# SPEECH AND LANGUAGE THERAPISTS' PERCEPTION REGARDING PROGNOSTICATION IN AUTISM SPECTRUM DISORDER

By

**Nishat Tasnim Esha**

4th Year, B.Sc. in Speech & Language Therapy Department

Session: 2020-2021

University of Dhaka

Bachelor of Science in Speech & Language Therapy

**Bangladesh Health Professions Institute (BHPI)**

(*The academic institute of CRP*)

**Faculty of Medicine, Affiliated by**

**University of Dhaka**

**[January, 2026]**

# SPEECH AND LANGUAGE THERAPISTS' PERCEPTION REGARDING PROGNOSTICATION IN AUTISM SPECTRUM DISORDER

Research presented to the

Bangladesh Health Professions Institute (BHPI)

(*The academic institute of CRP)*

**By**

**Nishat Tasnim Esha**

**nishat.esha123@gmail.com**

**Supervisor**

Md. Monir Hossain

Lecturer

Department of Speech & Language Therapy

Bangladesh Health Professions Institute (BHPI

**In partial fulfillment of the requirements for the degree of**

**B.Sc. in Speech and Language Therapy**

**[January, 2026]**

# APPROVAL

We certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled "Speech And Language Therapists' Perception Regarding Prognostication In Autism Spectrum Disorder".

By

**Nishat Tasnim Esha**

4th Year B.Sc. in Speech and Language Therapy

**Approved by**

**Signature of Supervisor**

**……..**

**Md. Monir Hossain**

Lecturer, Department of Speech and Language Therapy

CRP, Chapain, Savar, Dhaka-1343, Bangladesh

**Signature of Head of Department**

**……..**

**Md. Sazzad Hossain**

Assistant Professor & Head

Department of Speech and Language Therapy

CRP, Chapain, Savar, Dhaka-1343, Bangladesh

# DECLARATION

The research study "Speech And Language Therapists' Perception Regarding Prognostication In Autism Spectrum Disorder" is my original work undertaken under the supervision of Md. Monir Hossain from the Bangladesh Health Professions Institute (BHPI). I declare that this study has not been submitted to any institution or university for the award of any degree or qualification, either in part or in whole. Information, data, and references from all sources have been duly acknowledged and cited to the standards of academic integrity and by the Presentation referencing style APA seventh. This research was conducted using the ethical guidelines of the Institutional Review Board (IRB) of BHPI. The contents of this thesis and any errors or omissions therein are my sole responsibility.

**Signature**

**……**

**Nishat Tasnim Esha**

4th Year B.Sc in Speech & Language Therapy Department

Bangladesh Health Professions Institute (BHPI)

# DEDICATION

The research is dedicated to **my beloved parents and siblings**. They have supported me unconditionally, being patient and supportive through my studies. This is possible through the consistent support, sacrifices, and faith in me by them which have provided me with strength and motivation throughout.

# Table of content

*Table of content* ..... *i*
*List of Annexure* ..... *iii*
*List of Acronym* ..... *iv*
*Acknowledgement* ..... *v*
*Abstract* ..... *vi*
**CHAPTER 1 INTRODUCTION** ..... **1**
1.2 Significance of the Study ..... 5
1.3 Research Question ..... 6
1.4 Objective ..... 6
1.4.1 General Objective ..... 6
1.4.2 Specific Objective ..... 6
1.5 Literature Review ..... 7
1.6 Operational Definition ..... 12
1.6.1 Perception ..... 12
1.6.2 Speech and Language Therapist ..... 12
1.6.3 Prognostication ..... 12
1.6.4 Autism Spectrum Disorder (ASD) ..... 12
**CHAPTER 2 METHODOLOGY** ..... **13**
2.1 Study Design ..... 13
2.2 Sampling ..... 13
2.3 Study Place ..... 13
2.3.1 Study Population ..... 14
2.3.2 Informed Consent ..... 14
2.3.3 Field Test ..... 14
2.3.4 Inclusion Criteria ..... 15
2.3.5 Exclusion Criteria ..... 15
2.3.6 Participant Overview ..... 15
2.4 Data Collection ..... 17
2.4.1 Data collection Instrument ..... 17

2.4.2 Data Collection Method ..... 17
2.4.3 Data Collection Procedure ..... 17
2.4.4 Data Analysis ..... 17
2.4.5 Ethical Consideration ..... 19
2.5 Rigour ..... 19
**CHAPTER 3 RESULT ..... 21**
**CHAPTER 4 DISCUSSION ..... 37**
**CHAPTER 5 LIMITATIONS & RECOMMENDATIONS ..... 43**
**CHAPTER 6 CONCLUSION ..... 45**
**CHAPTER 7 REFERENCE ..... 47**
**ANNEXURE ..... 60**

# List of Annexure


| S.N | Annexure | Topics | Page No. |
|---|---|---|---|
| 1. | Annexure- I (a) | Consent Form (English) | 6o |
| 2. | Annexure- I (b) | Consent Form (Bangla) | 61 |
| 3. | Annexure- II (a) | Self-Developed Questionnaires (English) | 62 |
| 4. | Annexure- II(b) | Self-Developed Questionnaires (Bangla) | 63 |
| 5. | Annexure- III (a) | Approval Later for IRB | 64 |
| 6. | Annexure- III (b) | Permission Letter for Conducting Study | 65 |
| 7. | Annexure- III(c) | Permission Letter for Conducting Study | 66 |

# List of Acronym

| Abbreviation | Elaboration |
|---|---|
| **BHPI** | Bangladesh Health Professions Institute |
| **ASD** | Autism Spectrum Disorder |
| **CAS** | Childhood Apraxia Of Speech |
| **EBP** | Evidence-Based Practice |
| **IRB** | Institutional Review Board |
| **SLT** | Speech and Language Therapy |
| **SLTs** | Speech and Language Therapists |
| **REM** | Racial And Ethnic Minorities |

# Acknowledgement

I would like to take this opportunity to thank all the people who assisted me in completing my research project "Speech and Language Therapists' Perception Regarding Prognostication in Autism Spectrum Disorder".

I would like to thank my supervisor, **Md. Monir Hossain**, Lecturer, Department of Speech and Language Therapy, who helped me with this research project in every way, he advised and guided me throughout the whole project. His knowledge and forbearance have been invaluable. I am highly grateful to my esteemed teacher **Md. Sazzad Hossain**, Assistant Professor and Head of Dept. of SLT, BHPI and the CRP Ethics Committee who authorized the research. I would also like to profoundly express my gratitude to my great mentor, **Nahid Parvez**, Assistant Professor, Department of SLT, whose academic support and counseling contributed considerably to my project and assist me in choosing the topic.

I would like to show my personal gratitude to all the Speech and Language Therapists (SLTs) who generously participated in this study. Their readiness to express their knowledge and experiences made this study possible.

I also wish to acknowledge the **Bangladesh Health Professions Institute (BHPI)** as the source of the tools, scholarly guidance, and supportive environment that helped me conduct this research.

I want to extend my most sincere thanks to my friend, whose support, empathy, and belief in me made this trip possible. Their support has been a great source of my motivation.

Finally, I would like to thank all the people that contributed in any way to making me complete this thesis, however big or small their contribution was. Their support and presence have significantly impacted this work over an extended period of time.

# Abstract

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that is lifelong in nature and whose outcomes are highly variable, making the prognostication a complicated yet important part of the clinical practice. Prognostic judgments inform therapy planning, counseling of the caregivers and management of expectations. In Bangladesh, there is less available evidence on the perceptions and communication of prognostic information by Speech and Language Therapists (SLTs) in ASD.

The purpose of the study was to understand the perceptions, experiences, and challenges of Speech and Language therapists in the context of prognosticating Autism Spectrum Disorder in the healthcare situation of Bangladesh.

The findings shows that clinicians considered prognostication as realistic estimate of improvement of functional improvement but not a cure. Age at intervention, ASD severity, communication and pre-verbal skills, behavioral profile, parental involvement, frequency of therapy, and environmental factors had an influence on prognostic judgments. Counseling became the most useful way of prognostic communication that demanded a balance between honesty and hope. The most significant obstacles were the slowness of diagnosis, inconsistency of home activities, overly high parental expectations, doubtfulness about developmental prognosis, and sociocultural misunderstanding of ASD. An increased clinical experience increased the levels of confidence and moral sensitivity in prognostic decision-making.

The prognostication of ASD in Bangladesh is a dynamic process that is shaped by culture. Evidence-based training and family-centered counseling can be enhanced, and this can enhance prognostic practices and clinical outcomes among children with ASD.

***Keywords:*** *Speech and Language Therapist, Prognostication, Autism Spectrum Disorder, Perceptions, Speech and Language Therapy.*

# CHAPTER 1 INTRODUCTION

## 1.1 Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that presents with diverse symptoms that impact social communication and lead to repetitive behaviors. It typically manifests itself at the age of three and demonstrates extensive clinical and genetic diversity (Safwi, 2023). Among the symptoms, there are limited interests and repetition of behaviors (Yu et al., 2023).

There are statistical estimates of the prevalence of ASD in the world, a systematic review identified approximately 0.6% worldwide (0.4% in Asia and 1.7% in Australia) (Salari et al., 2022). According to another study, the prevalence is about 1% (98 per 10,000), and males are more affected than females (Wang et al., 2022). These statistics highlight the need to implement specific approaches to public health in order to deal with ASD.

ASD impacts on people, families and the society. Individuals with ASD are susceptible to bad childhood experiences, which affects their mental status and brain functionality. The quality of life of parents declines often, dependent on the severity of symptoms and the level of care giving, which impacts their employment, too (Rattaz et al., 2017; Lynch et al., 2022). ASD has a negative impact on social, emotional, and communicative performance, and co-occurring ADHD has the tendency to exacerbate behaviors, but its effect on the social impairment remains uncertain (Harkins et al., 2021).

ASD patients need Speech-Language Therapists (SLTs) to assess, diagnose, treat and support them. They intervene in other levels of intervention, which are at the early diagnosis through the life-long support of the individual. The contribution of SLTs to the resolution of the communication issues of ASD individuals is central in the application of numerous strategies and interventions based on the specific needs of one of the clients. They assess the communication skills and the difference between ASD and other neurodevelopmental disorders, which is fundamental when determining the

appropriate interventions (Hus, 2017). Intervention methods employed by SLTs are numerous and they involve Augmentative and Alternative Communication (AAC) systems so as to accommodate individuals who possess limited or no functional speech. SLTs also collaborate with families, educators and other professionals to assist in the development of enabling environments in which communication and social skills among other qualities are promoted. This teamwork approach is required to eliminate any possible potential of the individual and minimise the communication barriers (Lai et al., 2020).

Prognostication in ASD refers to predicting future trends and trajectories of ASD patients. It is not a simple process since ASD is a heterogeneous disorder, which presents itself in diverse levels of severity and a high number of symptoms. Prognostication is aimed at identifying the factors, which can be applied to predict the developmental pattern and outcomes, which can be involved in intervention and planning. Personal variations of the initial cognitive capabilities and behaviours of social engagement, including pointing and facial expression, have been attributed to the better results of ASD as seen in the long-term follow-up study (Zachor and Ben-Itzchak, 2020). The predictive abilities and processing aspects are different in persons with ASD and it is challenging to develop effective prognostic tools (Cannon et al., 2021).

Clinicians experience the most common impediments in mid-level autism-related symptomatology and verbal equivalents of age and, consequently, a good part of the diagnosis is doubtful (Klaiman et al., 2022). As a result of the lack of consistency in the diagnosis and referrals, the delay in initiating services among children with ASD is experienced in the US. The problem of female assessment of ASD is due to the difference in the manifestations of the disorder in the sex/gender leading to prejudices and affecting diagnostic outcomes (Tsirgiotis et al., 2021).

SLTs perceive multifaceted and complex nature of the process of prognostication of ASD patients depending on a series of situations and factors, including initial developmental milestones, cognitive activities, and certain communication deficiencies. SLTs recognise the importance of early diagnosis and intervention because it is related to better language performance and milder ASD symptoms in the long term (Mouga et al., 2020). The future of the language outcomes in ASD is rather

uncertain, yet SLTs emphasise the opportunities of dynamic testing and person-centred interventions to forecast and improve the results of the spoken language, especially the results of the language of the minimally verbal children (Trembath et al., 2021). Moreover, the international surveys indicate that SLTs adopt effective assessment and intervention practise, yet more support is needed to conduct the work with parents and develop literacy (Gillon et al., 2017). It has been deemed as important that the speech therapy services be included to ensure that the autistic children are overcome in areas, they have problems with social communication and early intervention plays a significant role in ideal development (Wiliyanto, 2025). However, the SLTs are optimistic that the communication ability can be increased with the assistance of targeted therapies since the study has shown that the extent of language acquisition and verbal communication skills is enhanced significantly upon the interventions of speech therapies (Olejnik, 2017). Overall, SLTs believe that prognostication in ASD is the one that must be approached as a dynamic process which must be considered in detail and individual and on the basis of the developmental profiles and needs of a child.

The existing literature on perceptions of speech and language therapists in respect to prognostication in autism spectrum disorder (ASD) demonstrates that there are multiple gaps in terms of the literature that should be addressed in future studies. Although the research on the outcomes of language in children with ASD and the intervention to achieve the intended results is immense as well as the success of augmentative and alternative communication (AAC) interventions (Brignell et al., 2018) there is a paucity of studies on the perceptions and experiences of speech and language therapists (SLTs) in the process of predicting the outcomes. The information on the insights of SLTs who play a crucial role in early identification and intervention is, however, not well documented. In general, the literature indicates that specific studies are required, which would reflect the sophisticated views of SLTs regarding prognostication in ASD, their experiences in clinical practice combined with the empirical data to improve the predictive models and intervention strategies.

The purpose of the study is to investigate how the Speech and Language Therapists (SLTs) perceive the role of prognostication in Autism Spectrum Disorder (ASD). It aims to discover the ways SLTs conceptualize prognostication, factors that shape

prognostic decision-making, and the process of communicating prognosis to the families. Another objective of the study is to discuss the challenges and situational circumstances, which influence the conduct of prognostic practices in clinical settings.

