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INTERACTIONAL FACTORS AND IMPROVED SOCIALIZATION IN CHILDREN WITH AUTISM. Case study: Einstein Institute, Yaounde

A Dissertation of a Master's Degree of Education defended on 05th November 2024

Option: **Special Education**

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by

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SUMMARY

APPROVAL

This Master's dissertation entitled: "***Interactional Factors And Improved Socialization In Children With Autism Case study: Einstein Institute, Yaounde"*** has been read and approved by the undersigned as meeting the requirements of the University of Yaounde I (UYI).

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CERTIFICATION

I the under signed, hereby certify that the thesis entitled "***Interactional Factors And Improved Socialization In Children With Autism. Case study: Einstein Institute, Yaounde"*** submitted to the department of Curriculum and Evaluation, Faculty of Education in the University of Yaounde 1 was carried out by MOFOR PRECIOUS MAH, Registration number 21V3559, was carried out under my supervision. The work has been properly referenced and acknowledged.

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DECLARATION

I, MOFOR PRECIOUS MAH, a student of the Department of Curriculum and Evaluation in the Faculty of Education of the University of Yaounde I, Registration number 21V3420, hereby declares that this piece of work entitled **"*Interactional Factors And Improved Socialization In Children With Autism. Case study: Einstein Institute, Yaounde",*** under the supervision of Dr. BITOGO Joseph**,** is my personal work and all used materials have been acknowledged by means of questions and references.

MOFOR PRECIOUS MAH

Student

Signature: _____

Date: _____

This work is dedicated to my family and friends.

APPRECIATION

I extend my deepest gratitude to Dr. Bitogo Joseph for his invaluable guidance and dedication to directing this research, despite his demanding schedule. His mentorship has been instrumental in introducing me to the world of research and helping me produce this study.

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LIST OF ABBREVIATIONS, INITIALS AND ACRONYMS

APA:	American Psychologist Association
ASD:	Autism Spectrum Disorder
CRPD:	Convention on the Rights of Persons with Disabilities
DSM:	Diagnostic Statistic Manual
EBP:	Evidence Based Practices
ICFD:	International Classification of the Function of the Function of Disability
ICIDH:	International classification of impairment disability and handicap
NDD:	Neuro developmental disorder
PWD:	People with Disabilities
SED:	Special Education Needs
UNO:	United Nations Organisation
WHO:	World Health Organization

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ABSTRACT

This research, entitled " ***Interactional Factors And Improved Socialization In Children With Autism. Case study: Einstein Institute, Yaounde***," investigates the significant impact of communication stimulation techniques on the socialization of autistic children attending special needs schools in Cameroon. These techniques, which include the use of Augmentative and Alternative Communication (AAC) such as using visual aids like picture exchange communication systems, speech-generating devices or sign language, Social Stories, visual schedules, Peer-Mediated interventions, video modeling, amongst others, are of critical importance in fostering their social interactions. Despite the proven effectiveness of these techniques, direct observations conducted during an internship at the Einstein Psychopedagogical Institute in Melen, Yaoundé, Cameroon, revealed a surprisingly low level of socialization among autistic children. This is a matter of particular concern, given that these children are enrolled in a specialised institution designed to support their development, with trained staff who apply these communication stimulation techniques.

In Cameroon, a developing country in Central Africa, a number of factors may impede the expected outcomes of these interventions, including cultural and religious norms, family dynamics, and environmental factors such as technology and infrastructure. The severity of autism is also a significant factor. The objective of this research is to ascertain why these communication stimulation techniques appear to be less effective within this context. By examining the interplay between familial, cultural, and environmental influences, we aim to identify the barriers that limit the success of these methods. The objective is to gain insight into these limitations through direct observation and interviews with the teachers, in order to use the information to propose more tailored and contextually appropriate strategies and interventions that could enhance the socialisation of autistic children in Cameroon. This would ensure that these techniques are better adapted to their distinctive needs and circumstances, thereby improving the quality of life of autistic children enrolled in special needs schools in Cameroon children.

RESUME

Cette recherche, intitulée « Facteurs interactionnels et amelioration de la socialisation chez les enfants autistes », étudie l'impact significatif des techniques de stimulation de la communication sur la socialisation des enfants autistes fréquentant les écoles spécialisées au Cameroun. Ces techniques, qui comprennent l'utilisation de la communication améliorée et alternative (CAA), comme l'utilisation d'aides visuelles telles que les systèmes de communication par échange d'images, les appareils générateurs de parole ou le langage des signes, les histoires sociales, les horaires visuels, les interventions médiatisées par les pairs, la modélisation vidéo, entre autres, sont d'une importance cruciale pour favoriser leurs interactions sociales. Malgré l'efficacité prouvée de ces techniques, des observations directes menées lors d'un stage à l'Institut psychopédagogique Einstein à Melen, Yaoundé, Cameroun, ont révélé un niveau de socialisation étonnamment bas chez les enfants autistes. Cette situation est d'autant plus préoccupante que ces enfants sont scolarisés dans une institution spécialisée conçue pour soutenir leur développement, avec un personnel formé qui applique ces techniques de stimulation de la communication.

Au Cameroun, pays en développement d'Afrique centrale, un certain nombre de facteurs peuvent entraver les résultats escomptés de ces interventions, notamment les normes culturelles et religieuses, la dynamique familiale et les facteurs environnementaux tels que la technologie et l'infrastructure. La gravité de l'autisme est également un facteur important. L'objectif de cette recherche est de déterminer pourquoi ces techniques de stimulation de la communication semblent moins efficaces dans ce contexte. En examinant l'interaction entre les influences familiales, culturelles et environnementales, nous cherchons à identifier les obstacles qui limitent le succès de ces méthodes. L'objectif est de comprendre ces limites par l'observation directe et les entretiens avec les enseignants, afin d'utiliser ces informations pour proposer des stratégies et des interventions plus adaptées et contextuelles qui pourraient améliorer la socialisation des enfants autistes au Cameroun. Ces techniques seraient ainsi mieux adaptées à leurs besoins et circonstances spécifiques, ce qui améliorerait la qualité de vie des enfants autistes scolarisés dans des écoles spécialisées au Cameroun.

