned DPT effectiveness because most research evidence stems from low-quality studies with significant bias risks. The systematic review by Eron et al., (2020) evaluated 308 studies to find only eight qualifying weighted blanket studies which produced insufficient and unclear results.

Research on DPT faces major challenges because of widespread methodological problems in existing studies. Research studies about DPT face multiple limitations because they lack controlled designs and work with diverse participant groups while ignoring treatment-related factors and individual treatment responses (Camarata et al., 2020). The assessment methods used to measure DPT effectiveness show variability because researchers employ both self-reported data and standardized tools which might not effectively measure all DPT outcomes.

2.3 Deep Pressure Therapy in Historical Perspective

The development of DPT as a treatment for sensory processing disorders in children with ASD began when scientists started investigating its therapeutic potential. The fundamental characteristics of ASD include impaired tactile and proprioceptive sensory processing abilities which scientists identified during the 1970s (Ayres & Tickle, 1980). The scientific community began to study pressure therapy as a sensory input regulation method during the 1980s after A. Jean Ayres developed the sensory integration theory. According to Ayres and Tickle (1979) deep pressure therapy and other sensory activities enable people with sensory processing disorders to manage overwhelming stimuli which results in enhanced behavioral and functional results.

The acceptance of sensory-based therapies including weighted blankets and vests for deep pressure applications grew significantly during the 1990s and 2000s. The application of deep pressure through weighted blankets and vests was believed to activate proprioceptive body responses which resulted in feelings of security and stability. The weighted blanket entered therapy practice as a fundamental tool which remains a central component of current intervention methods. The first scientific studies about DPT appeared in the early 2000s to demonstrate its positive effects in medical settings. The research by Pfeiffer et al., (2011) and Schaaf et al., (2013) conducted controlled trials to assess the impact of weighted blankets and vests on children with ASD through DPT. The research results demonstrated that DPT delivered significant behavioral regulation benefits which made it an effective treatment for ASD children to manage sensory overload and achieve relaxation.

The historical development of DPT as a treatment approach has encountered ongoing criticism since its inception. The first studies about DPT encountered various methodological issues because they worked with small participant numbers and unreliable measurement tools and insufficient experimental designs. Case-Smith et al. (2014) led a research team which called for systematic studies to validate DPT effectiveness because anecdotal evidence proved insufficient.

The clinical community has progressively accepted DPT as a non-invasive treatment for ASD children with sensory processing disorders throughout its historical evolution. The growing body of research demands well-designed controlled studies to establish reliable evidence for DPT clinical practice (Grandin & Panek, 2013; Edelson et al., 1999; Grandin, 1992).

The development of DPT for ASD treatment has made significant progress through the combination of theoretical and empirical evidence from initial research studies. Scientists actively work to enhance DPT therapy delivery methods which will enhance treatment outcomes by addressing past research limitations.

2.4 Theoretical Foundations: A Multi-Level Rationale for Deep Pressure

Deep Pressure Therapy (DPT) uses multiple scientific principles from neurophysiology and endocrinology and cognitive neuroscience to treat sensory processing disorders in Autism Spectrum Disorder (ASD) patients. The fundamental principle of Deep Pressure Therapy stems from Ayres (1972) Sensory Integration (SI) theory which states that behavioral functioning requires adaptive brain responses to sensory inputs. The sensory integration process fails in ASD patients which results in their inability to regulate their

senses and plan movements and perform daily activities (Suarez, 2012). Research by Roley et al. (2015) confirms that ASD patients need treatment of their somatosensory system because this system functions as their primary point of dysfunction.

The therapeutic method of DPT engages multiple processes to assist people in managing their neurophysiological and behavioral obstacles. The core principle of SI theory depends on the development of an accurate body schema which DPT achieves through its effects on somatosensory and proprioceptive functions. The body schema functions as a system which allows motor actions by helping people understand their body position relative to their environment.

People with ASD experience difficulties in processing sensory information through touch and body position which leads to inadequate motor planning and execution. Research by Roley et al., (2015) and Blanche et al., (2012) showed that ASD children have major proprioceptive problems which affect their ability to control movements and their interactions with their environment. The controlled proprioceptive and tactile input of DPT helps patients manage sensory overload and enhances brain signal processing by decreasing neural background noise which results in better signal-to-noise ratios (Lane et al., 2019). The controlled input helps develop a more dependable body schema which leads to better motor control and praxis abilities and enables self-care skills and social imitation and functional participation.

2.5 Mechanisms of DPT: Neurophysiology

Deep Pressure Therapy (DPT) proves effective for treating ASD patients because it works through multiple mechanisms which affect essential neurophysiological and

autonomic and neuroendocrine and cognitive systems. The empirical research shows inconsistent results about DPT yet the theoretical basis for its operation remains interesting. The main purpose of DPT according to Ayres (1972) Sensory Integration (SI) theory is to use deep pressure stimulation which affects proprioception and somatosensory pathways to enhance sensory processing and integration. The main operation of DPT involves the control of the autonomic nervous system (ANS). The ANS operates as a system that manages involuntary body functions including heart rate and breathing and stress reactions. People with ASD experience irregularities in their autonomic nervous system which leads to excessive sympathetic nervous system activity that causes anxiety and hyperactivity and social avoidance.

The treatment of DPT enables patients to shift from sympathetic nervous system (SNS) activation to parasympathetic nervous system (PNS) activation which produces stress reduction and calming effects. Research by Reynolds et al. (2015) confirms deep pressure therapy reduces SNS activity while increasing PNS function which results in better emotional control and improved social skills and sensory management (Lane et al., 2019).

The neuroendocrine system experiences changes through DPT because the therapy controls stress-related hormone levels. The application of deep pressure therapy leads to decreased cortisol production which helps patients manage their stress responses. The Grandin's Hug Machine operated by Edelson et al., (1999) produced reduced salivary cortisol levels which demonstrates that deep pressure therapy decreases stress-related bodily reactions. The research conducted by Afif et al., (2022) and Walaszek et al., (2017) confirms that DPT treatment leads to increased levels of serotonin and dopamine

which play essential roles in mood control and attention for children with ASD and improve performance social conduct (Roy et al., 2021). The observed behavioral and mood improvements after DPT treatment result from these neurochemical alterations. Research on DPT's neuroendocrine effects for ASD treatment requires additional investigation but existing evidence shows its ability to modify neurotransmitter activity and cortisol production. The research by Blanche et al., (2012) supports this finding because they showed that proprioceptive stimulation helps ASD individuals reduce brain sensory "noise" which enables better sensory information processing.

The brain's body representation in the peri-personal space (PPS) undergoes changes through DPT which defines the area between self and environment. People with ASD maintain strict boundaries between themselves and their environment which causes them to become defensive when touched and makes them more sensitive to external stimuli. The enveloping pressure of DPT compresses the PPS temporarily which leads to a breakdown of self-environment boundaries and decreases touch defensiveness and anxiety levels (Minoura et al., 2021). The neuroendocrine system receives influence from DPT treatment as a secondary effect. The brain's body representation undergoes changes according to new theories in cognitive neuroscience which result from DPT treatment.

The Hug Machine developed by Temple Grandin serves as a practical illustration of how deep pressure therapy enables ASD patients to handle sensory inputs and find relaxation. Multiple studies have proven the effectiveness of DPT in treating anxiety and improving sensory regulation as Temple Grandin demonstrated through her personal experience (Stein Duker et al., 2024). The research evidence demonstrates that DPT creates beneficial neurophysiological and behavioral changes which help ASD patients

control their emotions and integrate sensory information and achieve better overall health. The intervention shows strong potential to become a vital therapeutic approach for ASD treatment as researchers develop and improve its application methods which leads to improved body awareness and motor planning abilities essential for daily self-care and social interaction (Roley et al., 2015). The pioneering first-person account of Temple Grandin (1992), who designed a "squeeze machine" to self-administer deep pressure, provided an early, powerful validation of these mechanisms from within the autistic community.

The research needs to investigate how sensory integration theory and autonomic nervous system and sensory modulation interact with DPT to produce therapeutic effects. The neurobiological mechanisms of DPT can be studied through central nervous system modulation research which includes Reynolds et al. (2015) study.

2.6 The Disputed Empirical Scenery

Research studies have shown that children with ASD demonstrate different responses to DPT. The treatment outcomes of DPT depend on multiple factors which include sensory processing profiles and comorbid conditions and developmental stages and age of the patient. The research conducted by Bestbier and Williams (2017) and Camarata et al. (2020) demonstrates that participants in DPT studies show substantial differences from each other. The scientific evidence supporting DPT benefits exists but methodological flaws in research studies create doubts about its actual effectiveness. The combination of positive treatment results with insufficient research methods creates doubts about DPT's ability to produce reliable clinical outcomes (Schaaf et al., 2023).

2.6.1 DPT Research Faces Persistent Methodological Obstacles

Research studies about DPT encounter multiple recurring problems which stem from insufficient participant numbers and unstandardized procedures and variable treatment approaches and brief observation periods (Eron et al., 2020; Lang et al., 2012). The absence of randomized and blinded study designs makes it impossible for researchers to establish definitive causal relationships. The analysis becomes challenging because participants show different characteristics which makes it difficult to identify which children will benefit most from the treatment (Bestbier & Williams, 2017).

Research studies that lack standardized outcome measures use various assessment methods which include parent and clinician reports and physiological data and behavioral evaluations (Camarata et al., 2020). The application of interventions with proper fidelity remains a major concern in treatment delivery. The absence of standardized protocols between studies produces inconsistent results which restricts the ability to apply research findings to different settings (Schoen et al., 2019; Roley et al., 2015; Schaaf et al., 2015; Watling & Hauer, 2015; Parham et al., 2011).

2.6.2 The Need for Rigorous Research on DPT

The inconsistent results from DPT studies require researchers to conduct extensive well-designed studies with standardized evaluation tools (Eron et al., 2020; Schoen et al., 2019; Lang et al., 2012). Future research needs to conduct randomized controlled trials with sufficient participants who share similar characteristics to properly evaluate DPT effectiveness (Taylor et al., 2023; Gringras et al., 2014).

The way people process sensory information determines their response to treatment (Bestbier & Williams, 2017; Schaaf & Lane, 2015). The development of effective interventions requires healthcare professionals to identify between sensory-seeking and sensory-avoiding behaviors in their patients. Scientists need to conduct additional research to understand the biological processes of DPT. The assessment of autonomic nervous system indicators through heart rate variability and galvanic skin response and cortisol levels will help scientists understand how DPT affects emotional states and arousal levels (Afif et al., 2022; Reynolds et al., 2015; Edelson et al., 1999).

The success of treatment depends heavily on maintaining therapeutic fidelity during sessions. Research studies that compare Ayres Sensory Integration (ASI) to sensory-based approaches demonstrate that following core treatment principles produces more reliable results (Camarata et al., 2020; Schaaf et al., 2014; Parham et al., 2011). Future research needs to establish which specific weighted vest parameters including pressure strength and time length and application technique produce the best results.

The research on weighted vests and compression garments produced inconsistent results (Grandits et al., 2023; Case-Smith et al., 2014; Stephenson & Carter, 2009) so researchers should conduct additional studies on blanket wrapping as a low-cost and culturally adaptable alternative (McGinnis et al., 2013; WHO, 2013). The assessment of DPT should combine short-term Visual Analogue Scale (VAS) measurements with Goal Attainment Scaling (GAS) for evaluating long-term functional development (Bestbier & Williams, 2017; Mailloux et al., 2007).

2.6.3 The Case for Efficacy: From Promising Data to Rigorous Trials

Research evidence and user feedback indicate that DPT creates positive effects on anxiety reduction and calmness improvement for children with ASD. The research conducted by Baric et al. (2023) showed that weighted blanket users maintained their benefits throughout time while experiencing better sleep quality and relaxation (Baric et al., 2023). The research by Stein Duker et al., (2024) demonstrated that dental patients experienced decreased anxiety when using compression garments. The research shows that compression garments help people focus better while improving their body awareness (Roy et al., 2023; Abakumow et al., 2021; Guinchat et al., 2020; Jamshidi & Pouretamad, 2018).

The results from controlled trials indicate that DPT shows potential for being an effective treatment. The research by Escalona et al., (2001) demonstrated that parents who performed deep pressure massage on their children experienced decreased stereotypic behavior. The research by Delion et al., (2018) showed that full-body therapeutic wraps led to decreased patient irritability. The research on ASI-based interventions showed that participants achieved better self-regulation skills and functional abilities (Basic et al., 2021; Schaaf et al., 2013; Pfeiffer et al., 2011). The results from individual participants show ongoing differences in their responses to treatment. Bestbier and Williams (2017) demonstrated that only half of their participants achieved significant improvements which proves that individualized treatment methods are essential. Systematic reviews (Eron et al., 2020; Case-Smith et al., 2014; Lang et al., 2012; Stephenson & Carter, 2009;) present conflicting results because positive findings emerge from studies with lower methodological quality. The research by Grandits et al. (2023)

demonstrated that DPT produces minimal effects when used in structured educational settings because the therapy's success depends on student attention and social interaction (Camarata et al., 2020; Fazlioğlu & Baran, 2008).

2.7 Blanket Wrapping: An Under-Investigated but Promising Modality

Deep Pressure Therapy (DPT) techniques include blanket wrapping as one of the most promising yet understudied methods. The technique provides complete deep pressure stimulation through body envelopment which allows therapists to modify pressure levels while creating a soothing "hugging" experience (Nielsen et al., 2022). The technique provides children with ASD both physical advantages and emotional advantages.

2.7.1 Clinical Implementation of Blanket Wrapping

The implementation of blanket wrapping remains simple and affordable and can be used in any setting including Bangladesh's low-resource areas. The implementation of weighted vests requires specific equipment but blanket wrapping needs no special tools and can be used in schools and homes with basic training (Stein Duker et al., 2024). The technique creates instant relaxation and comfort which helps children stay focused and manage their emotions (McGinnis et al., 2013).

2.7.2 Parent and Caregiver Perspectives on Blanket Wrapping

Parents state that blanket wrapping is simple to use and their children accept it well which leads to better sleep quality and decreased anxiety (Baric et al., 2023; McGinnis et al., 2013). The involvement of caregivers leads to better results because their active

participation creates feelings of security which strengthens emotional bonds (Escalona et al., 2001).

2.7.3 Sustainability and Long-Term Outcomes

Research indicates that blanket wrapping creates instant relaxation and enhances task performance according to McGinnis et al. (2013). The research needs additional studies to determine how DPT affects self-regulation and social skills development in children. The intervention shows excellent potential for long-term use in low-resource areas because it remains affordable and can be reused multiple times. The continuous deep pressure from this technique helps children develop better sensory integration abilities and body awareness and daily living competencies (Roley et al., 2015).

2.8 Methodological Synthesis: An Outline for Rigorous Research

The current research on Deep Pressure Therapy (DPT) shows conflicting results because of insufficient methodological precision and inconsistent measurement approaches. Research studies need to solve three main problems which involve selecting participants and measuring outcomes and maintaining intervention consistency. The field would establish DPT as an evidence-based therapeutic intervention for children with Autism Spectrum Disorder (ASD) through systematic improvements in research methods.

2.8.1 Measurement Imperatives

The absence of standardized outcome measures in DPT research studies prevents scientists from performing meaningful comparisons between different studies.

Researchers support the use of comprehensive assessment tools which evaluate both short-term behavioral control and extended functional results (Schaaf et al., 2014). The assessment tool Goal Attainment Scaling (GAS) serves as a sensitive method which helps therapists track client-specific progress. The assessment method requires therapists to work with caregivers to establish specific goals which they then evaluate using a 5-point rating system. The research by Mailloux et al. (2007) proved GAS effective for sensory integration studies and subsequent investigations showed its ability to detect important changes that standardized tests fail to measure (Schaaf et al., 2013; Pfeiffer et al., 2011).

The Visual Analogue Scale (VAS) serves as an effective tool to measure immediate behavioral and emotional responses in addition to Goal Attainment Scaling (GAS). Bestbier and Williams (2017) used VAS to study DPT's fast calming effects and Sankar et al. (2020) applied it to monitor changes in calmness and attention levels. Nielsen et al. (2022) confirmed the reliability of VAS by showing that subjective behavioral assessments produce more accurate results than physiological measurements for immediate regulation assessment. The combination of GAS and VAS provides complete outcome assessment because it measures both short-term and long-term DPT effects.

2.8.2 Participant Selection and Sample Size Considerations

The process of participant selection stands as a major obstacle which researchers face when conducting DPT studies. The research requires detailed evaluation of participant characteristics including their age and ASD severity and presence of additional conditions and sensory processing abilities to achieve valid results. The researchers

Bestbier and Williams (2017) and Gringras et al., (2014) established that small or heterogeneous samples with diverse sensory and behavioral traits from ASD patients hide treatment effects at the group level. Research should use longitudinal methods to evaluate how DPT maintains its effects on calmness and focus and social engagement after the intervention period ends.

2.8.3 Integration with Other Therapeutic Approaches

The evidence shows that DPT therapy by itself does not provide complete relief from all ASD symptoms. The combination of DPT with established therapeutic models including ABA and SIT and OT produces better results. The research by Schaaf et al. (2013) and Pfeiffer et al. (2011) demonstrated that personalized therapeutic plans with sensory-based approaches lead to better self-regulation and social interaction and task engagement. Research should develop multiple treatment approaches to establish the most effective way DPT can support current evidence-based interventions for better functional results in educational and clinical environments.