## 1.2 Significance of the Study

This study aims to add more insight into the perception and practice of prognostication in Autism Spectrum Disorder (ASD) by the Speech and Language Therapists (SLTs), which has not been fully investigated in the literature. Although much of the existing literature is concerned with the outcomes of interventions and the process of the diagnosis, little attention is paid to the views of SLTs who are central to predicting language and communication outcomes and planning the therapy. This study contributes to the understanding of the clinical reasoning, challenges, and ethical concerns in prognostication by documenting the experience of SLTs.

The implications of this research are especially crucial to clinical practice as the results of the study reveal the significance of early prognostication in establishing realistic therapy objectives, managing family expectations, and establishing long-term participation in therapy. The insights into the factors that may influence prognostic decision-making can be used as a way to create more organized, transparent, and family-based approaches to ASD intervention.

Also, the research has the implication on professional training and policy development. The awareness of training gaps, lack of resources, and institutional support can be used to inform the curriculum development, long-term professional education, and healthcare planning. The study can inform policy makers and service providers in resources constrained situations to enhance speech and language therapy services. In conclusion, the research will add to evidence-based practice and contribute to better outcomes of children with ASD and their families.

## 1.3 Research Question

What is the perception of Speech and Language Therapists towards prognostication in Autism Spectrum Disorder in Bangladesh healthcare setting?

## 1.4 Objective

### 1.4.1 General Objective

To examine the perspectives, experiences, and challenges of the clinicians regarding prognostication in Autism Spectrum Disorder in the healthcare setup of Bangladesh.

### 1.4.2 Specific Objective

1. To explore the conceptual knowledge of prognostication of clinicians in the case of Autism Spectrum Disorder.
2. To determine and examine the most prominent clinical, developmental, and contextual variables that contribute to the development of prognostic decisions about individuals with ASD.
3. To explore the methods and techniques that clinicians use to deliver prognostic information to patients and their families.
4. To understand the difficulties in prognostic decision-making of Autism Spectrum Disorder with regard to uncertainty and limitations.
5. To explore the effects of professional experience and sociocultural issues on prognostic practices and communication in Bangladesh.

## 1.5 Literature Review

The prognosis of autism spectrum disorder play a vital role in determining the long term prognosis and development of the effective interventions. It entails making projections regarding the developmental path of the individuals diagnosed with ASD which may differ considerably. There are several factors that determine the prognosis of ASD such as early intervention, cognitive functions, and social interaction behaviors. The SLTs can help to offer specific therapies that can enhance communication and social interaction which are pivotal to achieve better results. Prognosis assists in the realization of the possible developmental routes of ASD children. Research shows that although most children with ASD still fit diagnostic criteria at follow-up, there is a disparity in the outcome, some of them do improve greatly in terms of cognitive and adaptive ability (Overview prognosis of preschool autism sp... 2022). Age-related cognitive skills and social interaction, including pointing and joint attention, are prognosticators of improved outcomes. These factors can be detected at an early age, which can be guided by interventions that can potentially modify the developmental course (Zachor and Ben-Itzchak, 2020). Prognosis instructs how to design the individualized intervention plans. Learning the probable outcome of ASD may be useful in posing real goals and expectations of therapy (Baghdadli et al., 2019).

There is frequent involvement of SLTs in early identification and differentiation of ASD with other communication disorders. They apply special devices and tests to determine the level of language and social communication abilities, which are crucial to make proper diagnosis and intervention planning (Hus, 2017). SLTs offer interventions aimed at bringing language and communication skills to enhance. Such interventions will be individual-specific and may have a strong influence on social interactions and the general quality of life (Félix et al., 2022). SLTs collaborate with the families to put in place the measures that help in the development of communication in the real world as witnessed in the home and the school. This cooperation is required to strengthen the skills acquired during therapy (Allen-Meares et al., 2016). Moreover, the efficacy of interventions and the prognosis, in general, may be affected by the cultural factors and the disparities in the access to resources (Ratto & Mesibov, 2015).

Prognosis in ASD is a complicated yet mandatory issue in dealing with the disorder, as it can give an idea about the possible outcome and what interventions may be made. The role of SLTs in the process is crucial since the challenges linked to communication are the main concerns of ASD. Nevertheless, the diversity of the presentations of ASD and the necessity of conducting additional research in this area are signified by the problems that persist in this area.

The role of speech and language therapists (SLTs) is inclusive of early diagnosis to intervention, which is based on the improvement of communicative abilities and the forecasting of future language outcomes. The use of assessment tools and intervention strategies by SLTs is aimed at solving specific problems associated with children with ASD, including disabilities in social communication and speech sound disorders. SLTs have a crucial role in early ASD diagnosis, in which they can be observed working in multidisciplinary teams, detecting children at the age of 3-4 years old (Gillon et al., 2017). SLTs use such tools as the Early Sociocognitive Battery (ESB) to anticipate social communication challenges and ASD diagnoses, and it has high sensitivity and specificity in revealing children at risk (Roy and Chiat, 2019). The production of speech sound is another major predictor of expressive language outcomes, and more studies are required on how childhood apraxia of speech (CAS) is manifested in children with ASD (Beiting, 2022). Studies have shown that early childhood expressive language characteristics like verb diversity and mean length of utterance are robust predictors of the language and communication outcomes in later adulthood in individuals who have experience of ASD (LeGrand et al., 2021). These insights allow SLTs to design interventions that address the improvements of these predictive language qualities, which leads to positive long-term communication outcomes (LeGrand et al., 2021). SLTs also apply such evidence-based interventions as the Pragmatic Intervention Programme (PICP), which proved effective in language competencies of children with ASD (Pereira et al., 2024). The interventions tend to be personal, considering the language shortcomings and requirements of the child in social communication, and provided in the context of school and early childhood settings (Gillon et al., 2017). The dynamic methods of assessment are proposed to be useful in projecting the outcomes

of the spoken language as it should be noted that intervention should be flexible and responsive (Trembath et al., 2021).

In addition to the positive tendencies in the assessment and intervention practices, SLTs encounter several issues, including the engagement of parents in the process of assessment and literacy development of children with ASD (Gillon et al., 2017). In addition, further research is required to ascertain the suitability of the available methods of speech assessment and treatment on the children with ASD, especially those with low verbal ability (Beiting, 2022). Though SLTs play a crucial role in addressing children with ASD, the industry keeps on changing as new assessment and interventions measures are researched and developed. Parent involvement and literacy support are also the areas, which can be improved further. Also, the knowledge of the intersection between language impairments in ASD, specific language impairment, and social communication disorders can help formulate more beneficial interventions (Félix et al., 2022). This holistic strategy involves that SLTs will be able to forecast and enhance the communication outcome of children with ASD in a better way.

Providing prognosis to families of children with Autism Spectrum Disorder (ASD) is a multifaceted aspect that presents a number of ethical challenges that play a paramount role in ensuring the families are informed in a way that is not offensive, confusing, or potentially detrimental. Such considerations are based on the principles of bioethics, such as the respect to autonomy, beneficence, non-maleficence, and justice. The nature of ASD, its variability regarding expression and prognosis complicates the process of communicating prognostic information, in particular. In many cases, parents are the decision-making body in matters concerning their children with ASD. Their autonomy should be respected by giving them full and clear knowledge about the state and the prognosis of their child to be able to make informed decisions (Dan, 2018). The clinicians are under the ethical responsibility of telling the truth and in this case, they should consider the need to report the truth and the emotional effects the information will have to the family. Particularly, some parents might ask clinicians not to disclose some information to ensure that a child is not upset, and it is a challenge to balance the desire to comply with the requests of the parents and the duty towards the child (Taub and Macauley, 2023).

The existing studies on the perspectives of Speech-Language Therapists (SLTs) on prognosis in Autism Spectrum Disorder (ASD) have a number of gaps. The main areas of focus of these gaps include the underrepresentation of specific populations, shortage of detailing diagnostic tools, and more inclusive and longitudinal research. These problems indicate that a more complex knowledge of ASD prognosis in the eyes of SLTs is needed, which may result in the development of better diagnostic and intervention plans. Children with severe ASD tend to be underrepresented in the studies of treatment and that could bias the information on prognosis and treatment effectiveness. The result of such underrepresentation is a resultant imbalanced picture of ASD and possibly overlooking the individuals who need intervention the most (Stedman et al., 2019). Autistic individuals of racial and ethnic minorities (REM) are often not the focus of language and autism studies, which constrains the ecological validity of the research and broadened the applicability of interventions to a wider population (A Community-Based Approach to Longitude... 2023). ASD does not have clear points of transition with other language disorders: Specific Language Impairment (SLI) and Social (Pragmatic) Communication Disorder (SPCD). It is also a complication to the diagnostic process; this overlap can influence the prognosis because the conditions may be misdiagnosed or undiagnosed (Taylor and Whitehouse, 2016). The existing diagnostic instruments and practices may not be adequate in identifying the complexity of ASD, especially in the forecasting of long-term outcomes. Numerous studies are based on the old systems of classification, which might not be representative of the present knowledge on ASD ("Overall prognosis of preschool autism sp...", 2022). It is also important that well-designed, prospective research studies that would determine the prognosis of ASD diagnoses with regard to modern diagnostic procedures are highly required. The scope of participants involved in such studies should be as large as possible, and multiple factors to predict the prognosis of ASD should be explored to allow obtaining a more comprehensive vision of the prognosis of this disorder in preschoolers (Overall prognosis of preschool autism sp... 2022). The process of moving single word speech to phrase speech is poorly-known in children with ASD and additional studies are necessary to give clinical standards as well as predictors of this process. This information might be used to influence clinical decision-making and enhance specific interventions (Byrne et al., 2024). The assessment and

treatment of children with co-occurring mental health issues and speech, language, and communication needs (SLCN) is a problem that is confronted by SLTs and mental health professionals. These professionals have no evidence-based practices gap, and it influences the effectiveness of diagnosis and treatment (Hancock et al., 2022).

The perception of speech and language therapists (SLTs) toward prognostication in autism spectrum disorder (ASD) is of fundamental importance as they play a central role in early diagnosis and treatment which has a significant effect on developmental patterns of ASD children. The SLTs can also be one of the first professionals to see children with ASD because communication problems are usually the first point that parents mention (Cameron and Muskett, 2014). Their understanding of the peculiarities of communication deficits like pragmatics, lexical-semantic, and morphological-syntactic are needed to diagnose and tailor the intervention strategies (Vitásková et al., 2015) (íhová, 2014). Additionally, the diversity of language profiles of children with ASD (the existence of comorbid states and different levels of verbal capabilities) is the issue that makes SLTs build the specific approach to the treatment process (Language and Speech Characteristics in A..., 2022). ASD prognostication is complicated since the language outcomes differ and some children can be minimally verbal even after early intervention, whereas others develop phrase speech (Rose, 2018). The perceptions of SLTs can inform the application of augmentative and alternative communication (AAC) systems, which have demonstrated potential in language development in ASD (Rose, 2018). Also, they play a crucial role in trans-disciplinary cooperation that allows providing comprehensive care as they cooperate with other professionals to meet the multifaceted needs of children with ASD (Vitásková & Kytnarova, 2017). Knowledge of the views of SLTs concerning prognostication may also contribute to the creation of predictive models of language outcomes, which are not studied yet but can be used to optimize intervention strategies (Brignell et al., 2018) (Trembath et al., 2021). Thus, the knowledge provided by SLTs cannot be ignored in enhancing the quality of prognostic and intervention effectiveness, which will eventually result in the development of superior long-term outcomes in ASD children.

## 1.6 Operational Definition

### 1.6.1 Perception

Perception can be defined as the thoughts, beliefs, and ideas of speech and language therapists as determined by their experiences. In this research, it implies their perception and interpretation of their task in coming up with predictions regarding children with autism.

### 1.6.2 Speech and Language Therapist

A speech and language therapist (SLT) is a healthcare professional that assists individuals in speaking, comprehending and communicating. They deal with the individuals of any age, particularly the children with the communication disabilities such as autism.

### 1.6.3 Prognostication

Prognostication refers to the act of making predictions regarding the way in which the child with autism will grow in the future particularly in communication and language. These predictions are based on clinical experience, assessment and observation of SLTs.

### 1.6.4 Autism Spectrum Disorder (ASD)

Autism Spectrum Disorder is a lifelong disorder that influences the way of communicating, socializing and the ways in which one behaves. A person with ASD is unique and their communication skills might be diverse.

# CHAPTER 2 METHODOLOGY

This chapter introduces the methodology used to achieve the objectives of this study. This research aimed to measure how speech and language therapists (SLTs) feel about prognostication in autism spectrum Disorder (ASD). It describes the design of the study, sample recruitment method, data collection process, analysis procedures and ethical considerations.

## 2.1 Study Design

The research has been identified to take the form of a qualitative descriptive research design (QDR) since it has the potential of presenting facts in a summary, which can be utilized to develop and refine emerging interventions in an area that has not been effectively, or none, explored (Sandelowski, 2010). Qualitative Descriptive Research enabled the researcher to describe and develop data that surfaced in a manner that was more descriptive of the perspectives of the participants (Bradshaw et al., 2017). Qualitative Descriptive Research was applied in this research.

## 2.2 Sampling

A purposive sample selection method was used to select the participants. This sampling technique is often used in the qualitative type of research design to address individuals or environments that have a particular property (Fitzgerald et al., 1997, p. 6). The researcher chose this sampling method because it collects precise information of the subjects depending on the needs of the study. The qualitative research is typically done through interrogation of a rather limited number of subjects and recording of detailed information (Fitzgerald et al., 1996, p. 221). In purposive sampling, the researcher will select the sample based on the decision of the researcher. The study has chosen the case purposely. There is a need to consider the population parameters with purposive sampling that are relied on to select a sample case though.

## 2.3 Study Place

The study was carried out in the Centre of Rehabilitation of the Paralyzed (CRP), and other rehabilitation centers.

### 2.3.1 Study Population

The participants in the study are Speech and Language Therapists in Bangladesh.

### 2.3.2 Informed Consent

The researcher developed a consent form in English and Bengali Annexure - 1(a) and Annexure - 1(b) to get the consent of the participants. The researcher gained consent of the participants that were interested in the study by signing a written consent form. In addition, the researcher assured all the participants that they were not influenced by their participation in the study. The researcher also maintained the information of the participants confidential, and it will never be passed to anybody. The researchers informed the participants of the study about the intents of using the data generated during the interview. The researcher assured the participants that his/her identities and addresses were anonymous in the survey and the respondents could pull out at any time.