FIRST PART: CONCEPTUAL AND THEORETICAL FRAMEWORK OF THE STUDY

CHAPTER 1: PROBLEMATIC OF STUDIES

GENERAL INTRODUCTION

ASD stands for Autism Spectrum Disorder, which refers to a neuro-developmental disability that affects social interaction, communication, and repetitive behaviors (National Institute of Mental Health, 2022). Communication stimulation techniques, which include the use of Augmentative and Alternative Communication (AAC) such as using visual aids like picture exchange communication systems, speech-generating devices or sign language, Social Stories, visual schedules, Peer-Mediated interventions, video modeling, amongst others, have received numerous awards for their effectiveness in improving the socialisation of children with autism from around the world (Hodges et al., 2020). However, direct observation and interviews carried out during an internship at the Einstein Psychob pedagogical institute suggest that they are less effective, which raises concerns and therefore calls for further research.

The cultural and socio-economic diversity of Cameroon makes it challenging for Special Needs Centres to incorporate these evidence-based techniques. The effectiveness of these interventions may be influenced by various factors, some of which include; family structure, environment, culture and intensity of autism incidence (Aderinto et al., 2023). The study aims to determine the reasons for the differences in which communication stimulation techniques have been found to be effective when used in other countries, but similar techniques have not produced similarly effective results in Cameroon.

As this research concerns special education centers in Cameroon, this paper aims to identify the contextual factors that prevent the successful implementation of the above communication stimulation techniques. Tailored and effective interventions need to be formulated within the culture and environment of Cameroon; to do this successfully, recognition of these barriers is therefore critical (Ahlers et al., 2023). Furthermore, this research seeks to add its voice to the global discussion on autism education by focusing on a conceptualisation of Evidence Based Plans (EBPs) that takes into account factors of operational relevance. Against this background, this study aims to provide recommendations and suggestions that could help to improve the situation and social interaction of autistic children in Cameroon.

Context and Justification of Research

This research study employs two conceptual frameworks: The theoretical frameworks of Social Interaction Theory and Evidence-Based Practice (EBP) are employed in this study. These theories provide a unified theoretical framework for analyzing the extent to which communication stimulation strategies effectively enhance social interactions among Cameroonian children with autism.

The tenets of Social Interaction Theory posit that an individual's capacity to interact within a social milieu is acquired through the medium of interaction itself. The quality and level of interaction provided to autistic children play a pivotal role in the promotion of communication skills and social roles (Ma et al., 2023). Children with autism spectrum disorder (ASD) have the option of receiving targeted interventions from trained specialists in special education centers. It is possible that the culture, values, family practices, roles and social relations in Cameroon's socio-cultural setting may exert an influence on the efficiency of these interactions. To illustrate, the prevalence of extended family structures and the practice of cohabitation can either facilitate or impede the socialisation process, contingent on the recognition and comprehension of autism within the community that is providing support to the family (Kedy et al., 2023). It is therefore essential to gain an understanding of the socio-cultural practices of the people in question in order to be able to adapt to the new forms of communication that are appropriate to a particular culture.

The Evidence-Based Practices framework is based on the application of clinical experience, patient preferences and evidence derived from research findings. This approach is supported by the scientific proof of the efficacy of communication stimulation techniques on a global scale (Hume et al., 2021). However, the implementation of these techniques requires the incorporation of practical measures that align with local resources, constraints, cultures and environments. For instance, methods based on unique technology or encompassing frequent individual contacts may require modification to suit the specific context of Cameroonian special education centers, which frequently face resource constraints. The application of the Social Interaction Theory in conjunction with the recommended EBP plan also aims to ascertain the contextual factors pertaining to the Cameroonian context that may impede or facilitate the efficacy of the selected techniques in the communication process. The combined findings demonstrate that the interventions are evidence-based and culturally and environmentally appropriate, thereby facilitating greater social integration of the targeted children with autism within the region.

Problem statement

Empirical evidence

The empirical evidence used in this study was collected from observations made on the sample from the Einstein Institute in Melen Yaounde. This is one of the special education centres in Cameroon. Despite the use of universally adopted communication stimulation teaching methods at this institute, the children with autism did not significantly improve their socialisation skills, which led to an investigation into the dynamics behind this (Dubois-Sage et al., 2024).

Observations made during this study revealed that a significant number of children with autism enrolled at the Einstein Institute have significant problems with social interaction, including difficulties with conversation, eye contact and group participation (Montaser et al., 2023). The above findings regarding tactile defensiveness were observed both in terms of severity of autism and age of onset. The communication skills used by their special educators in the classroom included augmentative and alternative communication (AAC) systems such as picture exchange, social stories or narratives, visual supports and schedules, speech and language therapy, behavioural interventions, sign language, music therapy and play schedules (Moosapoor, 2023). Nevertheless, it was expected that more socially appropriate behaviour would be observed in these children in the centre.

During the research, several limitations of these techniques were identified by teachers and parents. Some of the problems identified by the teachers were inadequate training and support, physical class size and overcrowded classes, which limited teachers' opportunities to work with these children on a one-to-one basis (Petersson-Bloom & Holmqvist, 2022). The cultural stigma of autism was cited here, which meant that children with the disorder could rarely engage in activities other than schooling due to the social taboos associated with autism. There is also the issue of inequality between the intervening countries. Based on these empirical discoveries, it is clear that there are multiple barriers to effective communication stimulation in special education centers in Cameroon. To overcome these barriers, it becomes essential to integrate solutions such as improving professional development to ensure teachers are prepared to handle the children and to involve parents to ensure at least one parent can monitor their child and also modify the techniques so that they are relevant to the children's

culture and environment (Mitchelson et al., 2022). A detailed understanding of these areas of decline is therefore essential in formulating appropriate interventions that can help to improve the socialisation of autistic children in Cameroon.