2.9 Synthesis and Rationale for the Current Study

The scientific community shows a strong disagreement regarding Deep Pressure Therapy (DPT) effectiveness for treating children with ASD. The combination of theoretical foundations and empirical evidence about core deficits and multiple well-designed studies supports the effectiveness of DPT.

2.9.1 Filling Gaps and Addressing Critiques

Research shows that Deep Pressure Therapy (DPT) shows promise in treating children with ASD by reducing their hyperactivity and anxiety and stereotypical behaviors (Schaaf et al., 2013; McGinnis et al., 2013). Systematic reviews by Case-Smith et al. (2014) and Lang et al. (2012) and identify multiple study weaknesses which include limited participant numbers and inadequate control groups and inconsistent treatment delivery methods. The research investigates blanket wrapping through a controlled method to study this particular DPT technique while addressing the existing knowledge gap. The study investigates the essential elements of the intervention to understand its operational mechanisms while building evidence for ASD treatment inclusion (Nielsen et al., 2022). The research investigates blanket wrapping as a distinct intervention method to address a crucial knowledge gap because no controlled experimental studies have evaluated this technique. The study by Camarata et al., (2020) emphasizes the need to identify specific therapeutic components which produce actual treatment effects while excluding non-specific variables.

2.9.2 The Practical Relevance in Resource-Limited Contexts

The scarcity of specialized clinical services in Bangladesh and other low-resource areas requires simple accessible and affordable therapeutic solutions. The implementation of blanket wrapping as a DPT method stands out for its affordability and simplicity in resource-constrained areas. The simplicity of blanket wrapping allows caregivers and teachers to learn its application so they can use it in home and school and community environments without needing expensive equipment or therapy tools. The practical

implementation of DPT through blanket wrapping provides essential access to ASD treatment for children in areas with limited resources (Roy et al., 2021; Schaaf et al., 2012). Research shows that Deep Pressure Therapy (DPT) works effectively in different environments because it reduces stress and enhances child participation (Stein Duker et al., 2024). The research indicates that blanket wrapping functions as an inexpensive intervention which works across different settings to help children with ASD in regions without access to professional clinical care.

2.9.3 Directions for Further Research

The research results from this study will help develop sensory-based treatments for ASD children through their substantial contribution to the field. The study's findings about blanket wrapping as DPT demonstrate its potential to become a standard treatment standard for clinical and non-clinical environments. The dual-measure assessment method used in this study provides a research model for future ASD sensory intervention evaluations because it combines subjective and objective assessment methods to create a strong evaluation framework.

Finally, this review demonstrates that Deep Pressure Therapy (DPT) shows promise for treating children with ASD by addressing their sensory processing difficulties which are fundamental to ASD. Research results show positive outcomes but methodological weaknesses including limited participant numbers and inconsistent measurement tools create doubts about the findings. The research needs to conduct controlled trials with improved outcome assessment methods and ASD population-specific analysis of individual differences.

CHAPTER III: METHOD and MATERIALS

The research methodology section describes the systematic approach for testing blanket wrapping as deep pressure therapy for children with ASD in Bangladesh. The research design and participant selection process and intervention methods and data collection instruments and analytical techniques are described to guarantee an ethical and rigorous investigation.

3.1 Hypothesis, Study Question, Aim, and Objectives

3.1.1 Hypothesis

The structured blanket wrapping protocol, as a form of Deep Pressure Therapy (DPT), produces significant level of improvements in calmness, engagement, responsiveness, happiness and communication among children with ASD compared to an active control group receiving other forms of DPT such as manual pressure, weighted vests, and therapeutic brushing.

3.1.2 Study question

Is there any significant impact of using blanket wrapping (or blanket pressure) as a deep pressure technique compared to other traditional methods of applying deep pressure on children with ASD?

3.1.3 Aim of the study:

The aim of this study is to compare the effectiveness of blanket wrapping (as a deep pressure technique) with other traditional deep pressure methods to minimize hyperactivity and tantrum behaviors in young children with ASD.

3.1.4. Objectives

- To examine the immediate impact of structured blanket wrapping on calmness, engagement, responsiveness, happiness and communication in children with ASD using the Visual Analogue Scale (VAS).
- To evaluate functional and adaptive goals for children with ASD before and after application of deep pressure therapy (DPT) program by using the Goal Attainment Scaling (GAS).
- To compare the effectiveness of blanket wrapping with other DPT methods (manual pressure, weighted vests, and brushing) used in an active control group.

3.2 Study Design

3.2.1 Study Methods

In this study, the researcher used the quantitative research methods to measure behavioral changes following after applying DPT through standardized tools including Visual Analogue Scale (VAS) and Goal Attainment Scaling (GAS). The quantitative research approach suits intervention evaluation because it focuses on numerical data collection and statistical analysis and objective interpretation (Guetterman et al., 2015). The study

implemented quantitative measurements to assess the Deep Pressure Therapy (DPT) intervention effects of structured blanket wrapping through experimental and control group comparisons. The quantitative research method allows scientists to confirm their results through replication which leads to the development of evidence-based practices in occupational therapy research (Polit & Beck, 2017).

3.2.2 Study Approach

This study followed a quasi-experimental approach with a non-randomized pretest–posttest structure. The researcher selected this method because it enabled them to study the direct link between blanket wrapping interventions and ASD behavioral results while respecting ethical standards and operational requirements.

Quasi-experimental designs work effectively in educational and clinical settings because they preserve service delivery continuity while maintaining ethical standards (Harris et al., 2006; White & Sabarwal, 2014). The research design enables scientists to study rehabilitation treatments in actual settings through controlled group comparisons and standardized protocols (Thyer, 2012). The quasi-experimental design provided a suitable method to study the actual effectiveness of structured blanket wrapping as a Deep Pressure Therapy technique for children with ASD in their natural environment.

3.3 Study Setting and Period

3.3.1 Study setting

The study was conducted at the Society for Autism and Neurodevelopmental Disorder (SAND), a special school and therapy center in Dhaka, Bangladesh. SAND serves

children with varying levels of ASD severity (mild, moderate, and severe), as determined through standardized assessment tools such as ADOS-2.

3.3.2 Study Period

The study has been conducted between January 2025 to November 2025 and data collection period was 15th June to 15th August 2025.

3.4 Participants

3.4.1 Study Population

Participants included children diagnosed with ASD, aged 4 to 11 years, enrolled at SAND special school which serves around 120 children with special needs whose Diagnoses followed DSM-5 criteria and ADOS-2 classification. Children were further characterized by their communication profiles: (a) Verbal ASD ; able to use sentences and express needs. (b) Semi-verbal ASD; use of limited words or short phrases and (c) Non-verbal ASD; minimal to no spoken communication, relying on gestures or assistive communication tools (Kasari et al., 2013; Tager-Flusberg & Kasari, 2013).

3.4.2 Baseline Characteristics of participants

Children diagnosed with ASD were recruited and allocated into experimental and control groups prior to the intervention. At baseline, participants in both groups were comparable in terms of age range, sex distribution, ASD severity, communication abilities, and expected attendance in intervention sessions. The age of the participants spanned early to

middle childhood, ensuring developmental appropriateness for sensory-based interventions.

Both groups included a higher proportion of male participants, which reflects the commonly reported sex distribution in ASD populations. Participants represented a range of ASD severity levels, including mild, moderate, and severe presentations, allowing the intervention effects to be examined across varying functional profiles.

Communication abilities at baseline varied among participants and included verbal, semi-verbal, and non-verbal children. This heterogeneity was considered during intervention planning and outcome measurement to ensure that assessments were appropriate for differing communication levels (Tager-Flusberg & Kasari, 2013).

Attendance expectations were similar for participants in both groups, supporting comparable exposure to intervention sessions and minimizing potential bias related to treatment dosage. Overall, the baseline characteristics indicated that the experimental and control groups were sufficiently similar prior to the intervention, providing an appropriate foundation for comparing the effects of structured blanket wrapping with other deep pressure therapy methods.

3.4.3 Sampling techniques

The research used purposive sampling because it worked best for the structured school environment at SAND which operates through different time shifts. The researcher used non-probability purposive sampling because it enabled him to select participants who fulfilled essential diagnostic and behavioral requirements for the study (Etikan, Musa, &

Alkassim, 2016). The use of purposive sampling in autism intervention research allows scientists to study participants who share identical diagnostic characteristics and follow identical treatment plans which enhances both study reliability and results interpretation (Palinkas et al., 2015).

This research is obtained participants from both morning and afternoon school sessions to achieve representation across different classroom environments. The research design achieved equal participant involvement while reducing the impact of time-dependent factors and environmental elements and classroom activities that could affect behavioral control (Teddle & Yu, 2007). The researcher used purposive sampling because it enabled him to work with teachers and occupational therapists throughout the intervention and data collection process.

The researcher performed an assessment on all selected candidates to verify their eligibility based on established participation criteria. The study achieved better internal validity through this process because it eliminated outside factors which included medication usage and additional medical conditions that could affect sensory processing reactions.

3.4.3.1 Inclusion Criteria

- The research study accepted participants who fulfilled these specific requirements
- The study included children between 4 and 11 years old who received an Autism Spectrum Disorder (ASD) diagnosis through DSM-5 criteria and ADOS-2 assessment.

- The participants needed to be current students at SAND who received regular therapy and educational services throughout the research duration.
- The participants needed to show tolerance for touch and body position feedback without displaying any signs of distress or withdrawal.
- The study required parents or legal guardians to give written consent for their child to join the research intervention and assessment activities.

3.4.3.2 Exclusion Criteria

The research excluded participants who showed any of these characteristics.

- The study excluded participants who had neurological disorders such as epilepsy or cerebral palsy or cardiovascular/respiratory conditions that made deep pressure application unsafe.
- The participants needed to avoid deep pressure stimulation because they showed extreme sensitivity to touch.
- The participants needed to avoid sedative and behavioral medications because these substances could affect their natural sensory and behavioral responses.
- The participants needed to maintain regular school attendance while completing all intervention sessions throughout the data collection period.

3.5 Sample Size

A total of 36 participants were included in this study, with 18 children assigned to the experimental group (structured blanket wrapping intervention) and 18 children to the

control group (other Deep Pressure Therapy methods). The sample size was determined through an a priori power analysis based on the independent-sample *t*-test formula for detecting between-group mean differences.

Using the standard statistical equation:

$$n = 2 \left[(Z_{\{1-\alpha/2\}} + Z_{\{1-\beta\}}) / ES \right]^2$$

Where:

n = The required sample size per group.

$Z_{\{1-\alpha/2\}}$ = The Z-value for the desired significance level (α). For $\alpha = 0.05$ (two-tailed), $Z = 1.96$.

$Z_{\{1-\beta\}}$ = The Z-value for the desired statistical power. For $1-\beta = 0.80$, $Z = 0.84$.

ES = The anticipated Effect Size (Cohen's d) = 0.93.

The effect size (ES) equals 0.93 which Cohen (1988) classifies as a to the established parameters. The study achieved 80% power to detect a treatment effect of medium to large effect.

Calculation:

$$n = 2 \left[(1.96 + 0.84) / 0.93 \right]^2$$

$$n = 2 \left[(2.80) / 0.93 \right]^2$$

$$n = 2 \left[3.0108 \right]^2$$

$$n = 2 \times 9.0648$$

$n = 18.13 \rightarrow$ Rounded up to 18 per group.

Total Sample: $N = 2 \times 18 = 36$ participants.

The study required at least 18 participants per group to achieve $n = 36$ according large size at a 5% significance level ($P < 0.05$). The study maintained an appropriate participant number which fit within its operational boundaries and ethical standards. The study design enabled researchers to detect important behavioral shifts between groups through reliable methods while maintaining proper supervision of the participants by available teacher supervisors. The research sample size proved adequate to show important behavioral improvements through Visual Analogue Scale (VAS) and Goal Attainment Scaling (GAS) results between pre and post-intervention assessments.

3.6 Participant recruitment

Participants were recruited through collaboration with school authorities, occupational therapists, and parents. Teachers and therapists briefed parents about the study purpose, and written consent was obtained. Participant were recruited from four shift of two branch of school from where 20 participants were selected from morning shifts as there were higher number of students and 16 participants were from afternoon shifts randomly from the number of participants who met inclusion criteria. After that, it was briefed with parents about purpose of the study and its significances. If parents did not give written consent, then another participant was selected randomly from that shift and it was followed same procedure until it reached to targeted number.

3.6.1 Assignment of the selected participants

The study used matched assignment to distribute participants between experimental and control groups. The study used this method because it produced groups with equal characteristics of age and gender and functional abilities and ASD severity level which reduced selection bias and strengthened the study's internal validity (Teddle & Yu, 2007).

The researchers used a matched random assignment method to pair participants with similar characteristics before placing them into either the Blanket Wrapping Protocol group or the traditional Deep Pressure Therapy group. The matched random assignment technique proved effective for small studies and quasi-experimental research because it eliminated group differences while preserving both ethical standards and practical school-based implementation (Remler & Van Ryzin, 2024; Cook & Campbell, 1986).

The researcher and occupational therapist supervised the allocation process to guarantee both transparency and research ethics compliance. The trained DPT teachers received their student assignments for delivering interventions to their students in both intervention groups. The researchers used this method to maintain consistent staff members for each group which helped them achieve better intervention delivery and minimized teacher-related differences (Schoen et al., 2019; Parham et al., 2011). Further, the research included an equal number of participants in both groups which distributed participants evenly between morning and afternoon school sessions. The study design

controlled for time-of-day effects which could impact student behavior during therapy sessions (Bestbier & Williams, 2017).

The assessment team consisting of occupational therapists and teachers' supervisors remained unaware of participant group assignments throughout data collection and outcome evaluation. The assessors remained unaware about which participants received the experimental or control group treatment throughout the assessment process.

3.7 Experimental protocol:

Blanket wrapping was chosen, because it delivers deep pressure through a wide contact area that produces better calming effects than localized pressure (Afif et al., 2022; Nielsen et al., 2022) and because wrapping serves as a positive reinforcer that boosts student engagement (McGinnis et al., 2013). The delivery of sessions by trained teachers under occupational-therapist (OT) supervision followed ASI fidelity guidelines and school-based OT best practices (Schoen et al., 2018; Parham et al., 2011; AOTA, 2003).

3.7.1 Frequency of intervention sessions

The study required participants to receive one session per day for five days during four weeks which resulted in twenty total sessions. The study design included brief individual sessions which followed the measurement approach used in previous DPT research (Sankar et al., 2020; Bestbier & Williams, 2017).

3.7.2 Materials

The study used a soft layered fabric blanket which was designed for easy cleaning and quick drying between uses. The therapy/gym ball served as a tool to help maintain proper non-restrictive pressure during the session. The study used VAS forms for state ratings and GAS forms for baseline and post-month functional goal assessment (Schaaf et al., 2013; Pfeiffer et al., 2011; Mailloux et al., 2007).

3.7.3 Staffing and setting

The school-based 1:1 teacher–student model provided daily opportunities for consistent implementation of the intervention at SAND (site-specific). The teachers received two days of training followed by a competency assessment before OTs supervised their work at the site (Parham et al., 2011; AOTA, 2003).

3.7.4 Safety screen (before each session)

The assessment includes three parts to verify no pain or respiratory or cardiac issues and no distress and to check skin health and child consent. The safety guidelines for SBI include medical instability and recent surgery and extreme tactile defensiveness that causes distress (Camarata et al., 2020; Lang et al., 2012).

3.7.5 Step by step procedure

- Positioning: Supine the child preferred for comfort/sensory tolerance according to ASI principle of collaboration/just-right challenge; (Schoen et al., 2018).

- **Wrap:** The blanket was placed around the child's body to create a snug fit from shoulders to feet which produced moderate even pressure across the trunk and limbs.
- **Pressure modulation:** A therapy/gym ball was used to apply pressure over the wrapped area for maintaining uniform distribution without blocking breathing or joint movement (Afif et al., 2022; Nielsen et al., 2022).
- **Monitoring:** The researcher maintained continuous observation of the child's autonomic responses and calm state and engagement levels through breathing rate and facial expressions and muscle tone (e.g., breathing rate, facial affect, muscle tone), with verbal reassurance and supportive coaching. The session ended when any signs of distress appeared and the therapist should attempt again with reduced pressure and shorter duration (Camarata et al., 2020; McGinnis et al., 2013).

3.7.6 Fidelity and outcomes

The fidelity checklist (study-specified) included ASI fidelity concepts which evaluated wrap coverage and pressure consistency and child responsiveness and session duration and safety protocols (Parham et al., 2011). The study used two assessment methods to measure participant outcomes. The study used VAS forms to measure state changes before and after each session for Calmness, Engagement, Responsiveness, Happiness and Communication (Sankar et al., 2020; Bestbier & Williams, 2017). The study used GAS forms to measure functional changes between baseline and post-month assessments for individualized goals (Schaaf et al., 2013; Pfeiffer et al., 2011; Mailloux et al., 2007).