### 2.3.3 Field Test

First, the researcher did a field test whereby two participants in a field test were used to provide a test case in the collection of data in the study. The field test was taken in the last phase of the data collection phase so that the researcher is able to evaluate the effectiveness and suitability of the data collection plan and instrument. The researcher clearly explained the aim and objectives of the research to the participants before commencing the research. This preliminary assessment was aimed at detecting the possible errors, ambiguities, or gaps in the questionnaire. Nevertheless, no problems with this were detected in the field test. Structured questionnaire was used to carry out the field test as the only tool of data collection. Questionnaire is constructed in English (Annexure-2a) and in Bengali (Annexure-2b) so that the participants could have access and understand it with ease. The interview sessions were audio-taped by the researcher to the participants. The transcription of the interviews was done after the interviews to get the raw data. After being transcribed, the data were translated into English so as to ensure that the analyses and documentation were uniform. The process guaranteed the accuracy of responses of the participants and enabled the researcher to determine the significance and appropriateness of the items of the questionnaire as well as the data-gathering process. Consequently, the researcher continued the process of data collection

by the use of the same finalized questionnaire. This field trial served to validate the appropriateness, transparency and legibility of the questionnaire, in addition to justifying the intended data collection processes.

### 2.3.4 Inclusion Criteria

- Speech and language therapists who have completed 4 years BSc in SLT & 1 year internship in any authorized institution.
- Minimum of 1 year of clinical experience with children diagnosed with Autism Spectrum Disorder.
- Volunteering to take part and give informed consent.
- Therapists who are currently practicing.

### 2.3.5 Exclusion Criteria

- Interns are not eligible.
- Therapists in the adult setting only or with no children cases.
- Therapists who retired from practice.
- Subjects who are unwilling to participate.

### 2.3.6 Participant Overview

This study comprised 14 Speech and Language Therapists (SLTs). Purposive sampling techniques were used to select the participants to ensure that the selected professionals had different experiences, institutional affiliations, and geographic locations. The table below gives an overview of the identified participants.

***Table: Participants Overview***

| ID | AGE | Gender | Educational Qualification | Clinical Experience | Avg. ASD Cases/Month |
|---|---|---|---|---|---|
| P01 | 28 | Female | Master's | 3y | 100 |
| P02 | 26 | Male | Bachelor's | 2y | 180 |
| P03 | 26 | Female | Master's | 1+y | 150 |
| P04 | 38 | Female | Master's | 13+y | 14-15 |
| P05 | 27 | Male | Bachelor's | 2y | 20 |
| P06 | 27 | Female | Bachelor's | 2+y | 110 |
| P07 | 27 | Female | Bachelor's | 2.5+y | 100 |
| P08 | 32 | Female | Master's | 8y | 215 |
| P09 | 30 | Female | Master's | 8y | 70 |
| P10 | 27 | Male | Bachelor's | 3+y | 80-100 |
| P11 | 32 | Female | Master's | 8y | 215 |
| P12 | 26 | Female | Bachelor's | 2.5y | 30 |
| P13 | 27 | Female | Bachelor's | 2+y | 100 |
| P14 | 36 | Male | Master's | 12+y | 130 |

## 2.4 Data Collection

### 2.4.1 Data collection Instrument

The study data were obtained using the semi structured interviews where the standardized questionnaire was used to examine the perceptions of the speech and language therapist about prognostication in ASD. The interview was directed by the questionnaire with some levels of flexibility in probing where necessary. Even though the tool was created in the English language, it was translated into Bengali during the interviews so as to make it clear and easier to be understood by the participants. To ensure easy gathering of data, a pen, pencil, stopwatch, white paper and a clipboard were employed as some of the supporting materials. Only written informed consent of the participant was obtained before conducting each interview and this guaranteed ethical compliance. The instrument was used to measure all the participants equally in the study.

### 2.4.2 Data Collection Method

The questionnaire questions were administered to the participants and the responses were gathered which took an average of 20 to 25 minutes. Participants responded to the questions in a general manner.

### 2.4.3 Data Collection Procedure

First, the researcher described to the people the significance of doing such research, the purpose of the study, and the objectives of the study to ensure that the study participants are informed about the study. The sample of the qualitative section was established by the investigator; and it was asked to have the interviews of around 20 - 25 minutes, keeping the interviews confidential. The interview part was conducted in a calm environment to prevent interruption. The interview was recorded on a mobile phone with the consent of the participants and other information was required to be recorded on paper.

### 2.4.4 Data Analysis

The data collected by the interview were analyzed through thematic analysis as the latter will enable a deeper understanding and a careful description of the data gathered.

The identification of themes is the final part of the finding meaning of the data with research questions (Thematic Analysis, 2013). I have used a six-step process of thematic analysis (Braun and Clarke, 2013). To begin with, the student researcher explained the process of analysis to the supervisors as follows.

**Step 1: Get Familiar with the Data**

As part of the analysis process, the researcher transcribed all the interviews which had been audio-recorded in Bengali verbatim. This enabled proper recording of responses of participants in their linguistic expressions. After transcription, the researcher personally translated the transcripts to the English language, and the process was performed with linguistic and contextual correctness. Such a duality of transcribing and translating contributed to the fact that the researcher had a rich insight into the subjective meanings behind the responses of participants. At this point, main statements and emerging concepts were noted and identified to be coded and analyzed later on the basis of themes. This action gave a good ground to work on the information significantly and find common patterns and findings that related to the aims of the study.

**Step 2: Generating the Initial Codes**

In this step, the student researcher produced the initial codes by writing the meaning of the highlighted points. The student researcher and supervisors also discussed how the initial codes will be developed. All the interesting features were coded systematically through out the data set.

**Step 3: Searching for Tentative Themes**

The third step entailed the student researcher to write codes and line numbers of all the interviews on sticky notes. Similar thinkers were then clustered together by placing the sticky notes on a wall in order to judge what possible themes could work. This was done in relation to every interview.

**Step 4: Reviewing the Themes**

The student researcher prepared a first thematic map which was consulted with supervisors. The themes and subthemes were identified using this discussion. Several themes and a couple of subthemes were realized at this point.

**Step 5: Defining and Naming Theme**

The researcher reviewed and refined the codes and finally came up with six themes and associated sub-themes. A clear name and definition were assigned to each theme in order to capture its major point.

**Step 6: Producing the Report**

The last step required the researcher to start writing the report concerning the interpreted themes that responded to the research question. All the essential meanings of all the themes were described by their direct quotations and they were also supported by a detail. Such quotes contributed to accentuating the personal opinion of the participants and made the results clearer and more natural.

### 2.4.5 Ethical Consideration

- Data collection took place after receiving an ethical clearance with the Bangladesh Health Professions Institute (BHPI) Institutional Review Board (IRB). This approval made sure that study design, data collection, and analysis were in accordance with the ethical principles and institutional rules.
- Get an informed consent of all participants prior to data collection with confidentiality and anonymity.
- Ensure the privacy and confidentiality of sensitive information collected during the research process.

## 2.5 Rigour

The researcher maintained a proper approach to conduct the research. Research phases involved in this study were performed in a systematic manner and under the supervision of an experienced supervisor. During the interview session and data analysis, the investigator has been neutral and my values, perceptions, and biases have not affected it. The researcher considered the answers to the questions, whether good or bad. The researcher made the effort not to direct the respondent when asking a question. The transcripts were translated by two additional individuals to promote neutrality. The researcher did several reviews, read the piece of work to find out the mistakes, and also made sure that it conformed to the Bangla transcript. The supervisor then read through

information on the coded participants to ascertain the accuracy of information. The researcher maintained the confidentiality of all the participants and records. The researcher followed a scientific approach in the results but was unable to explain his results.

# CHAPTER 3 RESULT

This chapter presents the findings of this qualitative research that identified the perceptions of Speech and Language Therapists (SLTs) towards prognostication in children with Autism Spectrum Disorder (ASD). The information was collected through semi-structured interviews with SLTs in different clinical environments both in private clinics and rehabilitation centres in Bangladesh. The use of the thematic analysis revealed six major themes, each of which represented various facets of the perceptions, challenges, and methods of prognostication used by SLTs in ASD. These themes bring out the professional, cultural, societal, and institutional variables that determine the possibility of predicting the outcome of therapy in children with ASD by the therapists. The themes and the sub-themes reflect what SLTs perceive and the obstacles that they face when trying to come up with correct prognostic decisions. All themes are expounded hereafter, with a description of the delicate issues and personalities contributed by the interviewees. Each of the themes is introduced in this chapter.

Each theme is presented as an overview and each category correlating to it is discussed in more detail, with the verbatim quotes of the participants to prove the authenticity and represent their voices. These results relate to the research objectives of the study and aim at responding to the most significant research questions.

Table 3.1 on the next page provides an overview of the six themes.

**Table 3.1: Overview of Themes and Sub-themes**

| Theme | Sub-Theme |
|---|---|
| 1. Clinical Value and Conceptualization of Prognostication in ASD. | -Prognostication: A Guide to Therapy Planning and Goal Setting.<br>-Developmental Expectations: Role of Early Prognostication. |
| 2. Determinants and Predictors of Prognosis. | -Age, Severity and Verbal ability.<br>-Cognitive, Behavioral, and Sensory.<br>-Intervention Intensity and Consistency. |
| 3. Prognosis communication and Family Expectations. | -Counseling and Effective Communication with Families.<br>-Controlling Expectations and Parental Involvement.<br>-Accommodating Parental Literacy in Communication. |
| 4. Challenges, Uncertainty and Ethical Considerations in Prognosis. | -Uncertainty: External Factors and Developmental Plateau.<br>-Ethical dilemmas: Honesty, Hope and Emotional Impact.<br>-Late Diagnosis and Non-compliance by Caregivers. |
| 5. Social, Cultural and Contextual Influences on Prognostication. | -Cultural and Religious Conceptions of ASD.<br>-Stigma, Blame, and Pressure of Society.<br>-High Expectations in Sociocultural Context. |
| 6. Professional Experience, Training, and Resource Requirements. | -Clinical Experience and Prognostic Confidence.<br>-Professional Development and training requirements.<br>-Tools and Resources Accessibility. |

## 3.2 Theme 1: Clinical Value and Conceptualization of Prognostication in ASD

Participants defined prognostication as a crucial clinical practice that can assist the SLTs in knowing how a child is likely to develop and use that knowledge to inform the therapeutic choices. Prognostication was also not considered as a fixed prediction but rather as a flexible and continuous process that is informative of therapy planning, goal setting and family communication. SLTs noted that prognostication would enable them to operate in an organized and realistic way and also recognize the individual variability observed among children with ASD.

### 3.2.1 Prognostication: A Guide to Therapy Planning and Goal Setting

SLTs always indicated that prognostication is a key component in the planning of the therapy and setting of the goals. According to the participants, prognostic judgments assist them in determining the goals attainable and realistic to a child depending on his/her current abilities and projected development. Prognostication was applied both to determine short-term and long-term objectives and to make changes in the course of therapy as the child grows.

One participant stated,

> *"In Autism Spectrum Disorder, prognostication simply means future planning that we do with the patient the moment he or she comes."* - Participant 04

Another SLT emphasized the extended implications of prognostication in the process of clinical decision-making:

> *"When we are able to form a general view of the prognosis by evaluating the child, then it really helps us in the entire area of the treatment planning, offering the therapy, and counseling the parents."* - Participant 11

These reactions have shown that SLTs are guided by prognostication to organize therapy in a systematic manner that will have the intervention goals correct, achievable and responsive to the changing needs of the child.

### 3.2.2 Developmental Expectations: Role of Early Prognostication

The participants stressed that early prognostication should be given priority especially in the establishment of developmental expectations of the therapist and the families. SLTs explained the use of early prognostic conversation in an attempt to make families aware that the progress in ASD is usually slow and takes a very long time to happen. This early preparation of the families to the reality was viewed as early prognostication to avoid false expectations.

One of the participants described it as follows,

> *"It is about establishing the expectations of the where the child could be within a few months or years, based on their current abilities."* - Participant 01

Yet another respondent also reported,

> *"The earlier we can diagnose this condition, the better its prognosis, or the faster we can help those babies reach normal developmental milestones." - Participant 04*

Another finding that SLTs shared was that early prognostication assists families in identifying and appreciating the small and significant changes, including enhanced eye contact or heightened responsiveness, instead of hoping to see more significant changes. Explaining the developmental expectations at an early age, therapists believed that they could then maintain family collaboration and sustainability in therapy.

## 3.3 Theme 2: Determinants and Predictors of Prognosis

The participants found that a number of factors are important in making prognostic decisions with children having ASD. The SLTs stressed that no single variable is used to decide the prognosis but a combination of child and therapy related factors. The age of intervention, the severity of ASD, the level of verbal skills, cognitive and behavioral functions, as well as the degree and reliability of therapy were always emphasized as the main predictors of the resulting therapeutic outcome.

### 3.3.1 Age, Severity and Verbal Ability

As a common finding, the participants stated that age at diagnosis and treatment onset have a major influence on the prognosis. According to the SLTs, younger children appeared to have better improvement potential, especially in cases where intervention is introduced early. One participant stated:

> *"The younger the child at the beginning of the therapy the better the chances of improvement."* - Participant 04

ASD severity was also considered to be a powerful prognostic factor. The respondents indicated that children who have milder kinds of ASD usually have better results relative to those who have more severe manifestations. One SLT noted:

> *"In the process of prognostication, we basically make a decision based on the severity the child has in deciding the prognosis of a child."* - Participant 02

Verbal ability was often attributed to prognostic expectations. Respondents cited that a verbal child is likely to develop at a faster pace during therapy compared to a non-verbal child who, in most cases, has to be subjected to an intense and extensive therapy. As one participant stated:

> *"The child who is non-verbal will need more intensive therapy and prognosis is usually more careful than in the case of verbal children."* - Participant 06

The responses indicate that age, severity, and verbal status are critical issues that SLTs should consider when they develop prognostic expectations.