Theoretical Findings

Based on the proposed framework of social interaction theory and evidence-based practice (EBP), this study aims to develop theoretical insights into the identified research questions on the difficulties and potentially viable strategies for improving communication facilitation approaches for autistic children in Cameroon.

Social interaction theory provides a background to how individuals interact with people in their social environment and how this relates to their social development. It states that autistic children derive particular benefit from structured social encounters that enable them to imitate relevant communication skills (Zervogianni et al., 2020). Cameroonian culture and the extent to which families support their female children and relatives influence the application of this theory (Petersson-Bloom & Holmqvist, 2022). For example, although most Cameroonian societies have collectivist characteristics, what could be a disadvantage in most cases could allow for the social fulfilment of the autistic child if well provided for. However, cultural attitudes and people's low awareness of autism can sometimes limit these opportunities, resulting in less effective social interaction.

The key principles of EBP are the use of clinical judgement, patient preferences and research evidence in making decisions about the educational process. This framework also endorses the use of communication stimulation techniques that have been identified by research and shown to be effective (Novak et al., 2021). However, for Cameroon, these techniques have different considerations depending on the country's circumstances. The theory analysed shows that, although the use and presentation of these techniques is effective, the teaching must be adapted to local cultural, family and environmental specificities. This adaptation involves the following: modifying the methods so that they are more suitable for use in the culturally diverse African environment. Ensuring that they are applicable given the limited resources available there, and finally, making the techniques more responsive to the values of the subjects in an African setting (Petersson-Bloom & Holmqvist, 2022).

The decision to incorporate Social Interaction Theory and the EBP framework underlines the need to strengthen imported approaches with local practices. For example, valuable primary interventions established and used in Western countries may need significant modification to be effectively implemented in Cameroon. Such modifications could include strategies to implement the above aspects, taking into account the realistic resources available, training teachers and caregivers to promote the skills in a culturally sensitive manner, and working with the community to demystify autism and mobilise them to accept children with the disorder. After reviewing the theoretical and empirical evidence, we therefore identify the scientific problem that is the inadequate level of socialisation of children with autism.

Research Questions General research questions

- Do factors influencing communication stimulation techniques used in Cameroon influence their effectiveness in improving the socialisation of autistic children?
- Specific research questions

- Does the family environment in Cameroon influence the socialisation outcome of autistic children?
- Does culture and environment influence the socialisation of autistic children in Cameroon?
- Does the severity of autism in Cameroon influence the results of these communication stimulation techniques?

Hypothesis General Hypothesis

- Factors influencing the communication stimulation techniques practised in Cameroon influence their effectiveness in improving the socialisation of autistic children.

Specific Hypotheses

The family environment in Cameroon influences the socialisation outcomes of autistic children.

- Environmental and cultural factors influence the socialisation of autistic children in Cameroon.
- The severity of autism cases in Cameroon influences the results of these communication stimulation techniques.

Objectives of the Study General objectives

To show the effectiveness of communication stimulation techniques practiced in Cameroon in influencing the socialization of autistic children.

Specific objectives

1. To show family settings in Cameroon influence socialization of children with autism.
2. To show environmental, and cultural factors influence socialization of autistic children.
3. To analyze how the severity of autism cases affects the efficiency of these communication stimulation techniques.

Delimitation of the study

These are the boundaries that are set within our study. Indeed, it is a question of determining the extremities or the borders of our study on the spatio-temporal plan and thematically.

On the spatio-temporal plan

This is to describe the geographical composition of our study. We would have liked to extend our research to all the special needs centers for children with disabilities in the central region to make our results more reliable. Given various financial and time constraints, we will limit this study to the Einstein Intitute.

This study spanned the academic year 2022-2023 It began with a pre-survey and documentary research.

CHAPTER 2: LITTERATURE REVIEW

Autism spectrum disorder (ASD)

Autism is a developmental disorder diagnosed at a very early age that affects a child's communication skills, social interaction and behaviour (Hodges et al., 2020). According to the DSM-5, the primary criteria for diagnosing ASD are impairments in social communication and interaction, as well as restricted and repetitive behaviours, interests and activities (Lordan et al., 2021). ASD is currently on the rise, particularly in developed countries, with one in 54 children affected, making it a significant health problem in any society (Aderinto et al., 2023). In addition to its statistical significance, it affects people's lives because of the specific individual presentation of ASD, which can manifest in different ways (Kalra et al., 2023). According to the National Institute on Deafness and Other Communication Disorders (2020), the main characteristics of ASD include problems with interaction and communication, socialisation and play or interest. In addition, enhanced features of individuals with ASD include background sensory overload in verbal and nonverbal ways, not to mention increased difficulties in interpersonal communication (National Institute on Deafness and Other Communication Disorders, 2020). The history of autism research and intervention began before the twentieth century when two researchers, Leo Kanner and Hans Asperger, paved the way for the identification of the disorder (Hodges et al., 2020). In the years that followed, the focus of studies also shifted to include different theoretical perspectives and treatment modalities to improve the functioning of clients with ASD. While some therapies involve proactive talking, learning and medical treatments, research into the subject is still extensive as researchers seek to understand and respond more effectively.

History of Handicap

The World Health Organisation (WHO), through Philip Woods and his team, developed the International Classification of Disabilities and Impairments (ICIDH) in 1980. The term "disability" comes from the English phrase "hand in cap", a 17th century gambling game. By the 1930s, "handicap" had become synonymous with deficiency and incapacity.

According to WHO, disability encompasses all limitations on activities and participation due to significant, lasting, or permanent impairments, whether psychic, physical, sensory, mental, or cognitive (law 2005-102 of 11/02/05, article 14). The concept of disability also considers the social context of the individual, framing disability not just as a state but as a situation. Hence, the term ―handicap situation‖ often refers to conditions arising from psychic, mental, sensory, or cognitive origins. The most accepted definition of handicap includes environmental factors, attributing the cause to functional impairments.