3.8 Active Control Group Protocol

The control group participants received established sensory-based interventions which research shows have variable or limited effectiveness (Taylor et al., 2023; Grandits et al., 2023; Camarata et al., 2020; Case-Smith et al., 2014; Lang et al., 2012; Stephenson & Carter, 2009). The study used a specific dose/format which matched experimental contact time through a priori specification. The study used the same VAS and pre/post GAS assessment methods for both experimental and control groups.

3.8.1 Control modalities and procedures

- Manual deep pressure / manual “hug” (5 minutes)
- The therapist applied broad-surface pressure to shoulders and limbs while the child sat or lay down but must avoid joint compression and airway restriction while monitoring their comfort level (general SBI approach; Lang et al., 2012; Camarata et al., 2020).
- Weighted vest (5-10 minutes): The standard clinical loading limits of 5–10% body weight (site protocol) are applied to a fitted vest during quiet seated activities. The evidence from reviews and trials supports its use as an active control treatment (Roy et al., 2023; Grandits et al., 2023; Guinchat et al., 2020; Case-Smith et al., 2014; Stephenson & Carter, 2009).
- Therapressure (Wilbarger-style) brushing (5 minutes): Therapressure brush requires firm systematic brushing of arms/legs/back while following clinic safety

guidelines but avoid the abdomen and face area and stop immediately when distress occurs (Camarata et al., 2020; Lang et al., 2012).

3.8.2 Safety, fidelity, and outcomes of control group

The experimental arm uses identical screening procedures and monitoring systems and stop criteria. The assessment tools for each intervention method include vest loading verification and brushing sequence evaluation and manual pressure contact area measurement. The experimental arm uses the same assessment methods to measure VAS (pre/post) and GAS (baseline/post) as the control arm (Bestbier & Williams, 2017; Schaaf et al., 2013; Pfeiffer et al., 2011; Mailloux et al., 2007).

3.8.3 Frequency and study period

The study delivers one daily session for five school days per week when possible for four weeks which equals twenty total sessions. The researchers chose a one-month intervention duration because it fit the school schedule and allowed them to measure both state changes and functional improvements (Sankar et al., 2020; Bestbier & Williams, 2017).

3.9 Variables:

There were two types of variables of this study such as (a) independent variable and (b) Dependent variables. Independent variables were intervention of DPT such as blanket rapping, weighted vest, body pressure and Wilburger's brushing protocol. Dependent variables were targeted outcome such as calmness, engagement, responsiveness,

happiness and communication skills of the participants which were measure by both VAS and GAS.

3.10 Data Sources/Measurements:

There were used two data measurement tools such as:

3.10.1 Visual Analogue Scale (VAS)

The VAS tool served to evaluate immediate behavioral states through subjective ratings. The assessors used a 10 cm line with "Not at all" and "Very" as anchors to rate the five domains. The tool effectively tracked short-term behavioral changes after DPT sessions because it demonstrated sensitivity in previous DPT research (Sankar et al., 2020; Bestbier & Williams, 2017). It was prepared as data collection tool by preparing it according to the theme in English first then translated it in Bangali. Forward and backward translation was done to verify it is content validity.

3.10.2 Goal Attainment Scaling (GAS)

The Goal Attainment Scaling (GAS) tool served to evaluate individualized functional development and it is a free tool for academic research (Logan, 2023). The assessment team worked with parents and teachers to establish specific measurable targets for the five domains during the baseline period. The OTs evaluated participant performance through a 5-point scale which ranged from -2 (much less than expected) to +2 (much more than expected) before and after the intervention. GAS serves as a validated and highly sensitive tool for outcome assessment in sensory integration research (May-

Benson et al., 2021; Mailloux et al., 2007). It was initially developed in English based on the study's thematic requirements and subsequently translated into Bangla. Forward and backward translation procedures were applied to ensure accuracy and verify content validity.

3.11 Ethical Considerations:

This study strictly adhered to the ethical principles outlined by the Declaration of Helsinki (World Medical Association, 2013) and followed guidelines of the Institutional Review Board (IRB) of BHPI through the Department of Occupational Therapy for research involving human participants. Ethical clearance was obtained from the institutional review board before data collection. All procedures were designed to ensure respect, safety, and confidentiality of participants and their families.

3.11.1 *Informed consent:*

Written informed consent was obtained from the parents or legal guardians of all participating children prior to data collection. The researcher explained the purpose, procedures, and potential benefits of the study in simple and understandable language. Parents were assured that their children's names and identifying information would remain confidential, and no personal data would appear in any publication or report. Consent forms used pseudonym codes to protect privacy. This process followed international research ethics principles emphasizing voluntary participation and informed decision-making (American Psychological Association, 2017; Orb et al., 2001).

3.11.2 Unequal relationship:

To maintain ethical integrity and minimize power imbalance, the researcher established an equal and unbiased relationship with all participants and school staff. Teachers and supervisors were reminded that their participation and cooperation were voluntary and that the study outcomes would not affect their professional standing. The researcher acted as a facilitator rather than an authority figure, promoting mutual respect throughout the study (Resnik, 2018; Orb, Eisenhauer, & Wynaden, 2001).

3.11.3 Risk and beneficence:

The study poses no risks to the participants, and they did not receive any direct benefits from their participation. Children were closely observed during each session to ensure safety and comfort, and sessions were immediately discontinued if distress occurred. Participants received no direct monetary or material benefits; however, the findings may contribute to improved therapeutic practices for children with ASD in Bangladesh. This approach aligns with the ethical principle of beneficence, which emphasizes maximizing potential benefits and minimizing harm (Beauchamp & Childress, 2019; Resnik, 2018).

3.11.4 Right of refusal to participate or withdraw

All participants and their guardians were informed that participation in the study was entirely voluntary. They retained the right to refuse or withdraw at any stage without penalty or impact on their ongoing therapy or schooling. A formal withdrawal form was available to facilitate this process. During the study, two participants from the control group exercised their right to withdraw midway through the intervention period. Their

data were excluded from the final analysis in accordance with ethical research protocols (World Medical Association, 2013).

3.12 Data collection:

Data collection was conducted systematically to ensure reliability, validity, and adherence to ethical research standards.

3.12.1 Data Collection Method

Both quantitative and observational methods were employed to capture immediate behavioral changes and functional progress of children with ASD who participated in the Deep Pressure Therapy (DPT) intervention. Two main forms of data were collected such immediate behavioral response and functional outcome.

3.12.1.1 Immediate Behavioral Data

The immediate effects of DPT were measured daily using the Visual Analogue Scale (VAS). Teacher supervisors conducted VAS assessments twice daily, at the beginning of the school day and before leaving school to record behavioral changes in real time (Schaaf et al., 2013; Pfeiffer et al., 2011). Observations focused on five key behavioral indicators such as calmness, engagement, responsiveness, happiness and communication. The VAS serves as a psychometric tool which demonstrates high reliability and validity and sensitivity for measuring subjective states according to Yeung and Wong (2019). The researchers have validated VAS for use in psychology and health science studies (Yeung & Wong, 2019). The rating system used a 0–10 scale to measure child behavior where 0 showed no behavioral issues and 10 displayed the most severe behavioral problems. The

three trained teacher supervisors performed all VAS assessments through standardized procedures to achieve consistent scoring results. The research design allowed scientists to measure the immediate intervention effects through VAS data collection which previous studies proved effective for detecting fast psychophysiological and behavioral changes (Sankar et al., 2020; Bestbier & Williams, 2017).

3.12.1.2 Functional Outcome Data:

The Goal Attainment Scaling (GAS) tool was used to measure each child's functional improvement. Two occupational therapists performed pre-intervention GAS assessments for all participants through five domains which included calmness and engagement in activities and responsiveness to stimuli/Instructions and happiness and communication skills. Before the intervention, OTs conducted baseline evaluation and after completing the one-month intervention, post-intervention assessments were again conducted using GAS to evaluate functional progress. The GAS data provided quantitative evidence of each participant's goal achievement level, which was later compared using statistical analyses. All assessors underwent specialized training sessions on standardized use of the GAS tools to ensure inter-rater reliability and uniformity across all observations (May-Benson et al., 2021; Mailloux et al., 2007).

3.12.2 Data Collection Instruments

In evaluating the effects of blanket wrapping as Deep Pressure Therapy (DPT) for children with ASD, the reliability and validity of the assessment tools used are critical for ensuring accurate and consistent results. The tools employed in this study include the Visual Analog Scale (VAS) and Goal Attainment Scaling (GAS), both of which offer

valuable data on the effects of DPT. By using these two tools in combination, the study ensures comprehensive data collection that enhances the validity and reliability of findings. This multi-source approach strengthens the study's overall reliability, as it accounts for variability across different contexts and reduces bias by gathering data from diverse observers. Furthermore, the alignment of findings across different tools (e.g., VAS and GAS) would provide a more valid picture of the intervention's impact on children with ASD.

3.12.2.1 Visual Analogue Scale (VAS)

The Visual Analogue Scale (VAS) functions as a proven psychometric instrument which helps professionals measure subjective states including calmness and engagement and mood (Wewers & Lowe, 1990; Athanasou, 2019). The tool has proven its ability to track short-term changes in clinical environments through studies which confirmed its practicality and measurement accuracy (Little & Penman, 1989). Teacher supervisors employed a 10-point linear VAS to measure behavioral state changes in children during DPT sessions through two assessments before and after each session. The VAS assessment used a 0 to measure behavioral state changes through a 10-point scale where 0 indicated no behavior (e.g. "Very calm, no problem at all") and 10 indicated the highest level (e.g. "not calm at all"). The VAS offered a quick and sensitive method to track small changes in daily self-regulation because it shows the same level of sensitivity as other intervention studies (Athanasou, 2019).

The VAS enables precise measurement of immediate behavioral responses because it uses a continuous scale to evaluate calmness and responsiveness and happiness which serves as a happiness indicator (Bestbier & Williams, 2017). The tool achieves

validity through its straightforward anchor points which participants can easily understand to track their emotional and behavioral responses during blanket wrapping interventions (Sankar et al., 2020). The VAS maintained its reliability through trained teachers who administered the tool consistently before and after each intervention session.

3.12.2.2 Goal Attainment Scaling (GAS)

The main outcome measure for tracking individual functional development through time used Goal Attainment Scaling (GAS). The client-centered approach of this method enables therapists to create specific goals for each participant which focus on essential areas including calmness and engagement and responsiveness and happiness and communication (Mailloux et al., 2007). The standardized five-point rating system for each goal used the following scale which included -2 to +2 points (Staunton et al., 2025). The rating system used the following scale to evaluate performance:

-2 = Much less than expected outcome

-1 = Less than expected outcome

0 = Expected level of performance

+1 = Somewhat better than expected outcome

+2 = Much better than expected outcome

The evaluation of GAS scores from before treatment to after treatment enabled researchers to obtain detailed quantitative data about therapeutic effects during the

medium-term period. The scientific evidence supports GAS as an effective tool for monitoring personal development progress. A systematic review found that sensory integration interventions produce positive results which GAS effectively measures through its assessment of family-relevant goals (Schaaf et al., 2018). The primary outcome measure in randomized controlled trials used GAS to detect substantial therapeutic improvements with significant effect sizes in children with autism (Pfeiffer et al., 2011; Schaaf et al., 2014). The assessment tool demonstrates high construct validity because it shows significant relationships with established measurement tools and family feedback reports (Ruble et al., 2012). The assessment tool shows precise measurement of child development because it tracks their individual growth pattern.

The GAS rating process achieves reliability through multiple strict procedures. The assessment of GAS ratings requires occupational therapists who have received proper training because research shows this approach maintains objective results (Staunton et al., 2025). The goal-setting process followed established criteria which used equal distance between scaling points to achieve methodological precision (Ruble et al., 2012; Schaaf et al., 2014). The system provides therapists with a dependable method to monitor patient development through scheduled assessment sessions which focus on sensory management and behavioral management and emotional response evaluation. The individualized assessment method of GAS provides a scientifically valid approach to measure treatment success (Staunton et al. (2025).

3.13 Data Analysis

It has been used the Statistical Package for the Social Sciences (SPSS) to analyze all collected data. The following statistical procedures were applied to the data:

3.13.1 Descriptive Statistics

The pre- and post-intervention GAS and VAS scores for both groups received analysis through mean (M) and standard deviation (SD) calculations.

3.13.2 Wilcoxon test

The Wilcoxon Signed-Rank Test served for analyzing Visual Analog Scale (VAS) and Goal Attainment Scaling (GAS) data throughout this pretest and posttest research. selected this non-parametric test because the data failed to satisfy the normality requirement needed for parametric tests such as the paired t-test. The Wilcoxon Signed-Rank Test functions best for analyzing paired data when pretest and posttest scores show non-normal distribution patterns. The test evaluates whether pretest and posttest score differences have statistically significant rank order differences for both VAS and GAS measurements to determine intervention effectiveness. The Wilcoxon test provides excellent results for analyzing ordinal and continuous data that does not follow normal distribution patterns which makes it suitable for this study's outcome assessment (Woolson, 2008).

CHAPTER IV: RESULT

This chapter presents the empirical findings of the study and interprets them within the broader context. The results section is divided into key sections that discuss the outcomes of the study, including the Visual Analogue Scale (VAS) for immediate behavioral changes and Goal Attainment Scaling (GAS) for assessing functional goal achievement. Statistical analyses and comparisons between the intervention group (blanket wrapping) and the control group will be provided in the following subsections.

4.1 Demographic data of Participants:

Initially, it included 36 children who had ASD but after withdrawal of 2 participants and both of them were girl from control group during middle of the study, it remained 34 participants in the study and their data collection were completed on time (See table 4.1). The participants were divided into two distinct groups for the study.

Table 4.1

Demographic Characteristics of Participants

Variable	Category / Type	Experimental (n = 18)	Control (n = 16)
Age (years)	Range	4 – 10	4 – 10
	Mean $\pm$ SD	6.22 $\pm$ 1.44	6.94 $\pm$ 1.81
Sex	Male	66.7 % (n=12)	93.8 %(n=15)
	Female	33.3 %(n=6)	6.3 %(n=1)
ASD Severity	Mild	5.6 %(n=1)	18.8 %(n=3)
	Moderate	50 %(n=9)	43.8 %(n=7)
	Severe	44.4 %(n=8)	37.5 %(n=6)
Communication	Verbal	22.2 %(n=4)	25 %(n=4)

Variable	Category / Type	Experimental (n = 18)	Control (n = 16)
	Semi-verbal	22.2 %(n=4)	31.3 %(n=5)
	Non-verbal	55.6 %(n=10)	43.8 %(n=7)
Attendance (sessions)	Mean $\pm$ SD	18.33 $\pm$ 2.66	18.38 $\pm$ 2.25

Note: In this (table 4.1), it has been shown that the experimental group consisted of 18 children who received structured blanket wrapping treatment as part of their intervention.

It was provided manual pressure and weighted vests and therapeutic brushing to 16 children in the Active Control Group as two females participants withdrawn from the study at the middle of study periods. Thus, it was not possible to add another two participants in study to equalize the number with experimental group. Further the age range remain same between two group which is spanned from 4 to 10 years old. It is very clear that the two groups maintained equal participation rates and shared similar age characteristics except gender. Thus, there was more female participant in experimental group (33.3%) than the control group (6.3%). Another notable difference has been shown in mild symptoms of ASD severity, such control group consists higher rate 18.8% than experimental group 5.6%.

4.2 Immediate Behavioral Changes:

The immediate effects of DPT were measured daily using the Visual Analogue Scale (VAS). The VAS served as a measurement tool to evaluate how children's behaviors changed right before and after receiving the intervention.

4.2.1 Immediate response (individual differences) of Experimental group:

Individual differences of VAS immediately after applying of blanket wrapping were measured every day during intervention. The finding showed that the experimental group did better results ($P < 0.05$) in all domains (See Table 4.2).