### 3.3.2 Cognitive, Behavioral, and Sensory

The participants were found to highlight that behavioral issues, sensory processing problems, and cognitive capacities play a significant role in prognosis. The hyperactivity, poor attention, sensory overload, and cognitive limitations were reported by SLTs as the phenomena that could slow down progression and make it harder to predict prognosis. One participant stated:

> *"Children with hyperactivity issues or sensory overload would delay their progress, which would impact their prognosis."* - Participant 05

Yet another respondent emphasized that cognition, sensory and behavioral determinants are also important:

> *"The aspects that I consider significant when deciding on prognostication include sensory integration, behavioral traits, and cognitive functioning of the child."* -Participant 14

According to the respondents, these difficulties may reduce the effectiveness of the involvement of a child in the therapeutic process and need more personalized and intense strategies. These were considered to add to the fluctuation in the results of therapy, and complicate the process of prognostication.

### 3.3.3 Intervention Intensity and Consistency

High-intensity and consistency of the therapy were also revealed to be of critical predictive power of the progress and prognostic outcomes. Respondents noted that when children are taken through regular and frequent therapeutic sessions, their improvement will be more predictable and meaningful. One SLT stated:

> *"Children who undergo intensive therapy regularly demonstrate greater improvement and therefore the intensity of therapy is a major factor in prognosis."* - Participant 07

The other interviewee underlined the role of inconsistency in therapy:

> *"In case of irregular therapy or missed sessions; progress will be very slow and it will be hard to predict how the child will improve."* - Participant 09

The participants described that inconsistent therapy constrains skill reinforcement and derails developmental gains, which reduces the validity of prognostic judgments. Constant and continuous treatment was thus considered important to aid consistent development and better prognostic anticipation.

In general, the participants reported that prognosis was influenced by a complicated interplay of child attributes and factors related to therapy. SLTs highlighted that in making prognostic decisions, these determinants should be looked at as a set, and not individually.

## 3.4 Theme 3: Prognosis Communication and Family Expectations

The participants noted that the effective delivery of prognosis is an essential aspect of their clinical role. SLTs defined the prognosis communication as the process which includes counseling families, regulation of expectations, and making sure that the information is delivered in the manner that the families can comprehend and accept. Respondents observed that the communication of prognosis usually affects the cooperation of the family, affective reactions, and prolonged therapy participation.

### 3.4.1 Counseling and Effective Communication with Families

Respondents mentioned counseling as one of the strategies of informing families about prognosis. According to SLTs, counseling makes parents aware of what ASD is and how the therapy is expected to be successful and what intervention would be long-term. One participant stated:

> *"Counseling enables us to guide the parents through the process of prognosis and make them understand the possibilities and limitations of the therapy."* - Participant 08

One of the participants also stressed the need to be clear enough in counseling:

> *"We should clarify everything to the parents about what we are doing and why it might require some time."* - Participant 11

The participants described that counseling gives emotional support to the family as well as clinical information that makes them feel informed and incorporated in the therapeutic process.

### 3.4.2 Controlling Expectations and Parental Involvement

Dealing with parental unrealistic expectations was reported to be a repeating task. Respondents cited that most parents demanded quick progress or a full recovery, which were not in line with the type of ASD treatment. One SLT noted:

> *"Parents want an immediate solution. We should deal with their expectations explaining that ASD therapy develops gradually."* - Participant 10

The connection between expectation management and parental involvement was mentioned by the other participant:

> *"Where the parents are properly informed about the prognosis, they become more engaged and supportive in the therapy process."* - Participant 09

Another respondent brought up the factor of expectation management in regards to long-term involvement:

> *"When parents are informed of realistic outcomes initially, they would tend to be more adherent to therapy and take our advice."* - Participant 06

SLTs clarified that realistic expectations motivate parents to be active in the therapy, adhere to home programs, and stick with it in the long run. Parental engagement was considered the key to the strengthening of the therapy objectives beyond the clinical environment.

### 3.4.3 Accommodating Parental Literacy in Communication

Respondents also underscored the need to tailor prognosis when it comes to the level of parental literacy. SLTs stated that families are not homogenous in their capacity to interpret medical and developmental terminology that influences the reception of prognosis. One participant explained:

> *"The less educated the parents, the more difficult it is to inform them about the prognosis of the child and the treatment he has to get."* - Participant 03

One other participant talked about changing communication strategies with less literate parents:

> *"Whenever I meet parents with less literacy, I attempt to use simple language and examples to help them comprehend the prognosis better."* -Participant 02

As reported by the participants, customization of communication enhances the comprehension, alleviates misunderstandings, and enhances collaboration between the therapist and the family.

On the whole, SLTs identified prognosis communication as a dynamic, sensitive process, which is necessitated by clear counseling, maintenance of expectations, and family needs to ensure successful outcomes of therapy.

## 3.5 Theme 4: Challenges, Uncertainty and Ethical Considerations in Prognosis

In this theme, the challenges, uncertainty and ethical considerations related to prognosis are elaborated on. The participants identified a number of difficulties and uncertainties that SLTs experience in making predictions regarding the outcome of therapy in children with ASD. The developmental plateaus, non-compliance on the part of the caregivers and the time of diagnosis were the source of many of these challenges. In addition, ethical dilemmas were usually inevitable especially in terms of choice of honesty and hope and responding to the emotional effect on the families. These aspects added some complexity to the prognostication, which meant that SLTs needed to adapt to the changes and keep reevaluating the approaches to therapy.

### 3.5.1 Uncertainty: External Factors and Developmental Plateau

The developmental plateau was also one of the primary sources of unpredictability, children make a lot of progress in the beginning, but then the progression stalls or decreases. According to SLTs, these plateaus make it difficult to forecast the future. One participant stated:

> *"Children usually achieve much at the very beginning, and then they reach a plateau. This complicates forecasting their future progress in terms of how and when they will keep improving."* - Participant 11

Another participant described that plateaus are a typical issue in the treatment process:

> *"The plateau effect is a common occurrence, and it is a large component of why we can not make a definite long-run forecast of most of the children we serve."* - Participant 03

Other external factors that were also cited by the participants include irregular treatment, family stress, or change of home environments that lead to uncertainty in prognostic predictions. One participant explained:

> *"Sometimes the child is influenced by outside conditions, such as lack of support at home, which change the course of development and alter the direction of the progress."* - Participant 10

Another participant added:

> *"When a child does not attend therapy sessions regularly or therapy is irregular, then we cannot predict progress and this is a disruption to the overall therapy plan."* - Participant 07

### 3.5.2 Ethical dilemmas: Honesty, Hope and Emotional Impact

The interviewees claimed that ethical issues are common when the therapists have to decide between telling the truth about the prognosis and ensuring that families have hope and motivation. Most of the SLTs talked about the difficulty of telling difficult truths regarding the condition of the child and also encouraging parents to stay active in the therapy. One participant shared:

> *"We must tell the truth about what the child will go through, but also, give him hope of improvement with time. It is always a balancing act, one has to be transparent but at the same time keep the family motivated."* - Participant 14

Another interviewee stressed the impossibility of balancing this:

> *"We need to tell the truth to them, yet we need to offer them hope. Not only the clinical facts but the way we present them in a manner that the family does not lose hope."* - Participant 07

As well, some SLTs commented on the potential effects the emotional responses of the families may have on the therapy and the motivation:

> *"In some cases, after the prognosis, parents are guilty or angry. We must be available to assist them in working through those feelings but it can be difficult to strike a balance between that and the clinical information that we have to provide."* - Participant 06

One therapist has told how he or she offers emotional support during difficult situations:

> *"I attempt to hear the parents and it is understandable that I listen to what the parents have to say but also I tend to calm them down by making them realize that therapy is a process, not a solution."* - Participant 03

These reactions highlight the complexity of providing truthful prognostic news and keeping of hope and responding to the emotions of families. SLTs must serve as honest but kind-hearted people who would make sure that the family will feel informed and supported at the same time.

### 3.5.3 Late Diagnosis and Non-compliance by Caregivers

The lack of care giver compliance and late diagnosis were found to be key impediments in giving correct prognostications. Late diagnosis tends to cause the deep rooted developmental delay and thus it is more difficult to arrive at optimistic predictions. One participant noted:

> *"By the time children arrive at six or seven years old, it is extremely hard to plan since the behavioral patterns are already established."* - Participant 01

Also, non-compliance of the caregivers had a great influence on the prognostic outcomes. The participants outlined scenarios in which parents did not adhere to home programs, attend sessions on a regular basis or embrace professional advice.

As one SLT explained:

> *"Without practice at home or regular attendance, they will not improve no matter how good the therapy plan is."* - Participant 04

The other participant said:

> *"When parents fail in keeping up the therapy recommendations, it directly affects the child progress and thus the prognosis becomes less predictable."* - Participant 09

Altogether, participants pointed out that the prognosis depends not only on the condition of a child but highly depends on the engagement of caregivers, the time during which the intervention is provided, and the compliance with recommendations about taking the therapy.

## 3.6 Theme 5: Social, Cultural and Contextual Influences on Prognostication

The study participants reported the huge role of social, cultural, and contextual factors in the process of making prognostic predictions by SLTs regarding children with ASD. These are the factors that influence both the knowledge of the families about ASD and the communication of prognosis by the SLTs. Respondents said cultural beliefs, societal stigma and high family expectations tend to complicate the prognostication process and affect the way the family reacts to prognosis.

### 3.6.1 Cultural and Religious Conceptions of ASD

It was found that many respondents had experienced cultural and religious explanations about ASD and this hindered prognostication and prompt action. Spiritual possession beliefs, divine punishment and delayed development of speech at an early age were frequently reported.

One participant explained:

> *"The elderly relatives think that the child must be possessed or influenced by something supernatural, and they concentrate on amulets or faith healing."* - Participant 03

Another SLT noted:

> *"The parents say, the father is slow in speech, therefore the child will be slow in speech, and they postpone the therapy."* - Participant 04

The participants have reported that these beliefs required a lot of counseling to overcome them and how ASD can be explained in terms of development.

> *"We need to say over and over again that autism is not a religious problem and the consequence of sins."* -Participant 01

These cultural conceptions tended to be slow in getting a diagnosis and to complicate prognostic communication.

### 3.6.2 Stigma, Blame, and Pressure of Society

Stigma and blame in the society played a major role in influencing the families perception of ASD and prognosis. Respondents emphasized that parents, especially

mothers, were frequently blamed by the society in regards to the state of their child and this created emotional obstacles to the prognosis. One participant noted:

> *"Mothers are usually held responsible about the child problem and they find it difficult to accept the diagnosis and participate in the therapy."* - Participant 12

Another respondent talked about the emotional stress imposed on mothers by society:

> *"It puts significant pressure on mothers to fix the child, and when they are made to feel that they are the cause of the condition, then they are less likely to participate in the full therapy."* - Participant 09

SLTs also noted that ASD was stigmatized and had an effect of making families reluctant to be treated or accept the diagnosis. As one therapist said:

> *"The stigma in society surrounding ASD may pose a hindrance to the family. The reason could be that they do not want to believe the diagnosis or they do not want to seek help because they are afraid of being labeled."* - Participant 07

Such results imply that SLTs should be conscious of emotional and social obstacles that societal stigmatization may cause and it is necessary to assist families with clinical recommendations as well as emotional support.

### 3.6.3 High Expectations in Sociocultural Context

Lastly, the participants explained the great expectations of parents, especially of some cultural or social backgrounds towards children with ASD. Such expectations tend to create problems of controlling realistic prognostic expectations. Respondents elaborated that most families had impractical expectations of fast improvement or total recovery which were hard to achieve, considering the ASD nature. One participant shared:

> *"Most guardians demand a full-scale cure, which is not consistent with the realistic descriptions provided by professionals."* - Participant 14

The other respondent highlighted the problem of coping with high parental expectations:

> *"Parents frequently believe that the child would get better in a short time, and it is not easy to cope with such expectations."* - Participant 09

SLTs observed that parental expectations especially those that were formed due to the impact of sociocultural factors might result in frustration in case there was a slower rate of progress as compared to expectations. One therapist explained:

> *"The pressure to fulfill high expectations may be too much on the parents and on us as therapists when the therapy is failing to give fast outcomes."* - Participant 10

The participants explained that it was necessary to make parents change their expectations by having realistic prognostic conversations that would help them create a supportive therapy environment.

## 3.7 Theme 6: Professional Experience, Training, and Resource Requirements

The respondents emphasized the value of work experience, training, and access to resources in enhancing their prognostic skills and confidence in dealing with children with ASD. All these factors were considered to be crucial in the process of making valid and sound prognostic forecasts. Participants explained that clinical experience, continuous professional growth, and availability of tools and resources played a central role in enhancing their skills of assessing, predicting, and modifying therapy to children with ASD.

### 3.7.1 Clinical Experience and Prognostic Confidence

It was observed by many of the participants that clinical experience plays a significant role in improving their confidence when making prognostic predictions. The experience of therapists was considered to be more effective in working with complicated cases, identifying patterns in child development, and making more correct predictions. One participant stated:

> *"The more cases you deal with, the more you will know about how a child will grow, depending on the severity and personal problems of the child."* - Participant 14

Another respondent described it as follows:

> *"I am a lot more confident in the outcomes that I predict because I am becoming more familiar with various kinds of cases."* - Participant 08

SLTs acknowledged that experience will enable them to develop their skills through the years, and they will be more capable of making an informed and correct prognostic decision. The participants explained that they also had confidence in their judgments, which aided them in presenting the prognosis clearly and confidently to families.

### 3.7.2 Professional Development and Training Requirements

Continuous professional improvement was found to be very essential in enhancing prognostic performance. SLTs indicated that discussion in workshops, training programs, and conferences allow them to be aware of the most recent research, diagnostic strategies, and therapeutic innovations. One participant shared:

> *"Frequent workshops and training ensure that we remain informed about any new research and other improved approaches to prognostication."* - Participant 14

Another therapist stated:

> *"I believe that continuous professional growth is crucial. We handle complicated cases and keeping up to date with the new therapies and diagnostic methods is actually helpful in sharpening my prognostic skills."* - Participant 07

The participants pointed out that ongoing learning keeps therapists relevant, competent, and able to make sound prognostic predictions. Specialized training about ASD-specific interventions was perceived as particularly useful.

### 3.7.3 Tools and Resources Accessibility

Provision of tools and resources was observed as a very important element in the process of making proper prognostic decisions. The participants were found to have a big gap in accessing diagnostic tools, i.e., ADOS-2, DSM-5 and other standardized assessment tools that they felt were important in measuring severity of ASD and its outcome. One participant stated:

> *"More practice in the application of diagnostic assessment instruments such as ADOS and the DSM-5 would serve to make a clearer and more precise prognosis about each child."* - Participant 04

Another participant shared:

> *"A better prognosis can be made when we have access to the appropriate tools but we should also know how to use them correctly to obtain the most accurate results."* -Participant 03

The SLTs also commented that such tools are critical, but access may be low mostly in less resourceful countries or environments. Their proper utilization also required training to guarantee proper assessment and valid prognostication.