- **Impairment**: Any loss of psychological, physiological, or anatomical structure or function of the body, usually physiological.
- **Disability**: Any restriction resulting from an impairment that partially or totally limits one's ability to perform activities considered "normal," such as an amputee's inability to climb stairs.
- **Disadvantage**: The resulting social limitation from a disability, influenced by factors like age, gender, and social or cultural background.

In 2001, WHO introduced the ICF to modernize the ICIDH approach, translating "handicap" to "disability." This version addresses disability more comprehensively, incorporating environmental and personal factors as influencers that can either mitigate or exacerbate the condition. The ICF outlines the following components :

- **Body Functions and Structures**: Considered impairments, involving physiological loss or lack of body functions or parts.
- **Limitation in Activities**: The loss of capacity to perform certain tasks due to impairment, contributing to difficulties in specific activities.
- **Restriction in Participation**: Situations limiting involvement in social activities, work, school, or family life.
- **Environmental Factors**: The physical, social, and cultural environment affecting the individual.
- **Personal Factors**: Unique individual attributes such as identity and personality.

The models of disability

Various models of disability exist, but we will highlight the major ones relevant to societal context. The application of a particular model often depends on the society. Some individuals reject the label of disability while acknowledging their impairment. Therefore, it's crucial to present models that adapt the concept of disability to each unique setting and situation. These models include:

The Medical Model

The medical model views disability as an individual issue that requires remedy. This perspective treats disability as a "personal problem," as suggested by Marno L. and Lantao S. Letsosa (2018). Under this model, the person with a disability is often seen as a burden to their family, as their disability impacts their life significantly.

The Social Model of Disability

The social model considers disability as a socially constructed phenomenon. Beyond physical, social, psychic, and mental aspects, disability is shaped by societal attitudes. This model, created by the British disability movement in the 1960s and 1970s, challenges the medical model's view of disability as an illness needing cure. It emphasizes societal contributions to disability and informed the drafting of the United Nations Convention on the Rights of Persons with Disabilities (CRPD), aiming to remove barriers and promote adaptation.

The Human Rights Model

Often confused with the social model, the human rights model differs in application and perspective. Anna and Becket distinguish between the two, highlighting the human rights model‘s focus on dignity and the incorporation of both civil/political and economic/social/cultural rights (Degener 2017). Unlike the social model, it acknowledges the pain and suffering experienced by some PWDs and emphasizes identity politics and prevention policies as human rights protection. This model offers practical proposals to improve the lives of PWDs and examines how laws and technologies prevent marginalization and uphold CRPD conventions (Anna and Lawson, 2020).

The Identity Model

Connected to the social model, the identity model, also known as the affirmative model, affirms disability as shaped by society. It transcends political and social models, highlighting how societal norms and institutions influence the affirmation and identity of individuals with disabilities (Retief, M. & Letšosa, R., 2018). This model provides an individualistic view of disability.

The Cultural Model of Disability

Developed in North America by scholars, the cultural model addresses how it differs from social and medical models. It examines the participation and relationships between disabled and non-disabled individuals. This model views disability as a deficit and deficiency that limits participation, leading to the creation of societal minorities (Marno Retief and Rantoa Letšosa, 2020).

Types of Disability Physical Disability

A physical disability is defined as the limitation of certain physical functions of an individual. Physical activity is decreased and/or participation restricted, due to an organic disorder or chronic disease. Thus, physical disability includes a wide variety of disabilities: visual disability, hearing disability, disabling diseases (allergy, multiple sclerosis, etc.) and motor disability.
Motor disability represents all disorders resulting in partial or total impairment of motor skills: difficulties in moving, in changing position or remaining static, in performing certain gestures. To Banenjel (2021) this type of disability can be caused either at a prenatal stage (during the pregnancy) during the process of giving birth, 28 days after birth, and during the period of infancy.

Social disability

Social disability refers to the limitation of an individual's ability to participate and integrate socially within the society. It originates from the handicapped situation of the person's abilities (Banenjel, 2021). Numerous circumstances can result in social disability, including the experiences of refugees due to immigration, street children, orphans, and similar scenarios.

Intellectual disability

Intellectual disability refers to an impairment of cognitive abilities, which can manifest itself in

learning, organisation, abstraction or reasoning. The relationship between a person with a disability and their environment influences the degree of disability. This interaction can be either favourable or unfavourable. The term has been updated to 'intellectual disability'. Levels of mental retardation are classified as follows: mild mental retardation (QI 50-70), moderate mental retardation (QI 35-49), severe mental retardation (QI 20-34) and profound mental retardation (QI less than 20). Education depends on the level of the child (Banenjel, 2021). There are different types of intellectual disabilities in special education, such as autism, Down syndrome and ADHD. Our focus will be on the study of ASD (Autism Spectrum Disorder).

Autism Spectrum Disorder (ASD)

The term Autism Spectrum Disorder (ASD) refers to a group of neurodevelopmental impairments conditions characterized by uncommon atypical development in the domains of social communication, social interaction, adaptive behavior plus presence of restricted and repetitive response patterns behavior, communication, and socialization (Tobing & Glenwick, 2002; Shu, 2009). The term ―spectrum‖ is used to denote the wide range of symptoms, skills and levels of impairments in functioning that individuals diagnosed with ASD can experience (DSM- 5; APA, 2013).

Both Kanner (1943) and Asperger (1944) published clinical studies that provided the first detailed reports of autistic symptoms and behaviours. In addition to redefining autism as a neurodevelopmental disorder as opposed to a childhood form of schizophrenia (Bleuler, 1911), Kanner's and later Asperger's clinical findings provided the basis for scientific studies in the conceptualisation, definition and identification of autistic disorders. Kanner (1943) published an article entitled "Autistic Disturbances of Affective Contact". Here he described the cases of eleven children with autism who exhibited similar impairments and responses to social stimuli, with specific features common to all children, including preoccupation with objects,

repetitive behaviors, insistence on consistency, and deficiencies of language, among other behaviors. Kanner (1943) explained that children with autism seemed unable to relate to others, with specific social deficits involving the failure to recognize and react to a caregiver when being picked up, or the inability to use language for the purpose of social communication. Kanner (1943) also observed that the initial group of 11 children reacted to loud noises and moving objects with horror, and with repetitious utterances. He interpreted these reactions to indicate that these children had an obsessive desire to maintain sameness in their environment.