Table 4.2

Individual difference in VAS of Experimental Group

Participant's code no	Variable	Pretest VAS M (SD)	Posttest VAS M (SD)	Wilcoxon p	Remarks
101	Calmness	5.79 (.976)	4.79 (.976)	0.000	Significant
	Engagement	5.53 (1.172)	4.84 (1.015)	0.002	Significant
	Responsiveness	5.63 (1.065)	5.00 (1.247)	0.002	Significant
	Happiness	5.21 (0.787)	4.47 (0.905)	0.000	Significant
	Communication	7.32 (0.749)	7.16 (7.16)	0.317	Not Significant
102	Calmness	7.78 (0.428)	6.39 (0.608)	0.000	Significant
	Engagement	7.22 (0.548)	6.78 (1.003)	0.070	Not Significant
	Responsiveness	7.17 (0.618)	6.28 (0.895)	0.004	Significant
	Happiness	6.78 (0.548)	6.28 (0.575)	0.014	Significant
	Communication	8.00 (0.594)	7.06 (0.998)	0.001	Significant
103	Calmness	7.89 (0.900)	6.89 (1.023)	0.001	Significant
	Engagement	8.06 (0.725)	6.67 (0.970)	0.001	Significant
	Responsiveness	8.11 (0.963)	6.89 (0.963)	0.002	Significant
	Happiness	8.56 (0.616)	7.11 (1.023)	0.001	Significant
	Communication	8.78 (0.548)	7.83 (0.707)	0.001	Significant
	Calmness	5.90 (0.968)	3.50 (1.051)	0.000	Significant

104	Engagement	6.05 (0.999)	4.05 (0.945)	0.000	Significant
	Responsiveness	6.10 (0.788)	4.45 (0.759)	0.000	Significant
	Happiness	5.55 (0.826)	4.40 (0.681)	0.000	Significant
	Communication	7.65 (1.531)	6.95 (0.945)	0.005	Significant
	Calmness	6.47 (1.389)	4.95 (1.649)	0.000	Significant
105	Engagement	6.42 (1.346)	4.58 (2.090)	0.000	Significant
	Responsiveness	6.05 (1.224)	4.47 (1.541)	0.001	Significant
	Happiness	6.00 (1.291)	4.16 (1.675)	0.001	Significant
	Communication	6.11 (0.875)	5.26 (0.806)	0.004	Significant
	Calmness	6.73 (1.316)	5.77 (1.486)	0.000	Significant
106	Engagement	5.95 (1.327)	5.32 (1.644)	0.018	Significant
	Responsiveness	5.45 (1.438)	4.86 (1.356)	0.049	Significant
	Happiness	5.27 (1.120)	4.95 (0.785)	0.080	Not Significant
	Communication	6.09 (0.811)	6.05 (0.785)	0.665	Not Significant
	Calmness	8.32 (0.716)	7.36 (0.658)	0.000	Significant
107	Engagement	8.23 (0.612)	7.91 (0.868)	0.035	Significant
	Responsiveness	8.45 (0.510)	8.05 (0.844)	0.007	Significant
	Happiness	7.27 (0.550)	7.00 (0.756)	0.034	Significant
	Communication	8.77 (0.429)	8.64 (0.492)	0.083	Not Significant
	Calmness	7.89 (0.658)	6.89 (0.809)	0.000	Significant
108	Engagement	7.63 (0.684)	7.11 (0.875)	0.029	Significant
	Responsiveness	7.95 (0.848)	7.26 (1.098)	0.012	Significant
	Happiness	7.00 (0.577)	6.58 (0.692)	0.035	Significant
	Communication	8.21 (0.419)	7.58 (0.692)	0.001	Significant
	Calmness	5.06 (0.556)	3.47 (0.800)	0.000	Significant
109	Engagement	4.94 (0.556)	4.29 (0.772)	0.009	Significant
	Responsiveness	4.53 (0.624)	4.06 (0.659)	0.033	Significant

110	Happiness	4.06 (0.659)	3.24 (0.437)	0.002	Significant
	Communication	5.82 (0.393)	5.53 (0.514)	0.096	Not Significant
	Calmness	5.30 (0.801)	3.95 (0.686)	0.000	Significant
	Engagement	5.00 (0.562)	3.90 (0.718)	0.000	Significant
	Responsiveness	4.85 (0.671)	4.25 (0.786)	0.001	Significant
111	Happiness	4.80 (0.523)	3.95 (0.510)	0.000	Significant
	Communication	6.15 (0.813)	5.40 (0.598)	0.007	Significant
	Calmness	8.23 (0.429)	7.00 (0.690)	0.000	Significant
	Engagement	7.73 (0.456)	7.36 (0.790)	0.038	Significant
	Responsiveness	8.00 (.690)	7.50 (0.859)	0.026	Significant
112	Happiness	6.95 (0.213)	6.73 (0.550)	0.059	Not Significant
	Communication	8.73 (0.456)	8.59 (0.503)	0.083	Not Significant
	Calmness	3.88 (1.054)	2.41 (1.502)	0.001	Significant
	Engagement	3.18 (1.811)	2.41 (2.238)	0.007	Significant
	Responsiveness	3.47 (1.807)	2.47 (1.940)	0.005	Significant
113	Happiness	2.47 (0.874)	2.29 (1.687)	0.236	Not Significant
	Communication	5.76 (0.752)	5.65 (.931)	0.480	Not Significant
	Calmness	4.40 (1.502)	1.93 (0.704)	0.001	Significant
	Engagement	3.60 (1.121)	2.00 (0.845)	0.002	Significant
	Responsiveness	3.20 (0.941)	2.13 (1.125)	0.007	Significant
114	Happiness	3.40 (1.121)	1.67 (0.724)	0.003	Significant
	Communication	4.87 (0.990)	4.60 (1.121)	0.157	Not Significant
	Calmness	2.87 (1.060)	1.20 (1.014)	0.001	Significant
	Engagement	1.53 (0.743)	0.47 (0.834)	0.003	Significant
	Responsiveness	1.67 (0.617)	0.80 (0.775)	0.002	Significant
114	Happiness	1.93 (0.799)	0.87 (1.060)	0.008	Significant
	Communication	2.00 (0.926)	1.00 (0.926)	0.015	Significant

115	Calmness	4.00 (1.195)	3.07 (1.223)	0.000	Significant
	Engagement	3.27 (1.280)	2.60 (0.828)	0.013	Significant
	Responsiveness	3.00 (1.000)	2.33 (0.724)	0.008	Significant
	Happiness	2.60 (0.828)	1.80 (0.775)	0.003	Significant
	Communication	5.13 (0.743)	4.60 (0.828)	0.038	Significant
116	Calmness	2.67 (0.976)	1.93 (0.799)	0.004	Significant
	Engagement	2.87 (1.246)	2.13 (1.187)	0.002	Significant
	Responsiveness	2.87 (1.302)	2.13 (1.060)	0.004	Significant
	Happiness	2.20 (1.146)	1.60 (0.632)	0.054	Not Significant
	Communication	6.93 (1.486)	6.33 (1.633)	0.066	Not Significant
117	Calmness	4.77 (0.752)	3.86 (1.082)	0.003	Significant
	Engagement	5.09 (0.811)	4.14 (0.710)	0.001	Significant
	Responsiveness	4.73 (0.703)	4.45 (0.739)	0.109	Not Significant
	Happiness	4.14 (0.640)	3.86 (0.774)	0.083	Not Significant
	Communication	6.09 (0.426)	5.86 (0.468)	0.096	Not Significant
118	Calmness	8.27 (0.704)	7.60 (0.737)	0.002	Significant
	Engagement	7.93 (0.258)	7.87 (0.640)	0.564	Not Significant
	Responsiveness	8.40 (0.507)	8.27 (0.594)	0.564	Not Significant
	Happynisss	6.93 (0.704)	6.67 (0.900)	0.046	Significant
	Communication	8.93 (0.458)	8.73 (0.458)	0.180	Not Significant

Note: In this Table 4.2, the experimental group shown better results ($P < 0.05$) in all domains. The communication domain showed inconsistent results in both groups but the experimental group demonstrated some positive changes. The results for core regulatory domains showed near-perfect consistency because all 18 participants (100%) achieved

better calmness and 16 out of 18 participants (89%) achieved better engagement and responsiveness.

4.2.2 Immediate response (individual differences) of control group:

Individual differences of VAS immediately after applying of other DPT method such weighted vest, manual compression and therapy brushing. It has found DPT presented inconstant significant result ($P > 0.05$) in most domains (See Table 4.3).

Table 4.3

Individual difference on immediate response by VAS of Control Group

Parti- pants' code	Variable	Pretest VAS M (SD)	Posttest VAS M (SD)	Wilcoxon P	Remarks
201	Calmness	7.44 (0.892)	7.00 (1.265)	0.208	Not Significant
	Engagement	7.13 (0.957)	7.31 (1.195)	0.509	Not Significant
	Responsiveness	7.19 (1.109)	7.50 (1.155)	0.475	Not Significant
	Happiness	8.13 (0.957)	7.69 (1.138)	0.256	Not Significant
	Communication	8.88 (0.342)	8.75 (447)	1.000	Not Significant
202	Calmness	3.00 (0.845)	2.13 (0.352)	0.004	Significant
	Engagement	3.07 (1.100)	2.27 (0.617)	0.020	Significant
	Responsiveness	3.47 (1.995)	2.40 (0.632)	0.076	Not Significant
	Happiness	2.60 (1.242)	2.20 (1.207)	0.109	Not Significant
	Communication	7.60 (0.632)	7.47 (0.640)	0.577	Not Significant
203	Calmness	4.28 (1.447)	3.39 (0.195)	0.015	Significant
	Engagement	4.00 (1.188)	3.44 (1.247)	0.026	Significant
	Responsiveness	3.61 (1.037)	3.17 (1.098)	0.123	Not Significant

204	Happiness	4.00 (767)	3.33 (1.029)	0.012	Significant
	Communication	5.56 (1.097)	5.28 (1.602)	0.281	Not Significant
	Calmness	4.55 (1.276)	4.00 (1.298)	0.090	Not Significant
	Engagement	3.65 (1.348)	3.75 (1.585)	0.674	Not Significant
	Responsiveness	3.70 (1.302)	3.60 (1.569)	0.625	Not Significant
205	Happiness	3.50 (1.670)	3.25 (1.585)	0.369	Not Significant
	Communication	5.05 (1.191)	4.85 (1.226)	0.377	Not Significant
	Calmness	2.53 (1.172)	2.37 (1.116)	0.405	Not Significant
	Engagement	2.11 (1.370)	1.84 (1.119)	0.218	Not Significant
	Responsiveness	1.79 (1.548)	1.95 (1.224)	0.317	Not Significant
206	Happiness	2.58 (1.610)	2.26 (1.240)	0.471	Not Significant
	Communication	4.58 (0.769)	4.68 (0.478)	0.480	Not Significant
	Calmness	3.44 (1.199)	2.83 (1.465)	0.035	Significant
	Engagement	3.28 (1.526)	2.83 (1.855)	0.108	Not Significant
	Responsiveness	3.11 (1.278)	3.06 (1.862)	0.560	Not Significant
207	Happiness	3.17 (2.036)	3.00 (2.0114)	0.463	Not Significant
	Communication	5.11 (963)	4.94 (0.873)	0.317	Not Significant
	Calmness	3.21 (1.598)	2.05 (2.013)	0.004	Significant
	Engagement	2.74 (2.023)	2.11 (2.158)	0.026	Significant
	Responsiveness	2.89 (1.729)	2.11 (1.969)	0.003	Significant
208	Happiness	3.05 (1.682)	2.26 (2.104)	0.006	Significant
	Communication	5.37 (0.598)	4.37(0.955)	0.001	Significant
	Calmness	5.33 (0.594)	4.56 (705)	0.000	Significant
	Engagement	5.44 (705)	5.00 (594)	0.005	Significant
	Responsiveness	5.67 (907)	5.44 (922)	0.157	Not Significant
	Happiness	4.94 (725)	4.67 (594)	0.096	Not Significant
	Communication	6.61 (1.243)	6.50 (1.150)	0.317	Not Significant

209	Calmness	8.44 (0.511)	7.83 (0.618)	0.002	Significant
	Engagement	8.67 (0.594)	8.33 (0.594)	0.034	Significant
	Responsiveness	8.67 (0.594)	8.28 (0.752)	0.008	Significant
	Happiness	7.11 (0.323)	7.06 (0.416)	0.317	Not Significant
	Communication	8.83 (0.514)	8.78 (0.548)	0.564	Not Significant
210	Calmness	6.95 (1.099)	6.70 (0.979)	0.439	Not Significant
	Engagement	6.30 (0.733)	6.00 (0.858)	0.083	Not Significant
	Responsiveness	6.10 (0.852)	6.00 (0.795)	0.564	Not Significant
	Happiness	5.85 (0.813)	5.80 (0.696)	0.705	Not Significant
	Communication	6.40 (0.503)	6.30 (0.571)	0.414	Not Significant
211	Calmness	6.55 (1.184)	5.82 (1.140)	0.001	Significant
	Engagement	6.09 (0.868)	5.77 (0.868)	0.053	Significant
	Responsiveness	6.09 (0.921)	5.73 (0.985)	0.011	Significant
	Happiness	5.50 (0.859)	5.27 (0.985)	0.132	Not Significant
	Communication	7.27 (0.767)	6.95 (0.899)	0.020	Significant
212	Calmness	8.05 (0.899)	7.50 (1.012)	0.003	Significant
	Engagement	7.59 (1.054)	7.27 (1.120)	0.008	Significant
	Responsiveness	7.68 (1.129)	7.32 (0.995)	0.021	Significant
	Happiness	6.77 (1.020)	6.59 (0.959)	0.305	Not Significant
	Communication	6.00 (0.756)	6.05 (0.785)	0.791	Not Significant
213	Calmness	8.60 (0.507)	8.20 (0.941)	0.083	Not Significant
	Engagement	8.27 (0.594)	8.33 (0.724)	0.655	Not Significant
	Responsiveness	8.13 (0.640)	8.13 (0.834)	1.000	Not Significant
	Happiness	7.73 (0.594)	7.47 (0.743)	0.102	Not Significant
	Communication	8.53 (0.516)	8.53 (0.516)	1.000	Not Significant
	Calmness	5.84 (0.688)	5.11 (0.658)	0.000	Significant

214	Engagement	5.89 (0.737)	5.53 (0.697)	0.097	Not Significant
	Responsiveness	5.53 (0.772)	5.05 (0.524)	0.013	Significant
	Happiness	5.00 (0.943)	4.68 (0.749)	0.034	Significant
	Communication	5.89 (0.459)	5.95 (0.405)	0.564	Not Significant
	Calmness	4.80 (0.561)	4.20 (0.676)	0.007	Significant
215	Engagement	4.87 (0.834)	4.73 (0.704)	0.608	Not Significant
	Responsiveness	4.67 (0.724)	4.53 (0.516)	0.527	Not Significant
	Happiness	4.53 (0.743)	4.27 (0.704)	0.248	Not Significant
	Communication	5.80 (0.676)	5.80 (0.676)	1.000	Not Significant
	Calmness	3.25 (1.943)	2.80 (1.989)	0.289	Not Significant
216	Engagement	2.30 (1.750)	1.85 (1.565)	0.059	Not Significant
	Responsiveness	2.35 (1.424)	2.15 (1.424)	0.506	Not Significant
	Happiness	2.40 (1.759)	2.00 (1.717)	0.255	Not Significant
	Communication	4.75 (1.020)	4.10 (1.071)	0.051	Significant

Note: From this (Table 4.3), it is very clear that the control group (other DPT), present inconsistent immediate result which is not statistically significant ($P > 0.05$) mostly. Most notable improvement in calmness, where 9 out of 16 participants (56.3 %) shown statistically significant ($P < 0.05$). In other variables, progress rate is very minimal such as in engagement 6 participants of 16 (37.5 %), 4 participants in responsiveness (25%), 3 (18.8 %) participants in happiness and only 2 (12.5%) participants in communication areas shown statistically significant progress in active control group which much lower than the experimental group (see Table 4.4).

4.2.3 Comparison of immediate response between Experimental and Control group

From this result on immediate response, it has found that the blanket rapping protocol contributes most consistent progress than other DPT therapy group (see on Table 4.4).

Table 4.4:

Comparative Significant of Improvement between Experimental and Control group

Domains	Experimental Group (n = 18)	Control Group (n = 16)
Calmness	100 % (n=18) Significant	56.3 % (n=9) Significant
Engagement	88.9 % (n= 16) Significant	37.5 % (n=6) Significant
Responsiveness	88.9 % (n= 16) Significant	25 % (n=4) Significant
Happiness	72.2 % (n=13) Significant	18.8 % (n=3) Significant
Communication	44.4 % (n=8) Significant	12.5 % (n=2) Significant

Note: It is clear that experimental group has shown higher rate of significant results in compared to control group. Therefore, it can be note that immediate response followed by blanket rapping DPT protocol with ASD children showed most consistent outcome in calmness, engagement in activities and responsiveness to instruction areas. On the other hand, active control group or other DPT group produce mostly frequent statistically significant outcome in calmness area (56.3%) only which is very less in compared to calmness (100%) of experimental group (blanket rapping protocol).

4.3 Functional Outcome of Intervention by using GAS

The Goal Attainment Scaling (GAS) showed that participants achieved better functional results after the intervention compared to their initial state. The participants worked on

five identical goals which focused on calmness and activity participation and their response to instructions and stimuli and their happiness and communication abilities (Table 4.5)

In experimental group, before starting interventions of blanket rapping it was conducted baseline assessment by using GAS and after completing intervention for 1 month, it was another assessment to find out long term outcome. It has found promising improvement among the participants which is statistically significant in four themes except the communication part.

Table 4.5

Functional outcome by GAS of Experimental Group

Variable	Pre-test Mean (SD)	Post-test Mean (SD)	Wilcoxon (P)	Significance
Calmness	−1.28 (0.669)	0.17 (1.150)	0.001	Significant
Engagement	−0.72 (0.958)	0.28 (1.074)	0.008	Significant
Responsiveness	−0.89 (1.023)	0.17 (1.249)	0.017	Significant
Happiness	−1.17 (0.618)	−0.39 (1.145)	0.015	Significant
Communication	−1.06 (0.873)	−0.61 (1.243)	0.236	Not Significant

Note: Functional and long-term outcome in experimental group is statically significant ($P < 0.05$) by GAS score in all domain except the communication. The Experimental (Blanket Wrapping) Group participants achieved major progress in their ability to remain calm and their capacity to engage with activities and follow instructions which validated the treatment approach. The intervention led to positive outcomes for happiness but the results remained below neutral values and communication scores did not achieve

statistical significance. On the other hand, outcome score of active control group is not statistically significant except in calmness among the participant (see Table 4.6).