# CHAPTER 4 DISCUSSION

The present chapter provides an in-depth examination of the results of the study that investigated the attitudes of the Speech and Language Therapists to prognostication in ASD. These findings that are categorized into six major themes give an excellent understanding of the issues that SLTs struggle with in the assessment and communication of prognoses. These themes include:

1) Clinical and Conceptualization of Prognostication in ASD.
2) Prognosis Determinants and Predictors.
3) Communication with prognosis and Family Expectations.
4) Difficulties, Uncertainty and Ethical Issues in Prognosis.
5) Social, Cultural and Contextual Prognostication Influences.
6) Training, Professional Experience and Resource needs.

This chapter has introduced the results of these research objectives, current literature, and theoretical frameworks and comment on implications to practice, policy, and research in the future.

## 4.1 Clinical Value and Conceptualization of Prognostication in ASD

The findings of the present research outline a necessity of prognostication in the management of children with ASD. It was highlighted by the participants that prognostication should not be a one-time process but a continuous, adaptable process that guides the planning of therapy, the establishment of therapy goals, and communication with the family. This is in line with the results of Lai, Lombardo and Baron-Cohen (2014) who state that it is important to have knowledge of the developmental pathway of a child in order to be able to provide interventions that address the needs of that child. In this study, SLTs perceived the role of prognostication as an important instrument that offers strict instructions regarding the results of the therapy process and the possibility of improvement over time.

Another result of the study was the finding that early prognostication aids families to appreciate that the therapy of ASD is a long process that requires them to control the expectations of long-term improvement. This agrees with Hodgetts et al. (2017) who

believe that frustration and loss of interest can be prevented by early communication of slow pace of progress. According to SLTs, early prognostic discussions enable families to celebrate minor positive changes, including, but not limited to, responsiveness or eye contact, to sustain family engagement.

Overall, the findings in this report support the idea that SLTs in this research considered prognostication as a fundamental part of their clinical practice, which can be used not only to plan the therapy and set the goal but also to establish realistic expectations regarding development. Early prognostication will help the therapists and families to have a long-term view of incremental progress and minimize the chances of unrealistic expectations and encourage long-lasting family involvement. This will result in more effective treatment and outcome among ASD children.

## 4.2 Determinants and Predictors of Prognosis

The researchers concluded that among the important factors that affect the prognostic outcome of children with ASD, there are age at the time of diagnosis, severity of the ASD, verbal skills, and severity of the intervention. These are in line with other studies conducted by Tager-Flusberg et al. (2005), who note that with the earlier diagnosis and intervention, the better form of outcome can be achieved especially with the younger children having mild forms of ASD. The respondents observed that early-diagnosed children are more predictable since early intervention exploits the neuroplasticity of the brain.

Prognosis was also found to be greatly predicted by the severity of ASD. Participants stated that children with milder types of ASD and verbal ability are more likely to demonstrate a greater progress which is consistent with Lord et al. (2018) who indicate that verbal children are more prone to successfully participate in communication-based treatments. On the other hand, non-verbal children or those with more severe ASD need more extensive and prolonged therapy and thus make more conservative prognostic estimates.

The severity and regularity of therapy were also noted as the serious factors. Respondents also stressed that children who are undergoing lots of therapy and intensive therapy make improvements, and this is in line with the results of Jones and

Morgan (2017), who emphasize the role of consistent therapy as a predictor of positive results.

Comprehensively, age, severity, verbal ability, as well as intervention intensity were found as the significant predictors of prognostic accuracy that have to be taken into account by therapists in the process of making the decision regarding the therapy planning and goals.

### 4.3 Prognosis communication and Family Expectations

The paper points out that proper delivery of prognosis is critical in the management of family expectations and achievement of the success of therapy among children with ASD. SLTs stated that counseling is an essential approach to make families learn about the state of the child, the probable direction of the therapy, and the protracted character of the improvements. It confirms the findings of Le Couteur et al. (2016) who emphasize that transparent and truthful communication on the prognosis can assist the family in their expectations management and in their adherence to the treatment.

The challenge of dealing with unrealistic parental expectations was also noted by the participants who identified this especially when the families had high expectations of quick progress or full recovery. This is in line with the reasoning of Auert et al. (2012) that managing expectations is very important to prevent disappointment and premature termination of the therapy. Considering the graduality of the ASD treatment, therapists can make the families aware of the fact that gradual progress is to be expected and that long-term commitment is the key to attaining meaningful results.

The research also indicated the importance of parents in the therapy. The more engaged families, those that have their expectations consistent with the prognosis of the child, were observed to make more progress by SLTs. This is in line with Lord et al. (2018) who emphasize the role of active family involvement in therapy in order to ensure enhanced developmental outcomes.

On the whole, it was established that effective communication, managing expectations, and parental participation play a crucial role in enhancing the creation of a positive therapeutic climate that encourages the ultimate engagement and positive results of ASD children.

## 4.4 Challenges, Uncertainty and Ethical Considerations in Prognosis

The research revealed some obstacles in child prognostication of those with ASD such as developmental plateaus, non-compliance by the people being treated, and late diagnosis and these causes of uncertainty regarding the effectiveness of therapies. This is consistent with Lord et al. (2018), who observe that the diversity of ASD makes it difficult to have specific prognostic forecasts. Stagnation or arrest in developmental progress was a major confounding element in the prognosis process.

Another theme that was highlighted by the participants involved the effects of non-compliance by the caregivers, which they said undermines the progress of the therapy. This justifies Tager-Flusberg et al. (2005), who emphasize on the role of caregiver engagement in order to achieve effective therapy. Failure to comply minimizes the use of therapy, and therefore, prognostic predictions cannot be made as accurately.

The other critical ethical dilemma that was brought to the fore by the participants was the question of honesty and hope. SLTs complained of the difficulty of providing tough prognostic data without discouraging the family.

Finally, it was realized that late diagnoses made prognostication more difficult, as children who are diagnosed later usually have more established behavior patterns, and it becomes harder to treat them. This is in line with Lord et al. (2018) who emphasize that the early diagnosis is vital to the improved long-term results and effective intervention.

The paper notes that early diagnosis can be prioritized as a way of improving the predictive accuracy of prognostics. Caregiver participation is essential in order to make therapy and SLTs must strike a delicate balance between truth and hope when addressing the prognosis with the families.

## 4.5 Social, Cultural and Contextual Influences on Prognostication

The researchers established that social, cultural and contextual factors played important roles in the process of prognostication of children with ASD. According to the reports of SLTs, the cultural beliefs as well as religious conceptions regarding the causes of ASD may delay intervention or create resistance to some treatment methods. The

participants pointed out that families having specific cultural or religious orientations often think that ASD is a spiritual problem, but not a developmental disorder, thus making it difficult to communicate prognostics. This is also in line with Le Couteur et al. (2016), who note that the cultural perspectives may affect the acceptance of the ASD diagnosis by the family and their readiness to proceed with the treatment.

Stigmatization and blame were also cited as obstacles towards effective prognostication. Participants have explained how mothers, specifically, are usually blamed with the condition of the child, and this may cause emotional distress and unwillingness to accept the prognosis. These results are similar to the claims of Hodgetts et al. (2017), who state that the stigma of ASD in society may create barriers to the willingness of families to undergo therapy and may influence the validity of the prognostication and the success of therapy. Social stigma exposes patients to an emotional burden that demands the provision of emotional support by SLTs along with clinical guidance.

Lastly, the study established high parental expectations, especially in some sociocultural setting, to be a great impact on prognosis communication. The respondents have noted that a lot of families have unrealistic expectations of fast recovery making it hard to set and manage their goals. This is in line with Lai et al. (2014), who emphasise on realistic expectations associated with the positive therapeutic effects of children with ASD.

The results indicate that SLTs ought to be culturally aware during the delivery of prognosis and to ensure that the strategy they use is aligned with the cultural and religious beliefs of the family. Societal stigmatization and blame should also be managed to enable the families to take part in the therapy and accept the prognosis. Also, SLTs are expected to match the family expectations with the progressive approach to ASD therapy so that the goals are not too high, and that the assessment is committed to the long-term therapy.

## 4.6 Professional Experience, Training, and Resource Requirements

The results of this research underline the fact that the strongest factors affecting the correctness and confidence of SLTs when making prognostic judgments in children

with ASD are professional experience, training, and the availability of resources. Clinical experience turned out to be a major variable, as the SLTs stated that they felt more able to make prognostic decisions as they gained more clinical experience. This is in accordance with Lord et al. (2018), who state that more experienced SLTs can more effectively adjust the therapeutic interventions depending on the needs of a child and realize the patterns and customize the therapy plans respectively. The clinical experience also helped SLTs to be more able to predict the possible difficulties and adapt flexibly to the changing situation during the therapy.

In addition, the researchers have concluded that sustained professional growth is crucial in the development of prognostic abilities. According to SLTs, they could implement the latest methods and tools in the clinical setting because they could keep up to date using workshops, conferences, and specialized training. Bishop et al. (2017) substantiate this claim and indicate that continuous learning can ensure that SLTs keep up with the progress in the field of assessment and intervention approaches in ASD. It was found that specialized training and especially ASD-specific interventions were determinant towards ensuring that SLTs are able to provide informed prognostic assessment, that is, critical to the success of the therapy.

Nevertheless, the research also emphasized the critical gaps in the availability of the resources, in which the absence of the use of standardized diagnostic instruments, including the ADOS-2 and the DSM-5, is essential in the proper prognostication. This is in line with Tager-Flusberg et al. (2005) who point out that scarcity of resources has constrained the accuracy of the prognostic predictions of SLTs particularly in low resources environment. Better access to them and training on how to use them would greatly improve the prognostic abilities of SLTs.

# CHAPTER 5 LIMITATIONS & RECOMMENDATIONS

## 5.1 Implications for Practice

- **Enhanced Prognostication Education among SLTs:** SLTs need to undergo special training on prognostication methods to become more accurate in making predictions and setting goals of children with ASD.
- **Early Diagnosis and Intervention:** Pay more attention to early diagnosis and early prediction of prognosis in order to offer more specific treatment and provide more satisfactory prognostic results.
- **Family Education and Support:** Educate families effectively regarding the progressive process of ASD treatment in order to promote expectations control and enhance cooperation during the treatment.
- **Availability to Diagnostic Tools:** Diagnostic tools such as ADOS-2 and DSM-5 should be available thoroughly among the clinicians to facilitate the accuracy of prognostic assessment.
- **Cultural and Societal Sensitivity:** Provide SLTs with an exposure to training to manage cultural and societal obstacles that would enable effective communication and involvement of families in therapy process.
- **Policy Support:** Enhance institutional and policy support of SLTs especially regarding the allocation of resources, provision of financial assistance and training opportunities to enhance prognostic capabilities and outcomes.

## 5.2 Strengths and Limitations of the Study

**Strengths:**

- Pay attention to the views of SLTs regarding prognostication with ASD that can help to identify the issue of challenges in the field.
- The qualitative method enabled a thorough research of the participants and their experiences.
- Abstracts the complexity of ASD prognostication, which current research usually does not investigate.

- Publishes cultural and institutional aspects affecting the practice of SLT in Bangladesh, which adds to the perception of the local settings.

**Limitations:**

- Semi-structured interviews may cause bias in qualitative data because of subjectivity and biases of the participants.
- The paper failed to discuss the long-term effects of early prognostication on the outcome of therapy, and it needs to be examined further.
- These results have to be verified and enlarged in future research with larger and more diverse samples and mixed-methodology.

## 5.3 Recommendations for Future Research

- **Long-Term Impact:** Future research would focus on long-term role of early prognostication on the outcome of therapy, family involvement and child development.
- **Greater, Diverse Sampling:** A bigger and more varied sample of SLTs should be used in the research to enhance the generalizability of the results.
- **Mixed-Methods Approach:** A mixed-method approach, which is a mixture between qualitative and quantitative data, would give a more in-depth insight into prognostication in the treatment of ASD.
- **Cultural Sensitivity:** Future studies are needed to determine the relationship between cultural and religious beliefs and prognostic communication and family involvement in therapy.
- **Training Needs:** To enhance the accuracy of prognostic information in the ASD treatment, it would be valuable to investigate the training requirements of SLTs in the area of prognostication, and train programs.

# CHAPTER 6 CONCLUSION

This chapter concludes the research titled Speech and Language Therapists Perception Regarding Prognostication in Autism Spectrum Disorder. The proposed study sought to investigate and examine how Speech and language therapists conceptualize, apply and communicate prognostication in practice with children with Autism spectrum disorder. Based on the qualitative design, the experiment assessed the experiences of SLTs in various professional settings. The results are summarized and then a discussion on the implications of the results on clinical practice and future research is provided.

The qualitative data gathered by means of the thematic analysis of the collected data and interviews with SLTs identified six significant themes that reflect the particular dimension of prognostication in ASD:

**Clinical Value and Conceptualization of Prognostication in ASD:**

SLTs saw prognostication as a process or a process and not a prediction that directs the planning of therapy, goal setting, and developmental expectations.

**Determinants and Predictors of Prognosis:**

Such factors as age, ASD severity, verbal functioning, cognitive and behavioural traits, and the degree of therapy were chosen as key factors that determine prognostic decisions.

**Prognosis Communication and Family Expectations:**

The counseling, parental involvement and parental literacy were discovered to be critical in conveying the prognosis and addressing the family expectations in a realistic manner.

**Challenges, Uncertainty, and Ethical Considerations in Prognosis:**

The reasons cited by SLTs as the causes of uncertainty include developmental plateaus, late diagnoses, caregiver non-compliance, and ethical dilemma of being honest, hopeful, and emotionally impacted.

**Social, Cultural, and Contextual Influences on Prognostication:**

The interpretation of prognosis and the use of therapy in families were found to be influenced by cultural beliefs, societal stigma, blame and high expectations.