The spectrum of clinical conditions labeled ―autism‖ soon expanded beyond Kanner's first description. In 1944, Hans Asperger described a group of 4 children he also called _autistic', but who seemed to have high non-verbal intelligence quotients and who used a large vocabulary correctly during conversations. In addition to the marked difficulties in social interaction, Asperger also noted other features present in these cases. Asperger (1944) described autistic children as possessing impaired nonverbal social skills, idiosyncratic, communication, egocentric obsessions and special interests, intellectualization of affect, gaucheness and poor body awareness, and behavioral problems. Unlike Kanner, Asperger (1979) argued that speech and language skills early in life were apparently normal, and that the condition was not able to be recognized before 36 months of age. Furthermore, Asperger (1944, 1979) specified that the core diagnostic features of this syndrome were: social impairment (i.e., poor empathy, failure to develop friendship), motor clumsiness, all absorbing interests, and language/communication impairments (i.e., impoverished imaginative play, idiosyncratic language). Kanner (1943) presented three diagnostic criteria pertaining to deficits in reciprocal social interactions; atypical development and use of language; repetitive and ritualized behaviors; and a narrow range of interests as the core features in individuals with ASD. The high similarity between this set of diagnostic criteria have led to the suggestion that both Kanner and Asperger were describing the same condition, but focused their investigations on two different sub-types of autism.

The evolution of autism diagnoses criteria by the Diagnosis and Statistic manual for mental disorder (DSM)

This discourse on how autism spectrum disorder should be addressed postulated made to identify the diagnostic and classification of autism over time. Many countries and researchers rely on the

statistic manual for mental disorder (DSM) which has had some major changes over the years with regards to the diagnosis criteria of autism spectrum disorder.

Autism was first introduced as a distinct disorder of early childhood in the third edition of the DSM (APA, 1980), and was referred to as ―Infantile Autism‖ (IA). The DMS-III (APA, 1980) presented six diagnostic criteria, and required that the child show early and pervasive evidence on all of the following diagnostic criteria: 1) Pervasive lack of responsiveness to other people; 2) Gross deficits in language development; 3) Peculiar speech patterns, if speech is present at all; 4) Bizarre responses to the environment; 5) An absence of delusions, hallucinations, loosening of associations, and incoherence as in schizophrenia; and 6) Early onset (prior to thirty months) of criterion 1-5 impairments. These early DSM criteria, whilst representing formal recognition of the existence of autism, were also criticized because they primarily accounted for children exhibiting symptomatology close to birth, causing poor identification of the subgroup of children who experienced a loss of skills after some years of normal development (Volkmar, Cohen, & Paul, 1986; Wing, 1981). This diagnostic limitation was addressed in the DSM-III-R (APA, 1987) which maintained the diagnosis for children with early-onset neurological impairment and introduced the additional label of Regressive Autism (RA) to account for those cases in which deterioration of functional skill was evident. This inclusion of two diagnoses was significant as it provided the first acknowledgement that autism was not a single condition (APA, 1987). However, the DSM-III-R (APA, 1987) was also criticized because the diagnostic criteria for IA and RA were considered to be too narrow to account for the full range of symptoms/behaviors shown by children with autism, especially those who were high functioning.

The DSM-IV/DSM-IV-TR (APA, 1994/2000) sought to rectify this limitation by introducing a broad classification (i.e., Pervasive Developmental Disorder) which encompassed five specific diagnoses (i.e., Autistic Disorder, Pervasive Developmental Disorder-Not Otherwise Specified, Asperger‘s Disorder, Rett‘s Disorder, and Childhood Disintegrative Disorder). The DSM-IV/DSM-IV-TR formally introduced the diagnosis of Asperger‘s Syndrome as the diagnosis that would account for individuals with age-appropriate language and intelligence but atypical socialisation and adaptive skills.

The DSM-IV-TR (APA, 2000) used the ―triad of impairment model‖ as the basis for establishing the diagnostic criteria for autism disorder. That model, which was developed by Wing and

Gould (1979), argued that autism could be identified by evidence of delayed development in reciprocal social interaction [i.e., poor eye contact and inability to engage in joint attention] (Hobson & Lee, 1999; Wimpory, Hobson, Williams, & Nash, 2000) (Criterion A); language and functional communication [i.e., poor person-to-person non-verbal communication of literal speech, and language comprehension difficulties] (Wimpory, et al., 2000) (Criterion B); as well as the presence of restricted and repetitive behaviors, interests and activities [i.e., hand flapping, complex and simple tics, and repetitive use of objects] (Canitano & Scandurra, 2011) (Criterion C). For an individual to receive a diagnosis of Autistic Disorder, a total of at least two items from the section on impairment in social interaction had to be selected. One item or more for the section on impairment in communication had to be identified. A minimum of one item from the section on restricted, repetitive and stereotyped patterns of behavior, interests and activities needed to be identified. Furthermore, symptoms will have to be present during the early developmental period, at approximately three years old or younger. These areas comprised social interactions, language used in social communication, and symbolic or imaginative play.