Table 4.6

Functional outcome by GAS of Control Group

Variable	Pre-test Mean (SD)	Post-test Mean (SD)	Wilcoxon (P)	Significance
Calmness	-1.125 (0.719)	-0.312 (1.302)	0.026	Significant
Engagement	-0.937 (1.063)	-0.312 (1.195)	0.064	Not Significant
Responsiveness	-1.00 (0.966)	-0.812 (0.834)	0.542	Not Significant
Happiness	-1.25 (0.775)	-1.125 (0.806)	0.527	Not Significant
Communication	-1.25 (0.577)	-1.125 (0.806)	0.589	Not Significant

Note: Only significant outcome ($P < 0.05$) is achieved in calmness area among the participant of active control group. The Active Control (Other DPT) Group participants showed a minimal yet statistically significant improvement in their calmness but their engagement and response and happiness levels did not show any significant changes.

4.4 Interpretation of Findings both VAS and GAS:

The experimental group achieved significant improvements in Calmness and Engagement and Responsiveness ($P < 0.05$) which validated the effectiveness of the blanket-wrapping intervention. Happiness scores showed a small but meaningful increase but Communication results failed to achieve statistical significance (see Table 4.9).

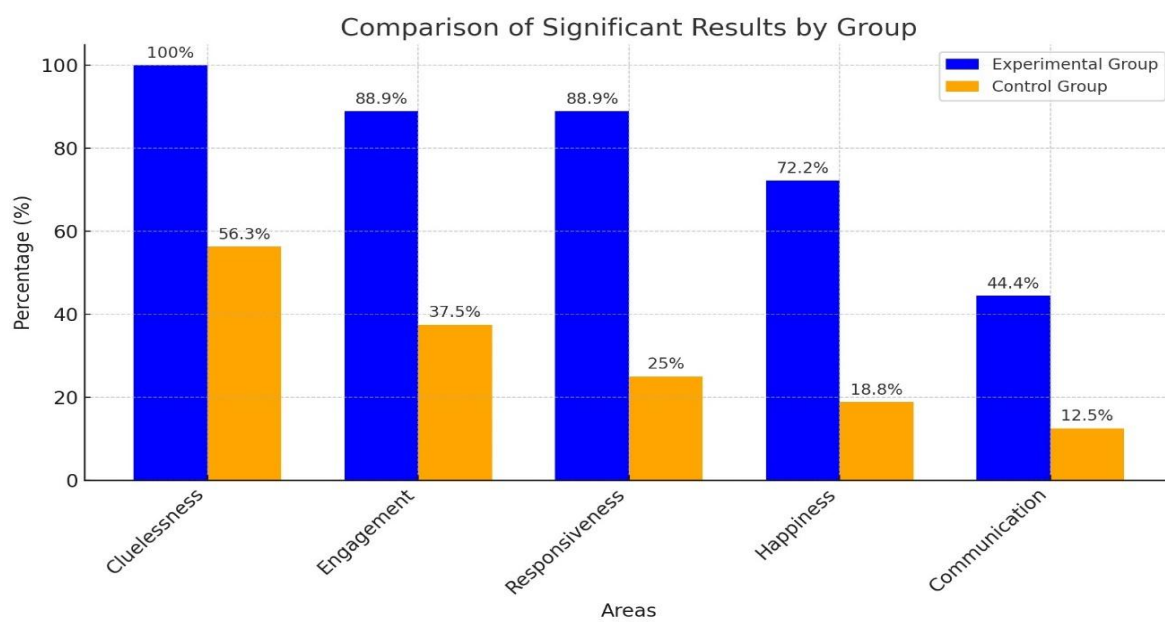
The control group showed minimal changes in Calmness and no significant progress in any other measured domains. The results from VAS measurements support the broader

effects of the blanket-wrapping protocol on self-regulation and behavioral adaptation as shown in .

Therefore, it can be summarized that the experimental group participants achieved significant improvements in their calmness and their ability to stay focused and give appropriate responses thus validating the intervention's effectiveness. The intervention led to positive outcomes for happiness yet this measure remained below neutral levels and communication results did not achieve statistical significance. The Control Group participants showed a tiny yet statistically meaningful improvement in their calmness but their engagement and response and happiness scores remained unchanged (See Figure 4.1 and Figure 4.2).

Figure 4.1

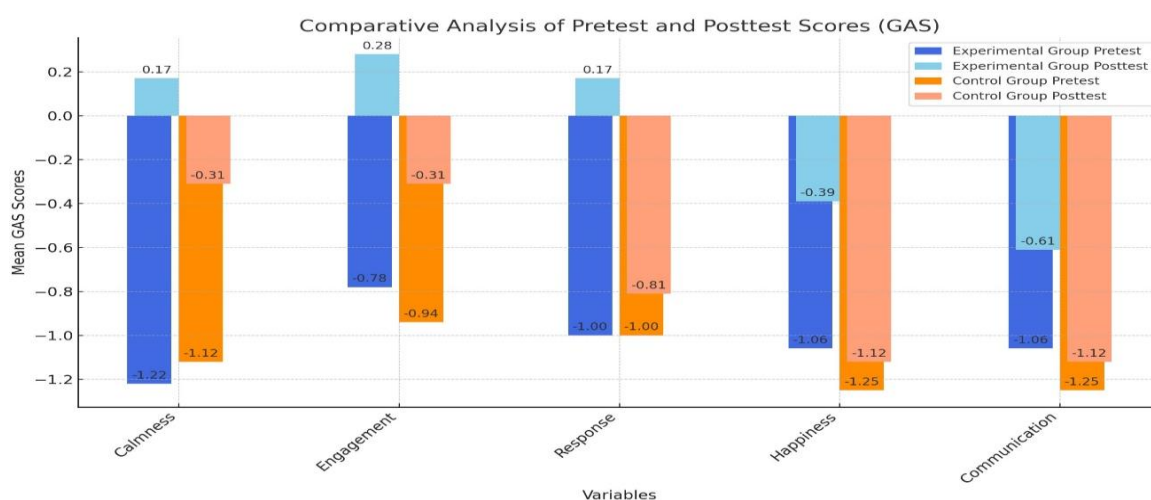
Comparison of significant rate (%) VAS score between experimental group and control group



Note: From this figure, it is clearly visible the higher rate of improvement of blue chart (the experimental group) than active control group (the orange chart). So, immediate response followed by blanket rapping protocol (the blue chart) is much higher than the active control group (the orange bar)

Figure 4.2

Comparative Outcome of Pretest and Posttest by GAS score



Note: In this figure, it's clear that the blue chart (blanket rapping or experimental group's) score in posttest is much higher than the orange chart (the other DPT or control group) score in all domains. That means, blanket rapping produces more consistent and regular progress than other DPT methods among children with ASD.

So, the final conclusion of the result section is that the experimental intervention known as the blanket rapping protocol generated more pronounced effects on calmness and engagement and response than the control group which used other DPT methods and showed no significant changes in these variables.

CHAPTER V: DISCUSSION

The research findings from this study appear in this chapter to demonstrate how Deep Pressure Therapy (DPT) works for Autism Spectrum Disorder (ASD) patients through existing scientific literature. The research results stem from two assessment methods which measured immediate state changes using Visual Analogue Scale (VAS) and functional development through Goal Attainment Scaling (GAS). The research combines these results with existing studies to explain the unique therapeutic effects of the structured blanket wrapping approach and its specific treatment characteristics.

5.1 Discussion

The research findings establish a definitive contribution to scientific knowledge through their demonstration of effectiveness and their detailed explanation of both treatment effectiveness and target population. The research findings receive analysis through the Schoen et al. (2018) framework which helps explain the conflicting results found in DPT research.

5.2.1 The DPT Paradox gets resolved through blanket wrapping.

The VAS results showing substantial and consistent improvements in Calmness support the Autonomic Nervous System (ANS) regulation theory as proposed by Reynolds et al. (2015) and Porges (2011). The enveloping design of blanket wrapping creates a more powerful "neural brake" that controls the sympathetic nervous system than alternative treatment approaches. The study by Afif et al. (2022) supports this finding through their research which showed that a wrap with inflation provided circumferential pressure to

decrease GSR emotional stress while manual-pull devices failed to produce any effect. The researchers established that deep-pressure therapy benefits increase with larger contact areas between the body and the pressure source.

The main discovery shows that the blanket wrapping treatment produced better results than the control group received. The study fulfills Camarata et al. (2020) by showing that therapy works through identifying the specific therapeutic elements. The study achieved this by implementing an active control group that received established DPT methods including weighted vests and brushing and manual pressure to determine the distinct therapeutic value of the blanket wrapping protocol.

The control group failed to show significant progress ($p > 0.05$) on GAS which matches the results of multiple prominent research studies that produced no findings. The results of the control group match the findings of Grandits et al. (2023) who discovered compression clothing did not enhance task participation and the systematic review by Stephenson and Carter (2002009) which showed insufficient proof for weighted vests. The systematic review by Bodison and Parham (2018) found that weighted vests showed limited evidence for ADHD treatment in children but insufficient evidence for ASD treatment in children while most studies proved these children do not benefit from weighted vests (p. 7). The study by Losinski et al. (2017) directly compared compression vests to weighted blankets and discovered both failed to decrease stereotypical behaviors in students with ASD thus confirming the ineffectiveness of these typical DPT approaches. The results indicate that blanket wrapping operates through distinct mechanisms. The superior effectiveness of blanket wrapping emerges from its precise match with DPT neurophysiological processes and Sensory Integration (SI) principles.

Schoen et al. (2018) established the essential understanding that combining passive sensory-based interventions with active Sensory Integration approaches has created confusion in the evidence base. The authors pointed out as *"intervention described... was not consistent with the principles of ASI and was instead a sensory-based intervention, i.e., it involved adult-controlled application of sensory stimuli within a protocol that is provided in a similar way to all participants"* (p. 2) (Schoen et al. 2018). The blanket wrapping method operated as a dynamic system which adapted to children's needs while delivering appropriate challenges that followed ASI principles. The protocol achieved substantial functional progress which matches the results from evidence-based ASI trials by Pfeiffer et al. (2011) and Schaaf et al. (2014) that Schoen et al. (2018) analyzed in their review.

5.2.2 The Mechanism of Calm: An Autonomic Regulation

The VAS ratings of Calmness show significant and continuous improvement which supports the Autonomic Nervous System (ANS) regulation theory (Reynolds et al., 2015; Porges, 2011). The complete body coverage of blanket wrapping creates a superior neural braking effect on sympathetic nervous system activity when compared to other treatment approaches. The study by Afif et al. (2022) provides strong evidence for this concept through their measurement of GSR emotional stress under inflating wrap conditions which produced better results than manual-pull devices. The researchers established that deep-pressure benefits increase with larger contact areas; *"the larger the contact area, the greater the benefits"* (p. 7). Our blanket wrapping method delivers maximum body contact while generating continuous input which resulted in the strong calming effects we

documented. The specific sensory technique of blanket wrapping fits into the category defined by Bodison and Parham (2018) because it delivers direct body-based interventions to support child functioning. The success of blanket wrapping proves their point that particular implementation methods and their correct usage determine the effectiveness of such techniques.

5.2.3 A Hierarchical Model of Effect

5.2.3.1 Impact on foundational Domains

Blanket rapping produce rapid positive impact on foundational domain such as calmness, engagement and responsiveness on children with ASD which key to prepare them for further functional outcomes. The DPT literature faces a major research challenge because Bestbier and Williams (2017) discovered that children respond differently to DPT interventions with some showing extensive benefits while others experience no change at all. The DPT literature shows that individual responses to treatment remain fundamental research finding. The study by Sankar et al. (2020) on DCD treatment showed that 9 out of 20 children benefited from DPT yet 3 participants either received no benefit or their results showed a statistically significant negative effect. The study by Losinski et al. (2017) revealed that some participants experienced negative reactions to weighted blankets. The study results showed that children demonstrated variable responses to Communication but blanket wrapping produced positive effects on all three foundational domains of Calmness and Engagement and Responsiveness.

The treatment effects followed a hierarchical pattern that started with the most powerful and consistent results in the Foundational Tier which included Calmness and

Engagement and Responsiveness. The core abilities of self-regulation and environmental interaction received the most powerful effects from the treatment. The results match the theoretical framework of DPT theory because it targets ANS regulation and somatosensory integration to treat ASD core deficits according to Roley et al. (2015).

5.2.3.2 Secondary Tier (Variable Effect)

Happiness and Communication. The results for complex skills show the greatest variation between participants which confirms that individual differences affect these abilities the most. The results enable clinicians to establish appropriate expectations because blanket wrapping creates essential regulatory skills which other therapies can use to develop advanced abilities. The hierarchical results from this study validate Bodison and Parham's (2018) recommendation for practitioners to check child responses to intervention because the intervention produces different effects on various child functions.

5.2.4 The Reinforcer Effect and its Clinical Utility

The research indicates that blanket wrapping serves as an effective positive reinforcer according to McGinnis et al. (2013). The high rate of significant improvement in Engagement (89% of participants) demonstrates that children experienced intrinsic motivation from the intervention itself beyond their reduced state of calmness. The intervention now functions as an active behavioral tool instead of a passive calming method. The intervention provides a strategic method to boost task engagement while reinforcing positive behaviors which other DPT methods fail to demonstrate effectively. The positive child response to blanket wrapping stands in direct opposition to the social invalidation of other DPT methods since Losinski et al. (2017) found that teachers and

paraprofessionals considered weighted blankets and vests useless while antecedent exercise received positive feedback. The positive results from a recent study on weighted blankets in dentistry (Stein Duker et al., 2024) demonstrate the practical value of DPT tools which children find enjoyable. The intervention method of blanket wrapping serves as a valuable compensatory strategy according to Bodison and Parham (2018) who identify this as an essential role for occupational therapists to make environmental changes that help children and youth succeed.

5.3 Key Findings

This study yields four principal findings that significantly contribute to the understanding of DPT:

5.3.1 Superior Efficacy of Structured Blanket Wrapping:

The blanket-wrapping protocol proved to be more effective than standard DPT methods including weighted vests and manual pressure techniques. The experimental group achieved substantial and statistically important improvements in core regulatory domains which included calmness and engagement and responsiveness according to Visual Analogue Scale (VAS) and Goal Attainment Scaling (GAS) assessments.

5.3.2 Immediate and Functional Benefits:

The intervention produced rapid, positive changes in behavioral state, with significant improvements in calmness and engagement observed immediately post-intervention. These immediate gains translated into meaningful, medium-term functional progress

toward individualized goals, particularly in the areas of self-regulation and environmental interaction.

5.3.3 A Hierarchical Therapeutic Profile

The intervention created a specific order of therapeutic effects. The intervention created the most significant and enduring effects on basic regulatory abilities such as calmness and engagement and responsiveness but it produced less consistent results for advanced skills like communication. The results indicate that blanket wrapping functions as a fundamental tool which creates strong neurophysiological regulation.

5.3.4 In consistent finding of other DPT

The research shows that children with ASD experience better core regulatory function results through a structured blanket wrapping protocol. The effectiveness of this protocol exceeds what other standard DPT approaches can achieve. The protocol achieves better results than other sensory-based interventions because it uses dynamic pressure that follows the active principles of Ayres Sensory Integration as described by Schoen et al. (2018). The research demonstrates how this protocol addresses the inconsistent results in previous studies about sensory-based interventions (Eron et al., 2020; Gringras et al., 2014).

The study presents a vital positive outcome within a research field which lacks strong evidence. The evidence supporting DPT and sensory techniques for anxiety treatment in ASD remains weak according to Vasa et al. (2014) and Bodison and Parham (2018) who found insufficient research evidence for most techniques. The study establishes a solid foundation for clinical and educational practice by demonstrating

blanket wrapping's effectiveness and its specific therapeutic impact on foundational regulation while showing variable results for complex skills. The research enables practitioners to use blanket wrapping as a specific powerful and dependable method to help ASD children reach learning and growth readiness through regulated states.

CHAPTER VI: CONCLUSION

This chapter provides a comprehensive synthesis of the study, critically examining its contributions, limitations, and practical applications. It delineates the key findings regarding the efficacy of a structured blanket-wrapping protocol, analyzes the methodological strengths and weaknesses that contextualize these results, and concludes with targeted recommendations for clinical practice and future research to advance the field of Deep Pressure Therapy (DPT) for children with ASD.

6.1 Strengths and Limitations

6.1.1 Strength

Multiple design aspects within the study enhance its validity. The study uses an active control group to establish internal validity which enables direct comparison between the experimental protocol and standard DPT methods to demonstrate its superior effectiveness. The research used VAS and GAS tools to measure both short-term behavioral changes and long-term functional development of the participants. The study's dual assessment method provides reliable results which show the complete impact of the intervention on participants. The study design that separated intervention delivery from data collection and used staff blinding for group assignments reduced internal bias and protected against conflicts of interest.

6.1.2 Limitations

The main study limitation stems from the fact that complete blinding of the assessment process remained unattainable. The data collection staffs members worked at the facility yet they maintained their role as non-interventionists although they already knew the participants. The result of the study cannot be generalized as because it has lack of randomization in sample selection. The assessment process became vulnerable to observer bias because staff members who knew the participants might have brought their existing knowledge into their VAS and GAS evaluations.