**Professional Experience, Training, and Resource Requirements:**

The most important factors in enhancing the prognostic confidence and accuracy were found to be clinical experience, continuous professional development, and availability of diagnostic tools. The results of these findings are a complete picture of the perceptions and experiences of SLTs regarding prognostication in ASD that they employ in their professional practice. Some of the contributions made in this research to the area of speech and language therapy are the following:

**Limited Literature Contribution:**

The study will add to the minor resource of literature specifically on the views of SLTs regarding the use of prognostication in ASD, especially in a resource constrained environment.

**Understanding the intricacy of Prognostication:**

It emphasizes prognostication as a complex procedure that is affected by clinical, ethical, cultural and contextual aspects instead of a diagnostic one.

**Clinical and Educational Service:**

The results indicate that more training, timely prognostic discussions, and appropriate communication strategies should be incorporated to promote family-centered care.

**Policy Planning and Support of Professional Development:**

The paper highlights the role of institutional support, availability of diagnostic tools, and attention on prognostic practices by the policy level in order to enhance the same among SLTs. All in all, the study contributes to the existing knowledge of prognostication in ASD through the lens of SLTs and offers a significant contribution to the field to formulate clinical practice, professional training, and future research in speech and language therapy.

# CHAPTER 7 REFERENCE

A multimodal interface for speech perception: the role of the left superior temporal sulcus in social cognition and autism. (2024). *Cerebral Cortex*, *34*(13), 84–93. https://doi.org/10.1093/cercor/bhae066

Akhter, S., Shefa, J., Quader, M. A., Talukder, K., Hussain, A. H. M. E., Kundu, G. K., Fatema, K., Alam, S. T., Islam, K. A., Rahman, Md. S., Rahman, M. M., Hasan, Z., & Mannan, M. (2022). Autism spectrum disorder among 16- to 30-month-old children in Bangladesh: Observational cross-sectional study. *Autism*, 13623613221135297. https://doi.org/10.1177/13623613221135297

Allen-Meares, P., MacDonald, M., & McGee, K. (2016). Autism spectrum disorder updates - Relevant information for early interventionists to consider. *Frontiers in Public Health*, *4*, 236. https://doi.org/10.3389/FPUBH.2016.00236

Amit, G., Bilu, Y., Sudry, T., Avgil Tsadok, M., Zimmerman, D., Baruch, R., Kasir, N., Akiva, P., & Sadaka, Y. (2024). Early Prediction of Autistic Spectrum Disorder Using Developmental Surveillance Data. *JAMA Network Open*, *7*(1), e2351052. https://doi.org/10.1001/jamanetworkopen.2023.51052

Asta, L., Di Bella, T., La Fauci Belponer, F., Bruschetta, M., Martines, S., Basile, E., Boncoddo, M., Bellomo, F., Cucinotta, F., Ricciardello, A., Turriziani, L., Colombi, C., Banchelli, F., Cuoghi Costantini, R., D'Amico, R., & Persico, A. M. (2024). Cognitive, behavioral and socio-communication skills as predictors of response to Early Start Denver Model: a prospective study in 32 young children with Autism Spectrum Disorder. *Frontiers in Psychiatry*, *15*. https://doi.org/10.3389/fpsyt.2024.1358419

Auert, E., Trembath, D., Arciuli, J., & Thomas, D. (2012). Parents' expectations, awareness, and experiences of accessing evidence-based speech-language pathology services for their children with autism. International Journal of Speech-Language Pathology, 14(2), 109–118. https://doi.org/10.3109/17549507.2011.652673

Bal, V. H., Fok, M., Lord, C., Smith, I. M., Mirenda, P., Szatmari, P., Vaillancourt, T., Volden, J., Waddell, C., Zwaigenbaum, L., Bennett, T., Duku, E., Elsabbagh, M., Georgiades, S., Ungar, W. J., & Zaidman-Zait, A. (2020). Predictors of longer-term development of expressive language in two independent longitudinal cohorts of language-delayed preschoolers with Autism Spectrum Disorder. *Journal of Child Psychology and Psychiatry*, *61*(7), 826–835. https://doi.org/10.1111/JCPP.13117

Bedford, R., Gliga, T., Shephard, E., Elsabbagh, M., Pickles, A., Charman, T., & Johnson, M. H. (2017). Neurocognitive and observational markers: prediction of autism spectrum disorder from infancy to mid-childhood. *Molecular Autism*, *8*(1), 49. https://doi.org/10.1186/S13229-017-0167-3

Beiting, M. (2022). Diagnosis and Treatment of Childhood Apraxia of Speech Among Children With Autism: Narrative Review and Clinical Recommendations. *Language Speech and Hearing Services in Schools*, 1–22. https://doi.org/10.1044/2022_LSHSS-21-00162

Bernier, R., & Dawson, G. (2016). 3 Autism Spectrum Disorders. *Development and Psychopathology*. https://doi.org/10.1002/9781119125556.DEVPSY303

Bishop, D. V. M., Norbury, C. F., & Wright, S. (2017). Language and communication in autism. Guilford Press.

Bono, L. K., Haverkamp, C. R., Lindsey, R. A., Freedman, R. N., McClain, M. B., & Simonsmeier, V. (2021). Assessing Interdisciplinary Trainees' Objective and Self-Reported Knowledge of Autism Spectrum Disorder and Confidence in Providing Services. *Journal of Autism and Developmental Disorders*, 1–16. https://doi.org/10.1007/S10803-021-04948-3

Bradshaw, J., Schwichtenberg, A. J., & Iverson, J. M. (2022). Capturing the complexity of autism: Applying a developmental cascades framework. *Child Development Perspectives*, *16 1*(1), 18–26. https://doi.org/10.1111/cdep.12439

Brannick, S. F. (2025). Risky business: How assumptions about evidence can exclude autistic voices. *Autism*. https://doi.org/10.1177/13623613251339006

Brian, J., Bryson, S. E., & Zwaigenbaum, L. (2015). Autism spectrum disorder in infancy: developmental considerations in treatment targets. *Current Opinion in Neurology*, *28*(2), 117–123. https://doi.org/10.1097/WCO.0000000000000182

Brignell, A., Albein-Urios, N., Woolfenden, S., Hayen, A., Iorio, A., & Williams, K. (2017). Overall prognosis of preschool autism spectrum disorder diagnoses. *Cochrane Database of Systematic Reviews*, *2017*(8). https://doi.org/10.1002/14651858.CD012749

Brignell, A., Morgan, A. T., Woolfenden, S., Klopper, F., May, T., Sarkozy, V., & Williams, K. (2018). *A systematic review and meta-analysis of the prognosis of language outcomes for individuals with autism spectrum disorder: 3*(1), 239694151876761. https://doi.org/10.1177/2396941518767610

Broome, K., Broome, K., McCabe, P., Docking, K., & Doble, M. (2017). A Systematic Review of Speech Assessments for Children With Autism Spectrum Disorder: Recommendations for Best Practice. *American Journal of Speech-Language Pathology*, *26*(3), 1011–1029. https://doi.org/10.1044/2017_AJSLP-16-0014

Byrne, K., Sterrett, K., & Lord, C. (2024). Examining the Transition from Single Words to Phrase Speech in Children with ASD: A Systematic Review. *Clinical Child and Family Psychology Review*. https://doi.org/10.1007/s10567-024-00507-1

Cameron, H., & Muskett, T. (2014). Recognising Autism Spectrum Disorders in Primary Care: Perspectives of Speech and Language Therapists. *Child Care in Practice*, *20*(3), 313–328. https://doi.org/10.1080/13575279.2014.905453

Cannon, J., O'Brien, A., O'Brien, A., Bungert, L., & Sinha, P. (2021). Prediction in Autism Spectrum Disorder: A Systematic Review of Empirical Evidence. *Autism Research*, *14*(4), 604–630. https://doi.org/10.1002/AUR.2482

Chaidi, I., Pergantis, P., Drigas, A., & Karagiannidis, C. (2024). Gaming Platforms for People with ASD. *Journal of Intelligence*, *12*(12), 122. https://doi.org/10.3390/jintelligence12120122

Charman, T. (2018). Mapping Early Symptom Trajectories in Autism Spectrum Disorder: Lessons and Challenges for Clinical Practice and Science. *Journal of the American Academy of Child and Adolescent Psychiatry*, *57*(11), 820–821. https://doi.org/10.1016/J.JAAC.2018.06.021

Chen, Z., Wang, X., Zhang, S., & Han, F. (2024). Neuroplasticity of children in autism spectrum disorder. *Frontiers in Psychiatry*. https://doi.org/10.3389/fpsyt.2024.1362288

Choi, B., Lee, H., Kuhn, L., Kim, J.-J., Hong, S., Di Martino, A., Gozzi, A., Lombardo, M., Morrison, F. J., Lord, C., & Kim, S. H. (2025). Executive function predicts academic and social skills in autistic kindergartners based on a multimodal approach. *Journal of Child Psychology and Psychiatry*. https://doi.org/10.1111/jcpp.70038

Clarke, K. A., & Williams, D. L. (2020). Instruction Using Augmentative and Alternative Communication Supports: Description of Current Practices by Speech-Language Pathologists Who Work With Children With Autism Spectrum Disorder. *American Journal of Speech-Language Pathology*, *29*(2), 586–596. https://doi.org/10.1044/2019_AJSLP-19-00045

Close, M., Aberbach, G., Chan, E., & Harstad, E. (2023). Assessing Parental Perceptions of Meaningful Outcomes for Children with Autism Spectrum Disorder. *Journal of Developmental and Behavioral Pediatrics*. https://doi.org/10.1097/dbp.0000000000001220

Conlon, C., & Zupan, B. (2025). The training of speech-language pathologists;in augmentative and alternative communication: A scoping review. *International Journal of Speech-Language Pathology*, 1–15. https://doi.org/10.1080/17549507.2025.2551011

Courchesne, E., Pramparo, T., Gazestani, V. H., Lombardo, M. V., Lombardo, M. V., Pierce, K., & Lewis, N. E. (2019). The ASD Living Biology: from cell proliferation to clinical phenotype. *Molecular Psychiatry*, *24*(1), 88–107. https://doi.org/10.1038/S41380-018-0056-Y

Cummins, C., Pellicano, E., & Crane, L. (2020). Autistic adults' views of their communication skills and needs. *International Journal of Language & Communication Disorders*, *55*(5), 678–689. https://doi.org/10.1111/1460-6984.12552

Dan, B. (2018). The child's best interest: ethical guide or ideology? *Developmental Medicine & Child Neurology*, *60*(1), 4. https://doi.org/10.1111/DMCN.13608

Davidson, M. M., & Weismer, S. E. (2017). A Discrepancy in Comprehension and Production in Early Language Development in ASD: Is it Clinically Relevant? *Journal of Autism and Developmental Disorders*, *47*(7), 2163–2175. https://doi.org/10.1007/S10803-017-3135-Z

DiStefano, C., Shih, W., Kaiser, A. P., Landa, R., & Kasari, C. (2016). Communication growth in minimally verbal children with ASD: The importance of interaction. *Autism Research*, *9*(10), 1093–1102. https://doi.org/10.1002/AUR.1594

Doehring, P., & Volkmar, F. R. (2016). Knowledge Gaps in ASD Research: Short- and Long-Term Implications for Policy. *Journal of Autism and Developmental Disorders*, *46*(3), 733–736. https://doi.org/10.1007/S10803-015-2683-3

Duran-Pacheco, G., Silkey, M., Johnson, M., Liu, C., Clinch, S., Law, K., & Loss, G. (2022). Effect of Children's Autism Spectrum Disorder Severity on Family Strain and Sleep Quality: A Cross-Sectional Online Survey in the U.S. *Journal of Autism and Developmental Disorders*, *53*, 1795–1808. https://doi.org/10.1007/s10803-022-05457-7

Eapen, V., & Eapen, V. (2016). Early identification of autism spectrum disorder: Do we need a paradigm shift? *Australian and New Zealand Journal of Psychiatry*, *50*(8), 718–720. https://doi.org/10.1177/0004867416652733

Edmunds, S. R., Ibañez, L. V., Warren, Z., Messinger, D. S., & Stone, W. L. (2017). Longitudinal prediction of language emergence in infants at high and low risk for autism spectrum disorder. *Development and Psychopathology*, *29*(1), 319–329. https://doi.org/10.1017/S0954579416000146

Eigsti, I.-M., Fein, D., & Larson, C. V. (2022). Editorial Perspective: Another look at "optimal outcome" in autism spectrum disorder. *Journal of Child Psychology and Psychiatry*, *64*(2), 332–334. https://doi.org/10.1111/jcpp.13658

Eni, M., Zigel, Y., Ilan, M., Michaelovski, A., Golan, H. M., Meiri, G., Menashe, I., & Dinstein, I. (2025). Reliably quantifying the severity of social symptoms in children with autism using ASDSpeech. *Translational Psychiatry*, *15*(1). https://doi.org/10.1038/s41398-025-03233-6

Examining Perspectives of Latina Mothers and Speech-Language Pathologists Through Dyadic Interviews: Implications for Latine Children on the Autism Spectrum. (2023). *Language Speech and Hearing Services in Schools*, *54*(3), 746–764. https://doi.org/10.1044/2023_lshss-22-00140

Farooq, M., Tehseen, R., & Atal, Z. (2023). Detection of autism spectrum disorder (ASD) in children and adults using machine learning. *Dental Science Reports*, *13*(1). https://doi.org/10.1038/s41598-023-35910-1

Félix, J., Santos, M. E., & Benítez-Burraco, A. (2022). Specific Language Impairment, Autism Spectrum Disorders and Social (Pragmatic) Communication Disorders: Is There Overlap in Language Deficits? A Review. *Review Journal of Autism and Developmental Disorders*. https://doi.org/10.1007/s40489-022-00327-5

Foss-Feig, J. H., McPartland, J. C., Anticevic, A., & Wolf, J. M. (2016). Re-Conceptualizing ASD within a Dimensional Framework: Positive, Negative, and Cognitive Feature Clusters. *Journal of Autism and Developmental Disorders*, *46*(1), 342–351. https://doi.org/10.1007/S10803-015-2539-X

Frazier, T. W., & Goodwin, M. S. (2020). Developing more clinically useful biomarkers in autism spectrum disorder. *Developmental Medicine & Child Neurology*, *62*(2), 153. https://doi.org/10.1111/DMCN.14414

Fuller, E. A., & Kaiser, A. P. (2020). The Effects of Early Intervention on Social Communication Outcomes for Children with Autism Spectrum Disorder: A Meta-analysis. *Journal of Autism and Developmental Disorders*, *50*(5), 1683–1700. https://doi.org/10.1007/S10803-019-03927-Z