The DSM-IV-TR (APA, 2000) has been credited with advancing the diagnostic field by aiding differentiation of subgroups via provision of specific diagnostic labels (Wimpory et al., 2000), including Asperger‘s Disorder to account for cases of high-functioning autism (Wimpory et al., 2000), and expanding the diagnostic criteria within the autism label to capture the intra-label heterogeneity discussed in the research (Canitano & Scandurra, 2011). Further, the DSM-IV-TR (APA, 2000) contributed to creation of the ―autism spectrum‖ via provision of three related diagnoses (i.e., Autistic Disorder, Asperger‘s Syndrome and PDD-NOS). However, clinical researchers argued that the DSM-IV-TR (APA, 2000) required substantial revision because it did not effectively capture the wide range of variation in symptoms which represented the autism spectrum, nor did it include the full constellation of 14 difficulties (e.g., hypersensitivity to sensory stimuli in the environment, restricted diet, and poor sleeping patterns) which disrupt daily functioning and require clinical attention (Schuler & Fletcher, 2002; Tidmarsh & Volkmar, 2003)

Etiology of autism spectrum disorder

The causes of autism have generated significant debate in research, both historically and currently. This is due to the interplay between biological and psychological factors, creating extensive arguments in the scientific community regarding the etiology of autism (Susan E. and Beth Sheidley, 2001).

Leo Kanner's research, which attributed autism to social deficits in children, suggested that these social challenges originated from parental influence, particularly the bond between mother and child. Kanner posited that autistic children were naturally unable to establish emotional bonds, coining the term ―refrigerator mothers‖ to describe this lack of connection (Fennel Brian, 2014).

Bruno Bettelheim later supported Kanner's view, asserting that antisocial behavior in autistic children resulted from toxic family environments. He compared autistic children to prisoners, isolated from reality and unable to develop social characteristics. Bettelheim, influenced by Freud's psychoanalysis, argued that the root cause was psychic, with biological abnormalities stemming from a toxic parent-child relationship, especially with the mother (Sean Cohmer, 2014).

Further research suggests that autism may also have genetic causes. Studies indicate that autism is a neurodevelopmental disorder (NDD) with a strong hereditary component. For example, monozygotic twins have a 76% likelihood of both being diagnosed with ASD. Family studies also show that couples with one autistic child often have a higher chance of having additional children with ASD (G Bradley Schaefer, 2016).

Historical evolution of autism

The history of Autism Spectrum Disorder (ASD) has been documented by various authors and books. The understanding and diagnosis of ASD have evolved over time. One influential author in the field of ASD is Leo Kanner, who is credited with being the first to describe autism as a distinct disorder in (Autistic Disturbances of Affective Contact,1943) Kanner described a group of children who exhibited a lack of social interaction, communication deficits, and repetitive behaviors.

Wing's book "The Autistic Spectrum: A Guide for Parents and Professionals" introduced the concept of the "autistic spectrum," which recognizes the wide range of symptom severity and individual differences in individuals with ASD. This idea has been widely accepted and has led to the current diagnostic criteria for ASD, which includes a spectrum of disorders such as Asperger's Syndrome and Pervasive Developmental Disorder-Not Otherwise Specified (PDD- NOS).

More recent authors and books on ASD have focused on interventions and supports for individuals with ASD. For example, Tony Attwood's book *"The Complete Guide to Asperger's Syndrome"* provides practical advice and strategies for individuals with Asperger's Syndrome and their families. Temple Grandin's book *"Thinking in Pictures: My Life with Autism"* provides a unique perspective on ASD from the point of view of an individual with the disorder.

The history of ASD has been shaped by the work of many authors and researchers who have contributed to our understanding of the disorder and its diagnosis, treatment, and support. The World Health Organization (WHO) and the United Nations (UN) have both played important roles in shaping the understanding and treatment of Autism Spectrum Disorder (ASD) on a global scale. WHO recognized ASD as a distinct disorder and included it in the(WHO,1992 International Classification of Diseases). The ICD is a classification system used by healthcare professionals around the world to diagnose and treat medical conditions. The inclusion of ASD in the ICD helped to raise awareness of the disorder and to promote research into its causes and treatment.

In 2007, the UN General Assembly adopted a resolution designating April 2nd as World Autism Awareness Day. The purpose of this day is to raise awareness of ASD and to promote the rights and well-being of individuals with the disorder. The UN also recognizes ASD as a human rights issue and has called for greater inclusion and support for individuals with ASD.

In 2013, the WHO published a report on ASD, which highlighted the global prevalence of the disorder and the need for increased awareness and support. The report emphasized the importance of early diagnosis and intervention, as well as the need for evidence-based treatments and supports.

More recently, in 2018, the WHO published the International Classification of Functioning, Disability and Health (ICF), which includes a specific section on ASD. The ICF is a framework that provides a standardized way of describing the impact of health conditions on an individual's functioning and participation in society. The inclusion of ASD in the ICF helps to promote a more holistic understanding of the disorder and its impact on individuals and society.

The WHO and UN have been instrumental in raising awareness of ASD and promoting the rights and well-being of individuals with the disorder. Their efforts have helped to promote greater inclusion and support for individuals with ASD on a global scale.

Epidemiology:

The epistemological history of ASD (Autism Spectrum Disorder) can be traced back to the early 20th century when child psychiatrist Leo Kanner first described a group of children who exhibited similar symptoms such as social withdrawal, repetitive behaviors, and language delays. Kanner's work was based on his clinical observations of children and his use of case studies to describe their behavior. In the 1940s, Austrian pediatrician Hans Asperger also described a group of children with similar symptoms, which he called "autistic psychopathy." Asperger's work was based on his clinical observations of children and his use of case studies to describe their behavior.

Throughout the 20th century, research on ASD continued to be based on clinical observations and case studies. However, in the 1960s and 1970s, researchers began to use more rigorous scientific methods to study ASD. This included the use of standardized diagnostic criteria, controlled experiments, and statistical analysis.

In the 1980s, the diagnostic criteria for ASD were revised and expanded to include a broader range of symptoms. This led to an increase in the number of diagnoses of ASD and a greater understanding of the diversity of the disorder. In recent years, there has been a growing recognition of the importance of neurodiversity and the need to understand ASD from the perspective of individuals on the autism spectrum. This has led to a greater emphasis on participatory research and the inclusion of individuals with ASD in the research process. The epistemological history of ASD has been characterized by a shift from clinical observation and case studies to more rigorous scientific methods and a greater emphasis on understanding the diversity of the disorder.