The study's findings face two major limitations because of its small participant number (n=34) and unbalanced gender distribution and cluster sampling approach instead of individual randomization which reduces statistical power and limits population generalizability.

The study used VAS and GAS for measuring changes but these tools lack the detailed normative data which standardized gold-standard assessments like Sensory Profile and SIPT and EASI provide for sensory processing evaluation. The inclusion of these assessments would have enabled researchers to study participant subtypes and identify underlying mechanisms in greater detail.

The study failed to obtain long-term assessment results and it did not include data from multiple sources which prevents researchers from understanding how well the benefits persist. The study did not include children's or parents' or teachers' perspectives which would have given a complete and socially valid assessment of the intervention's effects.

6.2 Practice Implication

6.2.1 Recommendation for future practice

The research results provide specific recommendations which benefit healthcare providers and educational staff. The clinical community should implement this particular blanket-wrapping protocol as their main DPT treatment because it shows better evidence than weighted vests and other unsupported methods.

The protocol combines structured elements with dynamic aspects which match Ayres Sensory Integration principles to deliver targeted and effective results. The hierarchical effect pattern helps practitioners establish achievable targets for their patients. The strongest results from self-regulation and engagement should serve as building blocks for other therapy approaches to develop complex communication abilities.

The intervention shows exceptional value for community-based and school environments because it requires no expensive equipment. The intervention's basic nature enables professionals to teach parents and teachers how to use it properly which leads to consistent implementation throughout different settings.

6.2.2 Recommendation for future Research

Future research should use the following approaches to expand on the current promising findings while resolving the existing study limitations.

6.2.2.1 Enhance Methodological Rigor

The research design should use a double-blind randomized controlled trial (RCT) with a sham intervention that includes a very light blanket for the control group and independent external assessors who remain unaware of study hypotheses and group assignments to prevent observer bias.

6.2.2.2 Incorporate Comprehensive and Standardized Assessments

Future studies need to use standardized assessment tools like the Sensory Profile and CARS and SIPT to measure participants' sensory profiles and ASD symptoms. The assessment tools will help researchers predict which children will benefit most from the intervention.

6.2.2.3 Conduct Longitudinal and Mechanistic Studies

The research needs to include extended follow-up periods at 3 months and 6 months and 12 months to determine how well the intervention results persist. The research needs to investigate the physiological mechanisms behind the treatment effects by measuring heart rate variability and galvanic skin response to provide objective evidence of autonomic nervous system regulation changes.

6.2.2.4 Incorporate Multi-Stakeholder Perspectives

Research needs to collect both qualitative and quantitative feedback from children and their parents and teachers to establish social validity. The research needs to measure child comfort levels and parental satisfaction with results and teacher evaluations of academic and social involvement.

Future research should investigate how blanket wrapping works when combined with Occupational Therapy (OT) interventions to determine if the treatments enhance each other. The combination of sensory input with cognitive-behavioral strategies in interventions shows promise for treating the diverse needs of children with ASD (Case-Smith et al., 2015).

Research studies following children who receive blanket wrapping treatment should track their social participation and functional independence development to understand how DPT outcomes persist over time (Pfeiffer et al., 2011). The research should investigate how DPT works when combined with behavioral therapy (Bašić et al., 2021).

6.2.2.5 Optimize Protocol Implementation

Future studies need to develop a step-by-step approach for introducing blanket wrapping to ensure participants experience positive outcomes. The process of obtaining informed consent needs to include specific details about the possible unpleasant first impressions of the procedure before starting the intervention. The child needs a gradual engagement to blanket wrapping through a step-by-step process which begins with short exposure periods of 5 seconds playfully and advances to 15 minutes based on their comfort and tolerance.

6.3 Conclusion

This research demonstrates that a structured blanket-wrapping method functions as an effective and practical and culturally suitable Deep Pressure Therapy treatment for children with ASD. The research shows that this method outperforms conventional DPT approaches by enhancing fundamental self-regulation abilities in children. The study presents strong evidence which supports evidence-based practice although researchers need to exercise caution when interpreting the results because of methodological constraints. Future research that implements the proposed recommendations will validate and improve blanket wrapping as a standardized accessible intervention as DPT for ASD children worldwide.

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APPENDIX

Appendix A: Teacher Training Protocol

Blanket Wrapping and Deep Pressure Therapy (DPT) for Children with ASD

Training Duration: 2 Days

Day 1: Theory and Practical Demonstration

Day 2: Practical Application, Feedback, and Examination

Target Participants: Teachers working with children with ASD.

Day 1: Theory and Practical Demonstration (4 hours)

1. Introduction to DPT and Its Role in ASD (30 minutes)

Objective: To provide an overview of Deep Pressure Therapy (DPT) and introduce its significance for children with ASD.

Key Points to Cover:

- Introduction to Autism Spectrum Disorder (ASD) and its sensory regulation issues.
- Understanding the importance of sensory regulation for children with ASD and how DPT can support this.
- Brief overview of various forms of DPT, including blanket wrapping, weighted vests, and compression therapy.
- The neurophysiological mechanisms of DPT: How pressure affects the autonomic nervous system, sensory processing, and behavior.
- Benefits of DPT for calming, improving engagement, and enhancing responsiveness in children with ASD.

2. Theoretical Background on Blanket Wrapping and Other DPT Techniques (45 minutes)

Objective: To provide a deeper understanding of how DPT works and how it should be applied to children with ASD.

Key Points to Cover:

Blanket Wrapping: Explanation of how blanket wrapping works as a form of DPT, including its dynamic, enveloping pressure that provides a calming effect.

Other DPT Techniques: Overview of other DPT methods like weighted vests, lap pads, compression garments, and their uses in regulating sensory input.

Importance of consistency and individualized application based on the child's sensory profile.

How DPT fits into broader therapeutic strategies, including sensory integration (SI).

3. Practical Demonstration of Blanket Wrapping and Other DPT (1 hour 15 minutes)

Objective: To demonstrate how to apply blanket wrapping and other DPT techniques effectively.

Key Points to Cover:

- **Demonstration of Blanket Wrapping:** A trainer will demonstrate the correct method for blanket wrapping, showing how to wrap the child's torso and limbs while ensuring safety and comfort.
- **Demonstration of Other DPT Techniques:** Trainers will show how to apply weighted vests, compression garments, and other DPT techniques.
- **Focus on ensuring the comfort and safety of the child during each method,** including proper pressure and duration.

Correct Application:

- How to ensure the pressure is firm but not painful.
- How to adjust pressure based on the child's comfort level.
- Duration of application and appropriate time for wrapping during sessions.

4. Guided Practice with Teacher Participation (1 hour 15 minutes)

Objective: Teachers will practice the techniques themselves under the guidance of the trainers.

Activity:

- Teachers will be given the opportunity to apply blanket wrapping and other DPT techniques on mannequin dolls or with volunteer children.
- Trainers will circulate, providing guidance, feedback, and ensuring proper technique is followed.
- Teachers should focus on comfort, safety, and appropriate pressure. The trainer will provide feedback on how to adjust methods based on real-time observations.

5. Q&A and Clarification (30 minutes)

Objective: To answer any queries and clarify points about the techniques.

Activity:

- Open the floor for questions and discussion about any concerns or challenges teachers might foresee in using DPT techniques.
- Discuss practical concerns such as child resistance, behavioral reactions, and how to manage them.

Day 2: Practical Application, Feedback, and Examination (4 hours)

1. Recap and Introduction to Practical Application (30 minutes)

Objective: To refresh participants on key points from Day 1 and set the stage for practical application.

Activity:

- Quick recap of the key concepts and techniques covered on Day 1.
- Discuss the importance of individualizing DPT application for different children with ASD.

2. Supervised Practical Application (1 hour 30 minutes)

Objective: To give teachers a hands-on experience applying DPT techniques in real-time.

Activity:

- Teachers will work in pairs or small groups to apply blanket wrapping and other DPT techniques on children with ASD (with prior parental consent and under supervision).
- Trainers will observe and provide feedback on how well the teachers are applying the techniques, ensuring correct pressure, comfort, and safe practices.
- Teachers should focus on using the correct amount of pressure, paying attention to the child's comfort level, and adjusting the technique accordingly.

3. Group Feedback and Discussion (1 hour)

Objective: To provide feedback on the practical application and address challenges encountered.

Activity:

- Teachers will share their experiences, challenges, and how they applied the techniques during the practice session.
- Trainers will provide specific feedback on each teacher's approach, offering suggestions for improvement.

- Discussion on how to manage potential difficulties such as children resisting DPT or becoming overstimulated.

4. Examination (30 minutes)

Objective: To assess teachers' understanding of the techniques and ensure they are equipped to use them in their classrooms.

Activity:

Teachers will complete a short-written exam covering:

- The theoretical background of DPT.
- The correct application methods for blanket wrapping and other DPT techniques.
- Behavioral signs to observe in children to gauge the success of the intervention.
- Safety precautions when applying DPT.
- A practical test where teachers demonstrate blanket wrapping or other DPT techniques on a volunteer child or mannequin.

5. Final Q&A and Reflection (30 minutes)

Objective: To address any remaining questions and reflect on the training.

Activity:

- Open the floor for final questions and clarifications Discuss how teachers will implement what they've learned and how to monitor the child's response to DPT in their classrooms.
- Provide encouragement and support, ensuring teachers feel confident applying DPT techniques with their students.

6. Certification of Completion: Teachers who complete the training and pass the exam will receive a Certificate of Completion to signify their readiness to apply blanket wrapping and other DPT techniques in their classrooms.

Appendix B: Attendance Sheet of Teacher's training

Training on Deep Pressure Therapy (DPT) Application

Organized by: Society for Autism and Neurodevelopmental Disorder (SAND)

Date of Training: 7/06/2025

Location: SNAD-1, Sector-12, Uttara, Dhaka

Attendance Sheet					
Training on Deep Pressure Therapy (DPT) Application					
Organized by: Society for Autism and Neurodevelopmental Disorder (SAND)					
Date of Training: 7/06/2025					
Location: SNAD-1, Sector-12, Uttara, Dhaka					
S. N.	Name of Teacher	Designation	School/ Institution Name	Signature	Contact Information
1	Sukriya Parvin	Teacher	SAND	Shes	0131615012
2	Sumaiya	Teacher	SAND	Sumaiya	01748-711352
3	Nilutaz yesmin	Teacher	SAND	Nilutaz	0173781074
4	Lamisa Akter	Teacher	SAND	Lamisa	0184166180
5	Sheuli Akter	Teacher	SAND	sheuli	0162161245
6	Fulbaru	Teacher	SAND	Fulbaru	01872170004
7	Farchana Akter Nadiya	Teacher	SAND	Nadia	0192612278
8	Rupa Akter	Teacher	SAND	Rupa	0182851092
9	Kazi Rumana Afroz Tuli	Teacher	SAND	Kazi	0170910078
10	Fatema Akter	Teacher	SAND	Fatema	016171742
11	Reashma	Teacher	SAND	Reashma	0170118863
12	Suriya Akter Bonna	Teacher	SAND	Bonna	0170618876
13	Moushumi Akter	Teacher	SAND	Moushumi	01894121591

S. N.	Name of Teacher	Designation	School/ Institution Name	Signature	Contact Information
14	SHIRISH AKTER	Teacher	SAND	SHIRISHAKTER	01444 7 10
15	Md. Masud Rana	Teacher	SAND	Masud	0100 9 2081
16	Milibala	Teacher	SAND	Milibala	0188 8 3405
17	Shaon	Teacher	SAND	Shaon	0140 7 70261
18	Gionita Triputra	Teacher	SAND	Gionita	01835 18 252
19	Sayma Akter Srity	Teacher	SAND	Sayma	016310 835
20	Sharun Sultana Rupa	Teacher	SAND	Rupa	01858 35 64
21	Ayesha Akter	Teacher	SAND	Ayesha	01612 7 013
22	Sultana Zaman	Teacher	SAND	Zaman	01815 7 005
23	Rowshon Ara	Teacher	SAND	Rowshon	0183 5 25036
24					
25					

Signature of Trainer: Md. Aminul Hoque Chowdhury
Occupational Therapist and
MOT student (Part II), BHPI, DU.

Signature of SAND authority: Merina Parveen
Secretary and In-charge
SAND

Appendix C: Parental Informed Consent and Child Information Form

Study Title: Outcome of a Structured Blanket Wrapping Protocol as Deep Pressure Therapy for Children with Autism Spectrum Disorder in Bangladesh: A Quasi-Experimental Study

Principal Investigator: Md. Aminul Hoque Chowdhury, Occupational Therapist and Student of Masters in Occupational Therapy (Part II), University of Dhaka.

Introduction and Purpose:

You are invited to allow your child to participate in a research study. This study is being conducted to understand the effectiveness of different deep pressure techniques for children with autism spectrum disorder (ASD). Deep pressure therapy is a sensory-based intervention that uses firm, gentle pressure to help calm the nervous system. The aim is to see if a specific technique, blanket wrapping, is helpful in reducing hyperactivity and

tantrums and improving calmness and engagement in school activities, compared to other common methods like weighted vests or deep touch.

Your child is eligible to participate because they are a student at this school and are within the age range for this study.

Study Procedures:

If you agree for your child to participate, the following will happen:

1. Group Assignment: You will be asked to choose one of the following options for your child:

Option A: Experimental Group (Blanket Wrapping)

Option B: Control Group (Other Deep Pressure Methods): This includes techniques like wearing a weighted vest, deep brushing with a special therapressure brush, or deep hugs and rubs by hand.

Option C: Refusal to Participate: Your child will not be part of the study and will continue with their regular school routine.

2. Assessments: Whether in Group A or B, your child will be assessed by the school's occupational therapists and teacher supervisors before and during the study. This involves:

Goal Attainment Scaling (GAS): The occupational therapist will set some simple, individual goals with you and the teacher (e.g., will sit for 5 minutes during circle time) and will rate your child's performance twice—once at the start and once after a few weeks.

Visual Analogue Scale (VAS): Teacher supervisors will observe your child for a few minutes at the start and end of each school day for one month, rating their calmness, engagement, and happiness on a simple scale. This will take only 5-10 minutes each time.

3. Intervention: The intervention will be carried out by your child's teacher during their normal school day for one month.

If in Group A (Blanket Wrapping), the teacher will snugly wrap your child in a soft blanket while they lie down, for 5-15 minutes per session.

If in Group B (Other Methods), the teacher will use one of the other deep pressure techniques (weighted vest, brushing, etc.) for 5-15 minutes per session.

Potential Risks and Discomforts:

The deep pressure techniques used in this study are considered safe and are commonly used in occupational therapy in Bangladesh. Some children might feel temporary discomfort or resistance to being touched or wrapped. The teachers are trained to watch for signs of distress and will stop immediately if your child seems upset or uncomfortable. Your child's well-being and comfort are the most important priorities.

Potential Benefits:

Your child may benefit from the calming effects of deep pressure, which could lead to reduced hyperactivity and tantrums, and improved focus and participation in school. The findings from this study may help improve therapy services for children with ASD in Bangladesh by providing evidence for simple, effective techniques.

Confidentiality:

Any information obtained from this study that can be identified with your child will remain confidential. Your child's name will not be used in any reports or publications. All data will be stored securely and accessed only by the research team. The background information collected below will be used only for data analysis to better understand the study results.

Voluntary Participation:

Your decision to allow your child to participate is entirely voluntary. You are free to choose any of the three options (Group A, B, or C). If you agree to participate, you are free to withdraw your child from the study at any time, without giving any reason and without any penalty or loss of benefits to which your child is otherwise entitled.

Contacts for Questions:

If you have any questions about the research, you may contact:

Md. Aminul Hoque Chowdhury

Mobile: +8801717552995

Email: mayonhoque@gmail.com

If you have questions about your rights as a research participant, you may contact [Merina Pervin, In-charged, SAND, Uttara and Contact Information].

Part 1: Child's Background Information

(This information is essential for the research analysis and will be kept strictly confidential)

1. Child's Name: _____
2. Age: _____ Years _____ Months
3. Sex: ☐ Male ☐ Female
4. Primary Diagnosis: _____ (e.g., Autism Spectrum Disorder)
5. Does your child have any other medical or developmental conditions?

6. How does your child primarily communicate?
 - ☐ Verbal (Uses words and sentences to communicate)
 - ☐ Non-Verbal (Uses gestures, pictures, sounds, or other means to communicate)
 - ☐ Limited Verbal (Uses some single words or short phrases)

Part 2: Statement of Consent and Preference

By signing below, you confirm that you have read and understood the information above, have had your questions answered, and are making a voluntary decision about your child's participation.

Please select ONE of the following options by checking the box:

☐ Option A: EXPERIMENTAL GROUP

I consent for my child to participate in the Blanket Wrapping group.

☐ Option B: CONTROL GROUP

I consent for my child to participate in the other Deep Pressure Methods group (weighted vest, brushing, etc.).

☐ Option C: REFUSAL

I do not consent for my child to participate in this research study.