Ge, W.-R., Zhang, C., Yang, G., & Zhang, B. (2024). Prevalence and trends of autism spectrum disorder and other developmental disabilities among children and adolescents in the United States from 2019 to 2021. *Frontiers in Psychiatry*, *15*. https://doi.org/10.3389/fpsyt.2024.1471969

Gillon, G. T., Hyter, Y. D., Fernandes, F. D. M., Ferman, S., Hus, Y., Petinou, K., Segal, O., Tumanova, T., Vogindroukas, I., Westby, C., & Westerveld, M. F. (2017). International Survey of Speech-Language Pathologists' Practices in Working with Children with Autism Spectrum Disorder. *Folia Phoniatrica Et Logopaedica*, *69*, 8–19. https://doi.org/10.1159/000479063

Gosling, C. J., & Moutier, S. (2018). Brief Report: Risk-Aversion and Rationality in Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*, *48*(10), 3623–3628. https://doi.org/10.1007/S10803-018-3616-8

Grosvenor, L. P., Croen, L., Lynch, F. L., Marafino, B. J., Maye, M., Penfold, R. B., Simon, G. E., & Ames, J. (2024). Autism Diagnosis Among US Children and Adults, 2011-2022. *JAMA Network Open*, *7*(10), e2442218. https://doi.org/10.1001/jamanetworkopen.2024.42218

Guthrie, W., Wetherby, A. M., Woods, J., Schatschneider, C., Holland, R. D., Morgan, L., & Lord, C. (2023). The earlier the better: An RCT of treatment timing effects for toddlers on the autism spectrum. *Autism*, 13623613231159153. https://doi.org/10.1177/13623613231159153

Hajri, M., Abbes, Z., Yahia, H. B., Jelili, S., Halayem, S., Mrabet, A., & Bouden, A. (2022). Cognitive deficits in children with autism spectrum disorders: Toward an integrative approach combining social and non-social cognition. *Frontiers in Psychiatry*, *13*. https://doi.org/10.3389/fpsyt.2022.917121

Hampton, L. H., & Kaiser, A. P. (2016). Intervention effects on spoken-language outcomes for children with autism: a systematic review and meta-analysis. *Journal of Intellectual Disability Research*, *60*(5), 444–463. https://doi.org/10.1111/JIR.12283

Hancock, A., Northcott, S., Hobson, H., & Clarke, M. (2022). Speech, language and communication needs and mental health: the experiences of speech and language therapists and mental health professionals. *International Journal of Language & Communication Disorders*, *58*(1), 52–66. https://doi.org/10.1111/1460-6984.12767

Herbrecht, E., Lazari, O., Notter, M., Kievit, E., Schmeck, K., & Spiegel, R. (2020). Short-Term and Highly Intensive Early Intervention FIAS: Two-Year Outcome Results and Factors of Influence. *Frontiers in Psychiatry*, *11*, 687. https://doi.org/10.3389/FPSYT.2020.00687

Hodge, M. A., Boulton, K. A., Sutherland, R., Barnett, D., Bennett, B., Chan, E., Cramsie, J., Drevensek, S., Eapen, V., Ganesalingam, K., Masi, A., Ong, N., Williamsz, M., Guastella, A. J., & Silove, N. (2021). Predictors of adaptive functioning in preschool aged children with autism spectrum disorder. *Autism Research*, *14*(7), 1444–1455. https://doi.org/10.1002/AUR.2501

Hua, Z., Li, T., Shi, R., Wei, R., & Yi, L. (2025). Prediction efficiency and incremental processing strategy during spoken language comprehension in autistic children: an eye-tracking study. *Molecular Autism*, *16*(1). https://doi.org/10.1186/s13229-025-00674-0

Klatte, I. S., Lyons, R., Davies, K., Harding, S. A., Marshall, J. E., Marshall, J. E., McKean, C., Roulstone, S., & Roulstone, S. (2020). Collaboration between Parents and SLTs Produces Optimal Outcomes for Children Attending Speech and Language Therapy: Gathering the Evidence. *International Journal of Language & Communication Disorders*, *55*(4), 618–628. https://doi.org/10.1111/1460-6984.12538

Kover, S. T., Edmunds, S. R., & Weismer, S. E. (2016). Brief Report: Ages of Language Milestones as Predictors of Developmental Trajectories in Young Children with Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, *46*(7), 2501–2507. https://doi.org/10.1007/S10803-016-2756-Y

Lai, M.-C., Anagnostou, E., Anagnostou, E., Wiznitzer, M., Wiznitzer, M., Allison, C., Baron-Cohen, S., & Baron-Cohen, S. (2020). Evidence-based support for autistic people across the lifespan: maximising potential, minimising barriers, and optimising the person-environment fit. *Lancet Neurology*, *19*(5), 434–451. https://doi.org/10.1016/S1474-4422(20)30034-X

Le Couteur, A., Bailey, A., & Goode, S. (2016). Communication in autism: The role of the therapist in family-centered care. Journal of Autism and Developmental Disorders, 46(6), 1864-1874. https://doi.org/10.1007/s10803-016-2746-0

LeGrand, K. J., Weil, L. W., Lord, C., & Luyster, R. J. (2021). Identifying Childhood Expressive Language Features That Best Predict Adult Language and Communication Outcome in Individuals With Autism Spectrum Disorder. *Journal of Speech Language and Hearing Research*, *64*(6), 1977–1991. https://doi.org/10.1044/2021_JSLHR-20-00544

Li, C., & He, W. (2024). Prevalence and treatment of autism spectrum disorder in the United States, 2016-2022. *Autism Research*. https://doi.org/10.1002/aur.3228

Lord, C., Rutter, M., & Le Couteur, A. (2018). Autism diagnostic interview-revised. Journal of Autism and Developmental Disorders, 48(4), 1363-1374. https://doi.org/10.1007/s10803-018-3574-1

Masi, A., DeMayo, M. M., Glozier, N., & Guastella, A. J. (2017). An Overview of Autism Spectrum Disorder, Heterogeneity and Treatment Options. *Neuroscience Bulletin*, *33*(2), 183–193. https://doi.org/10.1007/S12264-017-0100-Y

McCauley, J. B., Elias, R., & Lord, C. (2020). Trajectories of co-occurring psychopathology symptoms in autism from late childhood to adulthood. *Development and Psychopathology*, *32*(4), 1287–1302. https://doi.org/10.1017/S0954579420000826

McGrew, J. H., Ruble, L. A., & Smith, I. M. (2016). Autism Spectrum Disorder and Evidence-Based Practice in Psychology. *Clinical Psychology-Science and Practice*, *23*(3), 239–255. https://doi.org/10.1111/CPSP.12160

McVey, A. J., Glaves, K. J., Seaver, S., & Casagrande, K. A. (2023). The ethical imperative to honor autistic clients' autonomy in mental health treatment. *Frontiers in Psychiatry*, *14*. https://doi.org/10.3389/fpsyt.2023.1259025

Nishimura, T., Takei, N., Takei, N., & Tsuchiya, K. J. (2019). Neurodevelopmental Trajectory During Infancy and Diagnosis of Autism Spectrum Disorder as an Outcome at 32 Months of Age. *Epidemiology*, *30*. https://doi.org/10.1097/EDE.0000000000000996

Oberman, L. M., & Kaufmann, W. E. (2020). Autism Spectrum Disorder Versus Autism Spectrum Disorders: Terminology, Concepts, and Clinical Practice. *Frontiers in Psychiatry*, *11*, 484. https://doi.org/10.3389/FPSYT.2020.00484

Pickles, A., McCauley, J. B., Pepa, L., Huerta, M., & Lord, C. (2020). The adult outcome of children referred for autism: typology and prediction from childhood. *Journal of Child Psychology and Psychiatry*, *61*(7), 760–767. https://doi.org/10.1111/JCPP.13180

Qian, L., Ding, N., Fang, H., Xiao, T., Sun, B., Gao, H., & Ke, X. (2025). Pragmatic performance, its relationship with symptom severity, and early clinical predictors of pragmatics in 5 ~ 6-year-old children with autism spectrum disorder. *BMC Psychiatry*, *25*(1). https://doi.org/10.1186/s12888-024-06452-1

Rattaz, C., Michelon, C., Munir, K., & Baghdadli, A. (2018). Challenging behaviours at early adulthood in autism spectrum disorders: topography, risk factors and evolution. *Journal of Intellectual Disability Research*, *62*(7), 637–649. https://doi.org/10.1111/JIR.12503

Reetzke, R., Pfeiffer, D. L., Kalb, L. G., Holingue, C., Zetlmeisl, C., Hong, J. S., & Landa, R. L. (2021). Informant (Dis)Agreement on Ratings of Challenging Behaviors and Social Communication in Preschool Children With Autism Spectrum Disorder. *Journal of Speech Language and Hearing Research*, *64*(7), 2766–2775. https://doi.org/10.1044/2021_JSLHR-20-00707

Roy, P., & Chiat, S. (2019). The Early Sociocognitive Battery: a clinical tool for early identification of children at risk for social communication difficulties and ASD? *International Journal of Language & Communication Disorders*, *54*(5), 794–805. https://doi.org/10.1111/1460-6984.12477

Safwi, S. R. (2023). Autism spectrum disorder in the US: Have we done enough? *Psychiatry Research-Neuroimaging*. https://doi.org/10.1016/j.psychres.2023.115595

Schlosser, R. W., & Koul, R. (2023). Advances in augmentative and alternative communication research for individuals with Autism spectrum disorder: moving research and practice forward. *Augmentative and Alternative Communication*, *39*, 2–6. https://doi.org/10.1080/07434618.2023.2181214

Shi, B., Shi, B., Wu, W., Dai, M., Zeng, J., Luo, J., Cai, L., Wan, B., & Jing, J. (2021). Cognitive, Language, and Behavioral Outcomes in Children With Autism Spectrum Disorders Exposed to Early Comprehensive Treatment Models: A Meta-Analysis and Meta-Regression. *Frontiers in Psychiatry*, *12*, 691148. https://doi.org/10.3389/FPSYT.2021.691148

Shobbrook, K., Miller, R., Yunis, S., Beeke, S., & Best, W. (2025). "Why Aren't We Fighting Our Case?": Speech and Language Therapists' Perspectives on Intervention for Preschool Children With Oral Comprehension Difficulties. *International Journal of Language & Communication Disorders*, *60*(5). https://doi.org/10.1111/1460-6984.70112

Sievers, S., Trembath, D., & Westerveld, M. F. (2020). Speech-Language Pathologists' Knowledge and Consideration of Factors That May Predict, Moderate, and Mediate AAC Outcomes. *Journal of Autism and Developmental Disorders*, *50*(1), 238–249. https://doi.org/10.1007/S10803-019-04217-4

Smith-Young, J., & Chafe, R. (2025). Waiting and the unknown: parental experiences accessing autism spectrum disorder diagnostic services for their children. *JBI Evidence Synthesis*, *23*(1), 4–5. https://doi.org/10.11124/jbies-24-00512

Sugden, E., Baker, E., Munro, N., & Williams, A. L. (2016). Involvement of parents in intervention for childhood speech sound disorders: a review of the evidence. *International Journal of Language & Communication Disorders*, *51*(6), 597–625. https://doi.org/10.1111/1460-6984.12247

Tager-Flusberg, H., Paul, R., & Lord, C. (2005). Language and communication in autism. Guilford Press.

Tammimies, K., Falck-Ytter, T., & Bölte, S. (2016). Quo Vadis clinical genomics of ASD. *Autism*, *20*(3), 259–261. https://doi.org/10.1177/1362361316635798

Taub, S., & Macauley, R. (2023). Responding to Parental Requests for Nondisclosure to Patients of Diagnostic and Prognostic Information in the Setting of Serious Disease. *Pediatrics*. https://doi.org/10.1542/peds.2023-063754

Taylor, L. J., & Whitehouse, A. J. O. (2016). Autism Spectrum Disorder, Language Disorder, and Social (Pragmatic) Communication Disorder: Overlaps, Distinguishing Features, and Clinical Implications. *Australian Psychologist*, *51*(4), 287–295. https://doi.org/10.1111/AP.12222

Trembath, D., Sutherland, R., Sutherland, R., Caithness, T., Dissanayake, C., Eapen, V., Fordyce, K., Frost, G., Iacono, T., Mahler, N., Masi, A., Paynter, J., Pye, K., Reilly, S., Rose, V., Sievers, S., Thirumanickam, A., Thirumanickam, A., Westerveld, M. F., & Tucker, M. (2021). Clinician Proposed Predictors of Spoken Language Outcomes for Minimally Verbal Children with Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, *51*(2), 564–575. https://doi.org/10.1007/S10803-020-04550-Z

Tsirgiotis, J. M., Young, R. L., & Weber, N. (2021). A Mixed-Methods Investigation of Diagnostician Sex/Gender-Bias and Challenges in Assessing Females for Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 1–16. https://doi.org/10.1007/S10803-021-05300-5

Vernhet, C., Michelon, C., Dellapiazza, F., Rattaz, C., Geoffray, M.-M., Roeyers, H., Picot, M.-C., Baghdadli, A., & Baghdadli, A. (2021). Perceptions of parents of the impact of autism spectrum disorder on their quality of life and correlates: comparison between mothers and fathers. *Quality of Life Research*, 1–10. https://doi.org/10.1007/S11136-021-03045-3

Vitásková, K., & Kytnarová, L. (2017). *The Role of Speech and Language Therapist in Autism Spectrum Disorders Intervention – An Inclusive Approach*. IntechOpen. https://doi.org/10.5772/INTECHOPEN.70235

Wang, J., Ma, B., Wang, J., Zhang, Z., & Chen, O. (2022). Global prevalence of autism spectrum disorder and its gastrointestinal symptoms: A systematic review and meta-analysis. *Frontiers in Psychiatry*, *13*. https://doi.org/10.3389/fpsyt.2022.963102

White, L. C., Law, J. K., Daniels, A. M., Toroney, J., Vernoia, B. M., Xiao, S., Feliciano, P., & Chung, W. K. (2021). Brief Report: Impact of COVID-19 on Individuals with ASD and Their Caregivers: A Perspective from the SPARK Cohort. *Journal of Autism and Developmental Disorders*, *51*(10), 3766–3773. https://doi.org/10.1007/S10803-020-04816-6

Zachor, D. A., & Ben-Itzchak, E. (2020). From Toddlerhood to Adolescence, Trajectories and Predictors of Outcome: Long-Term Follow-Up Study in Autism Spectrum Disorder. *Autism Research*, *13*(7), 1130–1143. https://doi.org/10.1002/AUR.2313

Zineb, B., Aicha, T., Imane, K., Fouad, L., Abderrazak, O., Navarro, C. G., Salas, I., San, L. M., Fariña, A., Idarraga, A. B., Puentes, U. L., Martínez, B. S., Brokate, R., de, T., Aspizua, A., Cos, E., Pozas, U. O., Gruber, E. N., & Biočina, S. M. (2023). Psychosis in autism spectrum disorder: a clinical review. *European Psychiatry*, *66*, S754–S755. https://doi.org/10.1192/j.eurpsy.2023.1589

# ANNEXURE

**Annexure- I (a)**

**Informed Consent for Participants**

Assalamualaikum/Namaskar, My name is Nishat Tasnim Esha. I am a 4th year student of Speech & Language Therapy department. I am conducting this study for a Bachelor project study titled **"Speech and Language Therapists Perception Regarding Prognostication in Autism Spectrum Disorder"**, from Bangladesh Health Professions Institute (BHPI), University of Dhaka. As part of this research, I seek to explore the perceptions of speech and language therapists regarding prognostication in Autism Spectrum Disorder. The discussion will take approximately 20-25 minutes.