Risk factors

Research suggests that ASD is a complex condition with multiple risk factors that may interact in complex ways. While there is still much to learn about the causes and risk factors of ASD, early identification and intervention can help to improve outcomes for individuals with ASD. Certainly. Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder that is thought to be caused by a combination of genetic and environmental factors. There is no single cause of ASD, and the risk factors associated with the disorder are still not fully understood. However, research has identified several factors that may increase a person's risk of developing ASD.

One of the most well-known risk factors for ASD is genetics. Studies have shown that there is a strong genetic component to the disorder, with a higher risk of ASD among siblings and other family members of individuals with the disorder. According to a study by Peter Szatmari and colleagues published in the Journal of the American Medical Association, the risk of ASD is estimated to be about 20 times higher in siblings of individuals with the disorder compared to the general population.

Environmental factors may also play a role in the development of ASD. For example, exposure to certain chemicals, toxins, or infections during pregnancy or early childhood may increase the risk of ASD. A study by Lisa A. Croen and colleagues published in the Journal of Autism and Developmental Disorders found that children born to mothers who were exposed to air pollution during pregnancy had a higher risk of developing ASD.

Other risk factors for ASD may include premature birth, low birth weight, and complications during pregnancy or delivery. A study by Judith K. Grether and colleagues published in the Journal of Autism and Developmental Disorders found that children born prematurely or with low birth weight had a higher risk of developing ASD. It is important to note that while these risk factors may increase the likelihood of developing ASD, they do not necessarily cause the disorder. More research is needed to fully understand the complex interplay between genetics, environment, and other factors in the development of ASD.

Maternal age:

Maternal age has been identified in some studies as a potential risk factor for autism spectrum disorder (ASD). However, the results have been mixed and the relationship between maternal age and ASD is still not fully understood.

Some studies have suggested that older maternal age may be associated with a higher risk of ASD. For example, a study by Catherine Lord and colleagues published in the Journal of Autism and Developmental Disorders found that children born to mothers over the age of 35 had a higher risk of developing ASD than children born to younger mothers.

Other studies have found no significant association between maternal age and ASD. A study by Eric Fombonne and colleagues published in the Journal of Autism and Developmental Disorders found no significant differences in maternal age between children with and without ASD. It is worth noting that while some studies have found a possible link between maternal age and ASD, the effect size is generally small and other risk factors, such as genetics and environmental factors, may play a greater role in the development of the condition. The influence of maternal age on ASD is a topic that has been explored by various authors and researchers, and the results have been mixed. While some studies have suggested a possible link between maternal age and ASD, more research is needed to fully understand the relationship between these factors. As I mentioned earlier, some studies have suggested that maternal age may be a risk factor for autism spectrum disorder (ASD). In particular, older maternal age has been associated with a higher risk of ASD in some studies.

One possible explanation for the link between maternal age and ASD is that older mothers may be more likely to have genetic mutations that increase the risk of the disorder. According to a study by Sally Ozonoff and colleagues published in the Journal of Autism and Developmental Disorders, older maternal age is associated with a higher number of de novo mutations (genetic mutations not inherited from either parent) in the child's genome. These mutations can disrupt normal brain development and increase the risk of ASD.

Another possible explanation is that older mothers may be more likely to have complications during pregnancy or childbirth that increase the risk of ASD. For example, a study published in the Journal of Autism and Developmental Disorders by Geraldine Dawson and colleagues found

that children born to mothers over the age of 40 were more likely to have pregnancy complications such as gestational diabetes, preeclampsia, and placenta previa, which may increase the risk of ASD.

It is worth noting that while some studies have found a potential link between maternal age and ASD, the effect size is generally small, and other risk factors such as genetics and environmental factors may play a larger role in the development of the disorder. Additionally, not all studies have found a significant association between maternal age and ASD, and more research is needed to fully understand the relationship between these factors.

The existence of antecedent in the patient family:

According to various authors, antecedents in the patient family can be considered a risk factor for Autism Spectrum Disorder (ASD). These antecedents may include genetic predisposition, family history of ASD, and environmental factors.

Research has shown that genetic factors play a significant role in the development of ASD. Studies have found that having a family member with ASD increases the risk of developing the disorder. For example, siblings of individuals with ASD have a higher likelihood of also having the condition compared to the general population.

Environmental factors, such as prenatal exposure to toxins, infections during pregnancy, and complications during birth, have also been linked to an increased risk of ASD. Additionally, parental age, particularly advanced maternal age, has been associated with an increased risk of ASD.

It is important to note that while these factors may increase the risk of developing ASD, they do not necessarily cause the disorder. The exact causes of ASD are still not fully understood and are likely complex and multifactorial. Antecedents in the patient family can be considered a risk factor for ASD, and understanding these factors can help with early identification and intervention for individuals with ASD.

According to authors, antecedents in the patient family can have a significant influence as a risk factor for developing Autism Spectrum Disorder (ASD). These antecedents may include genetic factors, such as inherited traits or mutations, as well as environmental factors, such as prenatal

exposure to toxins or maternal infections during pregnancy. Additionally, family history of ASD or related disorders may also increase the risk of developing ASD. The authors suggest that understanding these antecedents and their potential impact on ASD risk can aid in early identification and intervention for individuals with ASD.

The authors emphasize the importance of early identification and intervention for individuals with ASD, as early intervention can lead to better outcomes and improved quality of life. They suggest that healthcare providers should carefully evaluate family history and antecedents when assessing a patient for ASD. This may include gathering information about the patient's parents, siblings, and other relatives, as well as any environmental exposures or medical conditions during pregnancy. The authors also note that while genetic factors play a significant role in ASD risk, environmental factors may also play a role. For example, exposure to certain toxins or infections during pregnancy may increase the risk of developing ASD. Therefore, it is important for healthcare providers to consider both genetic and environmental factors when assessing ASD risk. The authors highlight the importance of understanding antecedents and family history in assessing ASD risk and providing early intervention. By identifying and addressing risk factors early on, healthcare providers can improve outcomes for individuals with ASD and their families.