Name of Parent/Legal Guardian: _____

Signature of Parent/Legal Guardian: _____

Date: _____

Code No: 107

অভিভাবকের সম্মতি ফর্ম এবং শিশুর তথ্য

গবেষণার শিরোনাম: বাংলাদেশে অটিজম স্পেকট্রাম ডিসঅর্ডারে আক্রান্ত শিশুদের উপর গভীর চাপ থেরাপি হিসেবে কাঠামোগত কন্ট্রল পের্চিয়ে দেওয়ার প্রভাব: একটি প্রাক-পরীক্ষামূলক গবেষণা

গবেষক: মো: আমিনুল হক চৌধুরী, অকুপেশনাল থেরাপিস্ট এবং মাস্টার্স ইন অকুপেশনাল থেরাপি (২য় পর্ব)-
এর শিক্ষার্থী, ঢাকা বিশ্ববিদ্যালয়।

ভূমিকা ও উদ্দেশ্য:

আপনার সন্তানকে একটি গবেষণা প্রকল্পে অংশগ্রহণের জন্য আমন্ত্রণ জানানো হচ্ছে। অটিজম স্পেকট্রাম ডিসঅর্ডার (ASD) এ আক্রান্ত শিশুদের জন্য বিভিন্ন গভীর চাপ (ডিপ প্রেশার) পদ্ধতির কার্যকারিতা বোঝার জন্য এই গবেষণাটি পরিচালিত হচ্ছে। গভীর চাপ থেরাপি হল একটি সেন্সরি-ভিত্তিক হস্তক্ষেপ যা স্নায়ুতন্ত্রকে শান্ত করতে দুট, মৃদু চাপ প্রয়োগ করে। এই গবেষণার লক্ষ্য হল একটি নির্দিষ্ট কৌশল, যেমন কন্ট্রল পের্চিয়ে দেওয়া, হাইপারএকটিভিটি (অতিসক্রিয়তা) এবং ট্যানটাম (জিদ/রাগ) কমাতে এবং স্কুলের কার্যক্রমে শান্তি ও সম্পৃক্ততা বাড়াতে ওজনযুক্ত জ্যাকেট বা গভীর স্পর্শের মতো অন্যান্য সাধারণ পদ্ধতির তুলনায় কতটা সহায়ক তা দেখা।

আপনার সন্তান এই স্কুলের একজন শিক্ষার্থী এবং এই গবেষণার বয়সসীমার মধ্যে থাকায়, তিনি এতে অংশ নেওয়ার জন্য যোগ্য।

গবেষণা পদ্ধতি:

আপনি যদি আপনার সন্তানের অংশগ্রহণে সম্মতি দেন, তাহলে নিম্নলিখিত বিষয়গুলি ঘটবে:

১. **গ্রুপ বরাদ্দ:** আপনাকে আপনার সন্তানের জন্য নিচের তিনটি বিকল্পের যেকোনো একটি বেছে নিতে বলা হবে:

বিকল্প ক: পরীক্ষামূলক গ্রুপ (কন্ট্রল পের্চিয়ে দেওয়া)

বিকল্প খ: নিয়ন্ত্রণ গ্রুপ (গভীর চাপের অন্যান্য পদ্ধতি): এতে রয়েছে ওজনযুক্ত জ্যাকেট পরানো, বিশেষ থেরাপ্রেশার ব্রাশ দিয়ে ব্রাশ করা, বা হাত দিয়ে গভীর আলিঙ্গন ও মালিশ করার মতো কৌশল।

বিকল্প গ: অংশগ্রহণে অস্বীকৃতি: আপনার সন্তান এই গবেষণার অংশ হবেন না এবং তিনি তার নিয়মিত স্কুলের রুটিন অনুসরণ করবেন।

২. মূল্যায়ন: আপনার সন্তান বিকল্প 'ক' বা 'খ' যেকোনোটিতেই থাকুন না কেন, তাকে স্কুলের অকুপেশনাল থেরাপিস্ট এবং শিক্ষক সুপারভাইজারদের দ্বারা গবেষণা শুরুর আগে এবং চলাকালীন মূল্যায়ন করা হবে। এতে রয়েছে:

লক্ষ্য অর্জন স্কেল (GAS): অকুপেশনাল থেরাপিস্ট আপনাকে এবং শিক্ষককে নিয়ে কিছু সহজ, ব্যক্তিগত লক্ষ্য নির্ধারণ করবেন (উদাহরণস্বরূপ, "মার্কেল টাইমে ৫ মিনিট বসবে") এবং গবেষণা শুরুর সময় এবং কয়েক সপ্তাহ পরে দুইবার আপনার সন্তানের পারফরম্যান্স মূল্যায়ন করবেন।

ভিত্তিমূল্য অ্যানালগ স্কেল (VAS): শিক্ষক সুপারভাইজাররা এক মাস ধরে প্রতিদিন স্কুল শুরুর সময় এবং বাড়ি যাওয়ার আগে কয়েক মিনিটের জন্য আপনার সন্তানের শান্তি, সম্পৃক্ততা এবং খুশি একটি সহজ স্কেলে মূল্যায়ন করবেন। প্রতিবার এতে মাত্র ৫-১০ মিনিট সময় লাগবে।

৩. **হস্তক্ষেপ:** এই হস্তক্ষেপটি এক মাস ধরে আপনার সন্তানের নিয়মিত স্কুলের দিনের সময় তার শিক্ষক দ্বারা পরিচালিত হবে।

যদি বিকল্প 'ক' (কম্বল পেঁচিয়ে দেওয়া) -এ থাকেন, তাহলে শিক্ষক একটি নরম কম্বল দিয়ে আপনার সন্তানকে শুয়ে থাকা অবস্থায় জড়িয়ে ধরবেন, সেশন প্রতি ৫-১৫ মিনিটের জন্য।

যদি বিকল্প 'খ' (অন্যান্য পদ্ধতি) -এ থাকেন, তাহলে শিক্ষক গভীর চাপের অন্যান্য কৌশল (ওজনযুক্ত জ্যাকেট, ব্রাশিং ইত্যাদি) ব্যবহার করবেন, সেশন প্রতি ৫-১৫ মিনিটের জন্য।

সম্ভাব্য ঝুঁকি ও অস্বস্তি:

এই গবেষণায় ব্যবহৃত গভীর চাপের কৌশলগুলি নিরাপদ বলে বিবেচিত হয় এবং বাংলাদেশে অকুপেশনাল থেরাপিতে সাধারণভাবে ব্যবহৃত হয়। কিছু শিশু সাময়িক অস্বস্তি বা স্পর্শ/জড়ানো প্রতিরোধ করতে পারে। শিক্ষকরা সন্তানের কষ্টের লক্ষণ দেখতে পেলে সাথে সাথে থেমে যাবেন - এ বিষয়ে প্রশিক্ষিত। আপনার সন্তানের মঙ্গল ও আরামই সর্বাধিক গুরুত্বপূর্ণ অগ্রাধিকার।

সম্ভাব্য সুবিধা:

আপনার সন্তান গভীর চাপের শান্ত প্রভাব থেকে উপকৃত হতে পারেন, যার ফলে হাইপারএকটিভিটি ও ট্যানট্রাম কমতে পারে এবং স্কুলে ফোকাস ও অংশগ্রহণ বাড়তে পারে।

এই গবেষণার ফলাফল বাংলাদেশে ASD আক্রান্ত শিশুদের জন্য থেরাপি সেবার উন্নতিতে সহায়তা করতে পারে, কারণ এটি সহজ ও কার্যকর কৌশলের প্রমাণ সরবরাহ করবে।

গোপনীয়তা:

এই গবেষণা থেকে প্রাপ্ত আপনার সন্তানের সাথে সনাক্তযোগ্য কোনও তথ্য গোপন রাখা হবে। আপনার সন্তানের নাম কোনও রিপোর্ট বা প্রকাশনায় ব্যবহার করা হবে না। সমস্ত ডেটা সুরক্ষিতভাবে সংরক্ষণ করা হবে এবং

শুধুমাত্র গবেষণা দল দ্বারা অ্যাক্সেস করা হবে। নিচে সংগ্রহ করা ব্যাকগ্রাউন্ড তথ্য শুধুমাত্র গবেষণার ফলাফল ভালোভাবে বোঝার জন্য ডেটা বিশ্লেষণে ব্যবহার করা হবে।

স্বৈচ্ছিক অংশগ্রহণ:

আপনার সন্তানকে অংশগ্রহণ করানোর সিদ্ধান্ত সম্পূর্ণ স্বৈচ্ছিক। আপনি তিনটি বিকল্পের (ক, খ, বা গ) যেকোনো একটি বেছে নেওয়ার জন্য সম্পূর্ণ স্বাধীন। আপনি যদি অংশগ্রহণে সম্মতি দেন, তাহলে যেকোনো সময়, কোন কারণ দর্শানো ছাড়াই এবং কোন শাস্তি বা সুবিধা হারানো ছাড়াই, আপনার সন্তানকে গবেষণা থেকে সরিয়ে নেওয়ার স্বাধীনতা আপনার রয়েছে।

প্রশ্নের জন্য যোগাযোগ:

গবেষণা সংক্রান্ত আপনার কোন প্রশ্ন থাকলে, আপনি নিচের ব্যক্তির সাথে যোগাযোগ করতে পারেন:

মো: আমিনুল হক চৌধুরী

মোবাইল: +৮৮০১৭১৭৫৫২৯৯৫

ইমেইল: mayonhoquue@gmail.com

একজন গবেষণা অংশগ্রহণকারী হিসেবে আপনার অধিকার সম্পর্কে আপনার কোন প্রশ্ন থাকলে, আপনি যোগাযোগ করতে পারেন [মেরিনা পারভীন, ইনচার্জ, SAND, উত্তরা এবং যোগাযোগের তথ্য]।

১ম অংশ: শিশুর ব্যক্তিগত তথ্য

এই তথ্যগুলো গবেষণার বিশ্লেষণের জন্য অত্যাবশ্যক এবং কঠোরভাবে গোপন রাখা হবে।

১. শিশুর নাম:
২. বয়স: ৫ বছর ২ মাস
৩. লিঙ্গ: ☐ পুরুষ ☒ মহিলা
৪. প্রাথমিক রোগ নির্ণয়: ASD (যেমন: অটিজম স্পেকট্রাম ডিসঅর্ডার)
৫. আপনার সন্তানের অন্য কোন চিকিৎসা বা বিকাশগত সমস্যা আছে কি? না
৬. আপনার সন্তান প্রধানত কীভাবে যোগাযোগ করে?
☐ মৌখিক (যোগাযোগের জন্য শব্দ ও বাক্য ব্যবহার করে)
☒ অ-মৌখিক (যোগাযোগের জন্য অঙ্গভঙ্গি, ছবি, শব্দ উপায় ব্যবহার করে)

☒ সীমিত মৌখিক (কিছু একক শব্দ বা সংক্ষিপ্ত বাক্যাংশ ব্যবহার করে)

২য় অংশ: সম্মতি ও পছন্দের ঘোষণা

নিচে স্বাক্ষর করার মাধ্যমে, আপনি নিশ্চিত করছেন যে আপনি উপরের তথ্য পড়েছেন ও বুঝেছেন, আপনার সকল প্রশ্নের উত্তর পেয়েছেন এবং আপনি আপনার সন্তানের অংশগ্রহণ সম্পর্কে একটি স্বৈচ্ছাধীন সিদ্ধান্ত নিয়েছেন।

দয়া করে নিচের বিকল্পগুলোর যেকোনো একটি বেছে নিন এবং সংশ্লিষ্ট বক্সে টিক চিহ্ন দিন:

☒ বিকল্প ক: পরীক্ষামূলক গ্রুপ

আমি আমার সন্তানকে কন্সল পেরিডে দেওয়া গ্রুপে অংশগ্রহণের জন্য সম্মতি দিচ্ছি।

☐ বিকল্প খ: নিয়ন্ত্রণ গ্রুপ

আমি আমার সন্তানকে গভীর চাপের অন্যান্য পদ্ধতির (ওজনযুক্ত জ্যাকেট, ব্রাশিং ইত্যাদি) গ্রুপে অংশগ্রহণের জন্য সম্মতি দিচ্ছি।

☐ বিকল্প গ: অস্বীকৃতি

আমি আমার সন্তানকে এই গবেষণা প্রকল্পে অংশগ্রহণ করতে সম্মতি দিচ্ছি না।

অভিভাবক/আইনী অভিভাবকের নাম (অক্ষরে): উজ্জ্বলা কান্ত

অভিভাবক/আইনী অভিভাবকের স্বাক্ষর: Ayesha

তারিখ: 1 18.06.25

Appendix D: Appointment Letter for Teachers on study



সোসাইটি ফর অটিজম এন্ড নিউরোডেভলপমেন্ট ডিজঅর্ডার (স্যান্ড)
Society For Autism And Neurodevelopment Disorder (Sand)
 Registration of SWD : D-09910
 ঠিকানা: বাসা ৬৬, রোড ০১, সেক্টর ১২, উত্তরা, ঢাকা-১২৩০ মোবাইল ০১৬১১৭৫৪৫০৮, ০১৭১৭৫৫২৯৯৫, Web: www.sandautism.com

Appointment Letter for Teachers on study

Address: House 66, Road 1, Sector 12, Uttara
Phone: 01717552995
Email: mayonhoquue@gmail.com
Website: www.sandautism.com

Date: 01/06/2025

Subject: Appointment Letter for Participation in Study as a Volunteer

Dear Fulbanu

We are pleased to inform you that you have been selected to participate in our study titled **“Outcome of Blanket Wrapping as DPT for Children with ASD in Bangladesh”**, organized by the Society for Autism and Neurodevelopmental Disorder (SAND). The study aims to assess the effectiveness of Deep Pressure Therapy (DPT), specifically focusing on structured blanket wrapping, for children with Autism Spectrum Disorder (ASD).

As part of the study, your role as a volunteer will involve:

- 1. Training Participation:** Attending a 2-day workshop on the application of blanket wrapping and DPT techniques.
- 2. Application of Blanket Wrapping:** Applying the learned techniques during sessions with children diagnosed with ASD under the supervision of our trained professionals.
- 3. Feedback and Reporting:** Providing feedback and reporting observations after each session.

Your Commitment:

- Participate actively in the training sessions on [insert training dates].
- Apply the techniques during the study period (dates: [insert start date] to [insert end date]).
- Provide honest feedback and ensure proper documentation of the applied methods.

Study Details:

- **Study Title:** “Outcome of Blanket Wrapping as DPT for Children with ASD in Bangladesh”
- **Duration:** 1 month


সোসাইটি ফর অটিজম এন্ড নিউরোডেভলপমেন্ট ডিজঅর্ডার (স্যান্ড)
Society For Autism And Neurodevelopment Disorder (Sand)
 Registration of SWD : D-09910
 ঠিকানা: বাসা ৬৬, রোড-০১/০২, বৈষ্ণব-১২, উত্তরা, ঢাকা-১২৩০ মোবাইল: ০১৬১১৭৫৪৫০৮, ০১৭১৭৫৫২৯৯৫, Web: www.sandautism.com

Start Date: 22/06/2025
 • End Date: 22/07/2025
 • Location: SAND, Uttara

Compensation:

As this is a volunteer-based study, no financial compensation is provided. However, your participation will contribute significantly to the advancement of knowledge in the field of autism interventions and will help enhance the quality of life for children with ASD.

Agreement:

By signing this letter, you agree to participate as a volunteer in the study and follow the outlined responsibilities. Please note that participation in this study is voluntary, and you may withdraw at any time.

We appreciate your willingness to volunteer for this important study. Your involvement is crucial for its success, and we believe your contribution will make a meaningful difference in the lives of children with ASD.

If you agree to participate, kindly sign below as an acknowledgment of your commitment.

Participant's Acknowledgment and Signature

I, **Fulbanu**, hereby agree to participate as a volunteer in the study titled **"Outcome of Blanket Wrapping as DPT for Children with ASD in Bangladesh"** conducted by the Society for Autism and Neurodevelopmental Disorder (SAND). I understand my responsibilities and the voluntary nature of my participation.

Signature: Fulbanu
 Date: 01.06.2025

Please return the signed copy to confirm your participation. Should you have any questions or require further clarification, do not hesitate to contact us.

Thank you for your time and dedication to this important cause.

Sincerely, Aminul
Md. Aminul Hoque Chowdhury
Trainer
 Society for Autism and Neurodevelopmental Disorder (SAND)
 Student of MSc in Occupational Therapy (Part 2), University of Dhaka

Merina parvin.
 01.06.25
Merina Parvin
 Incharge
 Society For Autism and
 Neurodevelopmental Disorder

Appendix E: Agreement Letter for Teacher Supervisors for Data Collection



সোসাইটি ফর অটিজম এন্ড নিউরোডেভলপমেন্ট ডিজঅর্ডার (স্যান্ড)
Society For Autism And Neurodevelopment Disorder (Sand)
 Registration of SWD : D-09910
 ঠিকানা: বাসা ৬৬, রোড ০১, সেক্টর ১২, উত্তরা, ঢাকা-১২৩০ মোবাইল: ০১৬১১৭৫৪৫০৮, ০১৭১৭৫৫২৯৯৫, Web: www.sandautism.com

Address: House 66, Road 1, Sector 12, Uttara
Phone: 01717552995
Email: mayonhoquue@gmail.com
Website: www.sandautism.com

Date: 01/06/2025

Subject: Appointment Letter for Data Collection in Study as a Volunteer

Dear Arzina Akter

We are excited to invite you to participate in the data collection process for the study titled **“Outcome of Blanket Wrapping as Deep Pressure Therapy for Children with Autism Spectrum Disorder (ASD): A Quazi-Experimental Study.”** Your role as a **Teacher Supervisor** will be critical in ensuring the success of this project, and we appreciate your involvement.