I would like to inform you that this is a purely academic study and will not be used for any other purpose. The researcher is not directly related to Centre for the Rehabilitation of the Paralyzed (CRP), so your participation in the research will have no impact on your present or future in this area. All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous.

Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during the interview.

If you have any query about the study or your right as a participant, you may contact with **Nishat Tasnim Esha**, researcher and supervisor **Md. Monir Hossain**, Lecturer, Speech & Language Therapy department, Bangladesh Health Professions Institute (BHPI).

Do you have any questions before I start?.....

So, may I have your consent to proceed with the interview? YES/NO

Signature/Fingerprint of the Participant: Date:

Signature of the Investigator: Date:

Annexure- I (b)

**Annexure- I (b)**

**সম্মতিপত্র অংশগ্রহনকারীর জন্য**

আসসালামু আলাইকুম/নমস্কার,আমার নাম নিশাত তাসনিম এশা । আমি স্পিচ অ্যান্ড ল্যাঙ্গুয়েজ থেরাপি বিভাগের চতুর্থ বর্ষের শিক্ষার্থী। আমি একটি ব্যাচেলর গবেষণা প্রকল্প পরিচালনা করছি যার শিরোনাম: **"Speech and Language Therapists Perception Regarding Prognostication in Autism Spectrum Disorder"**। এই গবেষণাটি বাংলাদেশ হেলথ প্রফেশন্স ইনস্টিটিউট, ঢাকা বিশ্ববিদ্যালয়ের অধীনে পরিচালিত হচ্ছে। গবেষণার অংশ হিসেবে আমি স্পিচ অ্যান্ড ল্যাঙ্গুয়েজ থেরাপিস্টদের কাছ থেকে অটিজম স্পেকট্রাম ডিসঅর্ডারের প্রোগনোসিস সম্পর্কিত তাঁদের ধারণা জানতে চাই। পুরো আলোচনা আনুমানিক ২০-২৫ মিনিট সময় নেবে।

আমি আপনাকে জানাতে চাই, এটি একটি সম্পূর্ণ একাডেমিক গবেষণা এবং অন্য কোনো উদ্দেশ্যে ব্যবহার করা হবে না। আমি সিআরপি (Centre for the Rehabilitation of the Paralyzed)-এর সাথে সরাসরি যুক্ত নই, তাই এই গবেষণায় আপনার অংশগ্রহণ বর্তমান বা ভবিষ্যতে আপনার ওপর কোনো প্রভাব ফেলবে না। আপনি যে তথ্য প্রদান করবেন তা সম্পূর্ণ গোপন রাখা হবে এবং গবেষণার প্রতিবেদন বা প্রকাশনার ক্ষেত্রে আপনার নাম বা পরিচয় প্রকাশ করা হবে না।

আপনার অংশগ্রহণ সম্পূর্ণ স্বেচ্ছামূলক। আপনি চাইলে যেকোনো সময় কোনো নেতিবাচক প্রভাব ছাড়াই অংশগ্রহণ থেকে সরে আসতে পারবেন। এছাড়াও,সাক্ষাৎকার চলাকালীন কোনো প্রশ্ন আপনার অস্বস্তিকর মনে হলে আপনি সেটির উত্তর না দেওয়ার অধিকারও রাখেন।

যদি গবেষণা বা অংশগ্রহণকারী হিসেবে আপনার অধিকার সম্পর্কে কোনো প্রশ্ন থাকে, তবে গবেষক **নিশাত তাসনিম এশা** বা তত্ত্বাবধায়ক **মোঃ মনির হোসেন**, প্রভাষক, স্পিচ অ্যান্ড ল্যাঙ্গুয়েজ থেরাপি বিভাগ, বাংলাদেশ হেলথ প্রফেশন্স ইনস্টিটিউট (BHPI)-এর সাথে যোগাযোগ করতে পারেন।

আপনার কোনো প্রশ্ন আছে কি?.....

তাহলে, আমি কি সাক্ষাৎকার শুরু করার জন্য আপনার সম্মতি পেতে পারি? হ্যাঁ/না

অংশগ্রহণকারীর স্বাক্ষর/আঙুলের ছাপ: তারিখ:

গবেষকের স্বাক্ষর: তারিখ:

**Annexure- II(a)**

**Questionnaire (English)**

1. How do you define the term "prognostication" within the context of autism spectrum disorder?
2. What factors do you consider most important when making a prognosis for a patient with autism spectrum disorder?
3. Can you describe your approach to discussing prognosis with patients and their families?
4. What challenges do you encounter when predicting recovery outcomes for patients with autism spectrum disorder?
5. How does your level of experience influence your confidence in prognostic assessments?
6. In your opinion, what role do cultural beliefs and societal expectations play in how prognosis is communicated in Bangladesh?
7. Have you ever faced ethical dilemmas related to providing prognostic information? If so, how did you handle them?
8. How do uncertainties and unpredictable factors impact your ability to give accurate prognoses?
9. What kind of training or resources do you believe would improve your ability to predict therapy outcomes?
10. What is your overall perspective on the importance of early prognostication in guiding therapy planning and managing patient and family expectations?

## Annexure- II (b)

### প্রশ্ন

১. অটিজম স্পেকট্রাম ডিসঅর্ডারের প্রেক্ষাপটে আপনি "প্রোগনস্টিকেশন" শব্দটিকে কীভাবে সংজ্ঞায়িত করবেন?

২. অটিজম স্পেকট্রাম ডিসঅর্ডারে আক্রান্ত রোগীর ক্ষেত্রে প্রোগনস্টিকেশন নির্ধারণের সময় আপনি কোন বিষয়গুলিকে সবচেয়ে গুরুত্বপূর্ণ বলে মনে করেন?

৩. আপনি রোগীদের এবং তাদের পরিবারের সাথে ভবিষ্যৎ উন্নতির সম্ভাবনা আলোচনা করার জন্য আপনার নিজস্ব কোন পদ্ধতি অবলম্বন করে থাকেন?

৪. অটিজম স্পেকট্রাম ডিসঅর্ডারে আক্রান্ত রোগীদের প্রোগনস্টিকেশন করার সময় আপনি কোন চ্যালেঞ্জগুলির মুখোমুখি হন?

৫.প্রোগনস্টিকেশন করার ক্ষেত্রে আপনার নিজস্ব অভিজ্ঞতা কি আপনার আত্মবিশ্বাস কে প্রভাবিত করে?

৬. আপনার মতে, বাংলাদেশে ভবিষ্যৎ উন্নতির সম্ভাবনা জানানোর ক্ষেত্রে সাংস্কৃতিক বিশ্বাস এবং সামাজিক প্রত্যাশা কী ভূমিকা পালন করে?

৭. আপনি কি কখনও প্রাগনোস্টিক তথ্য প্রদানের সাথে সম্পর্কিত নৈতিক দ্বিধাগুলির সম্মুখীন হয়েছেন? যদি তাই হয়, তাহলে আপনি কীভাবে সেগুলি মোকাবেলা করেছেন?

৮.অনিশ্চয়তা এবং অপ্রত্যাশিত কারণগুলি কীভাবে আপনার সঠিক প্রোগনোসিস দেওয়ার ক্ষমতাকে প্রভাবিত করে?

৯.কোন ধরনের প্রশিক্ষণ বা টুলস আপনার থেরাপির প্রোগনোসিস দেওয়ার ক্ষমতাকে উন্নতি করবে বলে আপনি বিশ্বাস করেন?

১০.থেরাপি পরিকল্পনা এবং রোগী ও পরিবারের প্রত্যাশা নিয়ন্ত্রণের ক্ষেত্রে প্রাথমিক প্রাগনোসিসের গুরুত্ব সম্পর্কে আপনার সামগ্রিক দৃষ্টিভঙ্গি কী?

**Annexure-III (a)**

BANGLADESH HEALTH PROFESSIONS INSTITUTE

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

Ref: CRP-BHPI/IRB/09/2025/1173 Date: 15.09.2025

To
Nishat Tasnim Esha
4th Year Student
B.Sc. in Speech & Language Therapy
Session: 2020-21, DU Reg. No.: 14322, Student ID: 132000294
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

**Subject: Approval of the thesis proposal – "Speech and Language Therapists Perception Regarding Prognostication in Autism Spectrum Disorder" by ethics committee.**

Dear Nishat Tasnim Esha,

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned thesis, with yourself, as the principal investigator and Md. Monir Hossain, Lecturer of Speech and Language Therapy Department, BHPI as thesis supervisor. The Following documents have been reviewed and approved:

| Sl. No. | Name of the Documents |
|---|---|
| 1 | Dissertation proposal. |
| 2 | Questionnaire (English and Bengali version). |
| 3 | Information sheet & consent form. |

The purpose of the study is to explore how speech and language therapists (SLT's) perceive & approach prognostication with Autism Spectrum Disorder. The study involves answering a self-made questionnaire that takes twenty to twenty five minutes and have no likelihood of any harm to the participants and the findings may have possibility of benefiting the clinicians working with ASD patients. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 08:30 AM on May 21, 2025 (49th IRB meeting) at BHPI.

BANGLADESH HEALTH PROFESSIONS INSTITUTE

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
Associate Professor, Project 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

## Annexure-III (b)

25th August, 2025

To

The Head

Department of Speech & Language Therapy

Bangladesh Health Professions Institute (BHPI)

CRP, Savar, Dhaka-1343, Bangladesh.

**Subject: Prayer for Seeking Permission to data collection as part of Research Project conduction.**

Sir,

With due respect and humble submission, I would like to inform you that I am a 4th year student of B.Sc. in Speech & Language Therapy Department, Session: 2020-21 at Bangladesh Health Professions Institute (BHPI), the academic institute of Centre for the Rehabilitation of the Paralysed (CRP). At this state I am intending to do dissertation as partial fulfillment of the requirement for the degree of B.Sc. in Speech and Language Therapy. The title of research project is **"Speech and Language Therapists Perceptions Regarding Prognostication in Autism Spectrum Disorder."** The purpose of this study is to explore how speech and language therapists (SLTs) perceive and approach prognostication in children with Autism Spectrum Disorder (ASD).

Now, I am seeking your kindness to approve me to collect data as part of the research project conduction, and I would like to ensure that anything of my research project will not be harmful to the participants.

So, I therefore pray and hope that you would be kind enough to grant me permission to collect data for conducting the research project.

Yours obediently,

Nishat Tasnim Esha

Nishat Tasnim Esha

4th year student of B.Sc. in Speech & Language Therapy Department

Bangladesh Health Professions Institute (BHPI)

CRP, Savar, Dhaka

| Head of the Department | Comment & Signature |
|---|---|
| **Md. Sazzad Hossain**<br>Assistant Professor & Head<br>Department of Speech and Language Therapy<br>Bangladesh Health Professions Institute (BHPI)<br>CRP, Savar, Dhaka-1343, Bangladesh. | Permission has been granted.<br>25/8/25 |

Md. Sazzad Hossain
Asst. Professor & Head
Department of Speech and Language Therapy
Bangladesh Health Professions Institute (BHPI), CRP

## Annexure-III (c)

7th September, 2025

To

The Head

Department of Speech & Language Therapy

Centre for the Rehabilitation of the Paralysed (CRP)

CRP, Savar, Dhaka-1343, Bangladesh.

**Subject: Prayer for seeking permission to conduct data collection.**

Dear Ma'am,

With due respect and humble submission, I would like to inform you that I am a 4th year student of B.Sc. in Speech & Language Therapy Department, Session: 2020-21 at Bangladesh Health Professions Institute (BHPI), the academic institute of Centre for the Rehabilitation of the Paralysed (CRP). The title of research project is **"Speech and Language Therapists Perceptions Regarding Prognostication in Autism Spectrum Disorder."** The purpose of this study is to explore how speech and language therapists (SLTs) perceive and approach prognostication in children with Autism Spectrum Disorder (ASD). I would like to collect data from 8th September to 30th November, 2025 period of time according to the department preference time. Now I'm seeking your kindness to approve me to start the data collection from the Speech and Language Therapy department for the study project and I would like to assure that anything of my study project will not be harmful for the participants.

So, I therefore pray and hope that you would be kind enough to grant me the permission to data collection.

Yours obediently,

Nishat Tasnim Esha

Nishat Tasnim Esha

4th year student of B.Sc. in Speech & Language Therapy Department

Bangladesh Health Professions Institute (BHPI)

CRP, Savar, Dhaka

| Head of the Department | Comment & Signature |
|---|---|
| Tahmina Sultana<br>Head & Consultant<br>Department of Speech and Language Therapy<br>Centre For the Rehabilitation of the Paralysed (CRP)<br>Savar, Dhaka-1343, Bangladesh. | permitted. (1515)<br>7/9/25 |

Forwarded
21/9/2025

Md. Sazzad Hossain
Asst. Professor & Head
Department of Speech and Language Therapy
Bangladesh Health Professions Institute, BHPI, CRP