This letter outlines the agreement between Society for Autism and Neurodevelopmental Disorder and you as a Teacher Supervisor, volunteering to assist in the data collection using the Visual Analogue Scale (VAS) during the course of the study.

Purpose of the Study:

This study aims to evaluate the efficacy of Deep Pressure Therapy (DPT) for children with Autism Spectrum Disorder (ASD). Data collected from the **VAS Scale** will help measure immediate behavioral states and assess changes in calmness, engagement, responsiveness, happiness, and communication before and after the intervention.

Scope of Participation:

1. **Role and Responsibilities:**

- As a Teacher Supervisor, your role will involve overseeing the use of the VAS scale for measuring the children’s behavioral changes during therapy sessions.
- You will assist in the accurate collection of VAS data, which involves observing students’ emotional and behavioral states, recording them accurately, and reporting the results as required by the study.



সোসাইটি ফর অটিজম এন্ড নিউরোডেভলপমেন্ট ডিজঅর্ডার (স্যান্ড) Society For Autism And Neurodevelopment Disorder (Sand)

Registration of SWD : D-09910

ঠিকানা: বাসা-১৬, রোড-০১, সেক্টর-১১, উত্তরা, ঢাকা-১২১০, মোবাইল: ০১৬১১৭৪৪০৮, ০১৬১১০০২৯৮৬, Web: www.sandautism.com

The training will consist of theoretical knowledge, practical demonstrations, and a feedback session to ensure all supervisors are confident and consistent in applying the VAS scale.

2. Training:

The training session will be held on 10/7/2025, and it will cover the following:

- An overview of the VAS scale and how it is used to assess immediate behavioral states.
- Practical demonstrations of how to use the VAS scale for assessing children during the intervention.
- Practice and feedback session to ensure you are comfortable with the process and able to collect the data correctly.

3. Time Commitment:

- Your commitment will be approximately 10 hours per week during the 20th July to 20th August 2025.
- You will be required to participate in the data collection process, which includes filling out the VAS scale assessments and reporting results at the end of each session.

4. Confidentiality:

- You are required to maintain the confidentiality of all data collected during the study.
- Any information regarding the children, their behavior, and their progress must be treated with confidentiality and used solely for the purpose of this research.

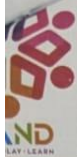
5. Volunteer Status:

- Your participation in this study is completely voluntary. There will be no monetary compensation for your participation, but you will receive a certificate of participation upon completion of the study to recognize your valuable contribution.
- You may withdraw from the study at any time without any negative repercussions.

Acknowledgment and Consent:

By signing this agreement, you acknowledge and consent to the following:

- You understand the nature of the study and the time commitment required.



সোসাইটি ফর অটিজম এন্ড নিউরোডেভলপমেন্ট ডিজঅর্ডার (স্যান্ড)

Society For Autism And Neurodevelopment Disorder (Sand)

Registration of SWD : D-09910

- You agree to attend the VAS scale training and follow the protocols outlined for data collection.
- You agree to maintain the confidentiality of all collected data and adhere to the ethical standards of the study.
- You understand that you can withdraw from the study at any time without any consequences.

Agreement:

I, **Arzina Akter**, acknowledge and accept the terms outlined above for my voluntary participation in the study titled **"Outcome of Blanket Wrapping as Deep Pressure Therapy for Children with ASD: A Quazi-Experimental Study."**

By signing below, I agree to assist in data collection using the VAS Scale and to follow the protocols set forth by the research team for consistent and accurate data collection.

Signature of Teacher Supervisor: _____

Date: 01.06.2025

Signature of SAND Authority: _____

Merina parvin
1.6.25

Name of In-charge: Merina Parveen

Designation: Secretary

Organization: SAND

Merina Parvin
Incharge
Society For Autism and
Neurodevelopmental Disorder

Thank you for your time and dedication to this important cause.

Sincerely,

Md. Aminul Hoque Chowdhury

Investigator

Student of MSc in Occupational Therapy (Part 2), University of Dhaka

Appendix F: Appointment Letter for Occupational Therapist for Data Collection



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01717552995
01611754508
www.sandautism.com

To:

Fayaza Akter
Clinical Occupational Therapist
SAND-3, House 2, Road 6, Sector 6, Uttara

Dear Fayaza Akter,

We are pleased to invite you to participate in the data collection process for the study titled "Outcome of Blanket Wrapping as Deep Pressure Therapy for Children with Autism Spectrum Disorder (ASD)" as a volunteer Occupational Therapist (OT).

This letter outlines the agreement between you and Society for Autism and Neurodevelopmental Disorder (SAND) to voluntarily participate in the study and assist in the data collection process.

Purpose of the Study:

The study is aimed at assessing the efficacy of blanket wrapping as a Deep Pressure Therapy (DPT) intervention for children with Autism Spectrum Disorder (ASD). The study will involve pre and post-assessment measures to assess the therapeutic impact of blanket wrapping, which includes data collection from various therapy sessions, including behavioral and engagement outcomes.

Role and Responsibilities:

- As a volunteer, your role will involve collecting data for the study by observing and interacting with the children during therapy sessions.
- You will assist in applying therapeutic interventions and ensuring proper documentation of pre and post-assessments, including Goal Attainment Scaling (GAS).
- You are expected to attend training sessions and follow the specified protocols outlined by the project team for consistency and accuracy in data collection.

Training

You will be required to attend a training session with investigator on Goal Attainment Scaling (GAS), which will equip you with the knowledge and tools necessary to assess and



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track the children's progress during the study. The training will be held on 10.06.2025 and will consist of theoretical knowledge, practical demonstrations, and feedback sessions.

Time Commitment

- Your commitment will be approximately 5 hours per week for the duration of the study, which is expected to conduct pre-assessment 14.06.2025-21.06.25 and post assessment 23.7.2025 to 30.07.2025 by using GAS
- You are expected to follow the schedule for data collection and training as provided.

Confidentiality

- You are required to maintain the confidentiality of all data collected during the study.
- Any information about the children, their performance, and their progress must be kept confidential and used only for the purposes of this research.

Volunteer Status

- Please note that your participation is on a voluntary basis. You will not receive any monetary compensation for your participation in this study.
- However, you will receive a certificate of participation upon completion of the study, acknowledging your contribution to the project.

Acknowledgment and Consent:

By signing this agreement, you acknowledge and consent to the following:

- You understand the nature of the study, the expectations of your role, and the time commitment required.
- You agree to abide by all guidelines, protocols, and ethical standards set by the study team.
- You agree to maintain confidentiality and report any issues or concerns related to the study promptly.
- You understand that you can withdraw from the study at any time without any negative consequences or loss of benefits.



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Agreement:

I, Fayaza Akter, acknowledge and accept the terms outlined above for my voluntary participation in the study on Blanket Wrapping as Deep Pressure Therapy for Children with ASD.

By signing below, I agree to participate in the data collection process and uphold the responsibilities and confidentiality requirements outlined in this agreement.

Signature of Occupational Therapist: Fayaza (COT) Date: 05-06-25

Signature of SAND Authority: _____

Merina Parveen,
Secretary

Merina parvin
মেরিনা পারভীন
সাধারণ সম্পাদক
সোসাইটি কর অটিজম এন্ড
নিউরোডেভেলপমেন্ট ডিজঅর্ডার (স্যান্ড)

Signature of Supervisor of Student: _____

Prof. Sk. Moniruzzaman
Professor & Head of the Department,
Department of Occupational Therapy
Bangladesh Health Professions Institute (BHPI)

Society for Autism and Neurodevelopment Disorder (SAND) appreciates your willingness to participate in this important study, and we look forward to your valuable contribution.



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Appendix G: Data Collection form of Goal Attainment Scaling (GAS)

Goal Attainment Scaling (GAS) – শিশুর আচরণ মূল্যায়ন ফর্ম

শিশুর নাম: _____ Code no: _____ তারিখ: _____

Age: _____

Sex: _____

Diagnosis: _____

পর্যবেক্ষকের নাম: _____

GAS স্কেরিং লেভেল ব্যাখ্যা:

স্কোর	বর্ণনা
+2	প্রত্যাশার চেয়ে অনেক ভালো অর্জন
+1	প্রত্যাশার চেয়ে কিছুটা ভালো অর্জন
0	প্রত্যাশিত লক্ষ্য অনুযায়ী অর্জন
-1	প্রত্যাশার চেয়ে কিছুটা কম অর্জন
-2	প্রত্যাশার চেয়ে অনেক কম অর্জন

প্রতিটি বিভাগে শিশুর পারফরম্যান্স লক্ষ্যভিত্তিক মূল্যায়ন করুন এবং উপযুক্ত স্কোর (-2 থেকে +2) প্রদান করুন

মূল্যায়ন তালিকা (GAS টেমপ্লেট):

মূল্যায়নের বিভাগ	লক্ষ্য (Goal Statement)	স্কোর (-2 to +2) মন্তব্য (যদি থাকে)
১. শান্ত্যাব (Calmness)	শিশু পর্যবেক্ষককালীন শান্ত থাকবে (উদাহরণ: সে ক্লাসে চুপচাপ ছিল)	
২. কার্যকলাপে অংশগ্রহণ (Engagement)	শিশু সক্রিয়ভাবে কার্যকলাপে অংশগ্রহণ করবে (উদাহরণ: সে প্রদত্ত কাজে সক্রিয়ভাবে অংশগ্রহণ করেছে)	
৩. সাড়া দেওয়া (Responsiveness)	শিশু নির্দেশনা বা উদ্দীপনায় যথাযথভাবে সাড়া দেবে (উদাহরণ: সে প্রদত্ত আদেশগুলোর প্রতি দ্রুত সাড়া দিয়েছে)	
৪. আনন্দ বা সুখ প্রকাশ (Happiness)	শিশু আনন্দ বা খুশির প্রকাশ করবে (উদাহরণ: সে ক্লাসে খুশি ছিল)	
৫. যোগাযোগক্ষমতা (Communicativeness)	শিশু মৌখিক বা অমৌখিক উপায়ে যোগাযোগ করবে (উদাহরণ: সে তার প্রয়োজনীয়তা মৌখিক বা অমৌখিকভাবে প্রকাশ করেছে)	

মোট স্কোর: _____

পর্যবেক্ষকের স্বাক্ষর: _____

Appendix H: Data Collection form of Visual Analog Scale (VAS)

শিশুর আচরণ মূল্যায়ন ফর্ম (১০-পয়েন্ট স্কেল: ০-১০) (VAS)

শিশুর নাম: _____ Code no: _____

তারিখ: _____

পর্যবেক্ষকের নাম: _____

নির্দেশনা:

প্রতিটি বিভাগের জন্য উপযুক্ত সংখ্যায় একটি "✓" চিহ্ন দিন যা শিশুর আচরণকে সবচেয়ে ভালোভাবে উপস্থাপন করে।

- ০ = সবচেয়ে অনুকূল আচরণ (যেমন: খুব শান্ত, খুব অংশগ্রহণমূলক)
- ১০ = সবচেয়ে অপ্রত্যাশিত আচরণ (যেমন: একদম শান্ত নয়, অংশগ্রহণ করছে না)

ক) শিশুর শান্ত্যাব মূল্যায়ন করুন

০ = একেবারে শান্ত ১০ = একদমই শান্ত নয়

০ ☐ ১ ☐ ২ ☐ ৩ ☐ ৪ ☐ ৫ ☐ ৬ ☐ ৭ ☐ ৮ ☐ ৯ ☐ ১০ ☐

খ) কার্যকলাপে অংশগ্রহণ মূল্যায়ন করুন

০ = খুব অংশগ্রহণমূলক ১০ = একদম অংশগ্রহণ করছে না

০ ☐ ১ ☐ ২ ☐ ৩ ☐ ৪ ☐ ৫ ☐ ৬ ☐ ৭ ☐ ৮ ☐ ৯ ☐ ১০ ☐

গ) নির্দেশনা বা পরিবেশের উদ্দীপনায় সাড়া দেওয়া

০ = খুব সাড়া দিচ্ছে ১০ = একদমই সাড়া দিচ্ছে না

০ ☐ ১ ☐ ২ ☐ ৩ ☐ ৪ ☐ ৫ ☐ ৬ ☐ ৭ ☐ ৮ ☐ ৯ ☐ ১০ ☐

ঘ) শিশুর আনন্দ বা সুখ মূল্যায়ন করুন

০ = খুব খুশি ১০ = একদম খুশি নয়

০ ☐ ১ ☐ ২ ☐ ৩ ☐ ৪ ☐ ৫ ☐ ৬ ☐ ৭ ☐ ৮ ☐ ৯ ☐ ১০ ☐

ঙ) শিশুর যোগাযোগক্ষমতা মূল্যায়ন করুন

০ = খুব বেশি যোগাযোগ করছে ১০ = একদমই যোগাযোগ করছে না

০ ☐ ১ ☐ ২ ☐ ৩ ☐ ৪ ☐ ৫ ☐ ৬ ☐ ৭ ☐ ৮ ☐ ৯ ☐ ১০ ☐

Appendix I: Approval of Thesis Paper from IRB, BHPI, CRP



বাংলাদেশ হেলথ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই) Bangladesh Health Professions Institute (BHPI) (The Academic Institute of CRP)

Ref:

CRP-BHPI/IRB/05/2025/1076

Date:

15.05.2025

To
Md. Aminul Hoque Chowdhury
M.Sc. in Occupational Therapy, Part-II
Roll: 01, Student ID: 121230021
BHPI, CRP, Savar, Dhaka-1343

Subject: Approval of the thesis proposal "Outcome of blanket rapping as deep pressure with young children with Autism Spectrum Disorder" by ethics committee.

Dear Md. Aminul Hoque Chowdhury,
Congratulations.

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, as the principal investigator and Prof. S K Moniruzzaman, Head of the Department, Department of Occupational Therapy, Bangladesh Health Professions Institute (BHPI) as thesis supervisor. The Following documents have been reviewed and approved:

Sl. No.	Name of the Documents
1	Research Proposal
2	Questionnaire (English & / or Bengali version)
3	Information sheet & consent form.

The purpose of the study is to evaluate effectiveness of blanket rapping as a method of deep pressure with the young children with Autism Spectrum Disorder. The study involves use of visual analog scale (VAS) and goal attainment scale (GAS) to find out impact of blanket rapping on children's behavior, that may take 10 to 15 minutes to answer the questionnaire and there is no likelihood of any harm to the participants and participation in the study may benefit the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 09:00 AM on 13/04/ 2025 at BHPI (48th IRB Meeting).

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain
Muhammad Millat Hossain
Associate Professor and Course Coordinator, MRS
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ। ফোন: +৮৮ ০২ ২২৪৪৪৫৪৬৪-৫, +৮৮ ০২ ২২৪৪৪১৪০৪, মোবাইল: +৮৮ ০১৭৩০ ০৫৯৬৪৭
CRP-Chapain, Savar, Dhaka-1343, Bangladesh. Tel: +88 02 224445464-5, +88 02 224441404, Mobile: +88 01730059647
E-mail : principal-bhpi@crp-bangladesh.org, Web: bhpi.edu.bd

Appendix J: Approval of Data Collection from SAND, Uttara, Dhaka



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To
Prof. Sk. Moniruzzaman
Professor & Head of the Department
Department of Occupational Therapy
Bangladesh Health Professions Institute (BHPI)
CRP-Chapain, Savar, Dhaka-1343

Date: 06 May 2025

Subject: Acceptance of Data Collection Request at SAND

Dear Prof. Moniruzzaman,

Greetings from the Society for Autism and Neurodevelopment Disorder (SAND). With reference to your letter dated 03 May 2025, we are pleased to inform you that SAND grants permission to your Master of Science in Occupational Therapy student, Md. Aminul Hoque Chowdhury, to conduct data collection at our organization as part of his dissertation titled "Outcome of Blanket Wrapping as Deep Pressure with Children with ASD", scheduled from 15 May 2025 to 30 July 2025.

We would like to assure you that SAND will provide all necessary logistic and organizational support to facilitate smooth data collection and coordination during the mentioned period. Our staff members will extend their full cooperation and assistance throughout the study period.

Please note that SAND will not receive any payment or financial benefit from your student or institution for this research activity. All the support extended will be voluntary, as part of our continued commitment to encourage and promote developmental and academic initiatives in the field of Autism and Neurodevelopmental Disorders.

We appreciate your initiative in fostering meaningful research in Occupational Therapy and look forward to contributing to the successful completion of this valuable study.

With best regards,

Sincerely,
Merina Parveen
Secretary
Society for Autism and Neurodevelopment Disorder (SAND)
House 66, Road 1, Sector 12, Uttara, Dhaka, Bangladesh

Merina Parveen
মেরিনা পরবীন
সাধারণ সম্পাদক
সোসাইটি ফর অটিজম এন্ড
নিউরোডেভেলপমেন্ট ডিজঅর্ডার (স্যান্ড)

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