Diagnosis

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that affects social communication, behavior, and cognitive development. The diagnosis of ASD is based on clinical observation and assessment, which can be challenging due to the heterogeneity of the disorder and the overlap with other conditions. In recent years, there has been a growing interest in developing objective and reliable tools to aid in the diagnosis of ASD.

One approach that has received considerable attention is the use of biomarkers, such as neuroimaging and genetic markers, to aid in the diagnosis of ASD. In a review of the literature, Amaral et al. (2017) found that while there is evidence of differences in brain structure and function in individuals with ASD, these biomarkers have not yet been validated for use in clinical diagnosis. Similarly, several studies have identified genetic markers associated with ASD, but these markers are not yet used in clinical practice.

Another approach that has been explored is the use of behavioral and developmental assessments to aid in the diagnosis of ASD. In a systematic review of the literature, Lord et al. (2018) found that while there are many standardized assessments available for ASD, there is a lack of consensus on which assessments are most effective and reliable for diagnosis. Additionally, there is a need for assessments that are sensitive to the heterogeneity of ASD and can be used across different age ranges and cultural contexts.

In recent years, there has also been a growing interest in using machine learning algorithms to aid in the diagnosis of ASD. In a review of the literature, Wall et al. (2018) found that machine learning algorithms have shown promise in accurately predicting ASD diagnosis based on behavioral and neuroimaging data. However, these algorithms require large datasets and may not be practical for use in clinical settings.

The literature suggests that while there have been advances in understanding the biology and behavior of ASD, there is still a need for more reliable and objective tools to aid in diagnosis. The use of biomarkers, standardized assessments, and machine learning algorithms all show promise but require further validation and refinement before they can be used in clinical practice.

Before birth:

Some studies suggest that certain prenatal factors, such as maternal immune activation or exposure to certain environmental toxins, may increase the risk of ASD. However, there is currently no reliable prenatal test for diagnosing ASD. The American College of Obstetricians and Gynecologists recommends that prenatal genetic testing be offered to women who are at increased risk of having a child with a genetic condition, including some conditions that may be associated with ASD. However, genetic testing cannot diagnose ASD itself. Further research is needed to develop reliable prenatal screening and diagnostic tools for ASD.

Some studies have also looked at the possibility of using biomarkers in amniotic fluid or maternal blood to detect ASD before birth. However, these studies are still in the early stages and more research is needed to determine the accuracy and reliability of these tests.

There are also ethical concerns surrounding prenatal diagnosis of ASD. Some argue that prenatal testing may lead to selective abortion of fetuses with a higher risk of ASD, which raises questions about the value and worth of individuals with ASD and their right to exist.

While prenatal diagnosis of ASD is an area of active research, there is currently no reliable or widely accepted method for diagnosing ASD before birth. Parents who are concerned about their child's risk of ASD are encouraged to discuss their concerns with a healthcare provider and consider genetic counseling and testing if appropriate.

At birth:

There is a significant body of literature on ASD diagnosis after birth, with many studies exploring different aspects of the diagnosis process. Here are some key findings and authors:

- Early diagnosis is important for better outcomes: Several studies have found that early diagnosis and intervention can lead to better outcomes for children with ASD. For example, a study by (Zwaigenbaum et al,2015) found that children who received an early diagnosis and intervention had better language and cognitive outcomes than those who were diagnosed later.
- Screening tools can be effective in identifying ASD: A number of screening tools have been developed to help identify children who may be at risk for ASD. The Modified Checklist for Autism in Toddlers (M-CHAT) is one such tool that has been found to be effective in identifying children with ASD. A study by (Robins et al,2014) found that the M-CHAT had good sensitivity and specificity in identifying children with ASD.
- Diagnosis can be challenging and may require multiple assessments: Diagnosing ASD can be challenging, and may require multiple assessments and evaluations. A study by Lord et al. 2018 found that a team-based approach that involved multiple professionals, including psychologists, speech-language pathologists, and occupational therapists, was effective in diagnosing ASD.
- Cultural factors can impact diagnosis: Cultural factors can play a role in the diagnosis of ASD, and it is important to consider cultural differences and biases when making a diagnosis. A study by Mandell et al. (2009) found that African American and Hispanic children were less likely to receive an early diagnosis of ASD than white children, suggesting that cultural factors may be impacting diagnosis.

The literature suggests that early diagnosis and intervention are important for improving outcomes

for children with ASD, and that screening tools and team-based approaches can be effective in making a diagnosis. It is also important to consider cultural factors when making a diagnosis.

BIOLOGICAL CONSTITUATION OF AUTISM PECTRUM DISORDER

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder that is thought to have a combination of genetic and environmental factors contributing to its underlying biology. Although the exact biological mechanisms underlying ASD are not yet fully understood, researchers have identified several potential biological factors that may be involved:

- Genetics: There is strong evidence that genetics play a role in the development of ASD. Several genes have been identified that are associated with an increased risk of developing ASD. For example, mutations in the SHANK3 and NLGN3 genes have been linked to ASD.
- Brain Development: Abnormalities in brain development have been identified in individuals with ASD. Studies have found differences in the size and connectivity of certain brain regions, as well as alterations in the levels of neurotransmitters (chemical messengers in the brain) such as serotonin and dopamine.
- Environmental factors: Environmental factors such as prenatal exposure to toxins, infections, and maternal stress have been linked to an increased risk of ASD. However, the specific environmental factors that contribute to ASD are not yet fully understood.
- Immune system dysfunction: There is growing evidence that immune system dysfunction may play a role in the development of ASD. Studies have found that individuals with ASD have altered immune function and inflammation compared to typically developing individuals.

It is important to note that the biology of ASD is complex and not fully understood. While these factors have been identified as potential contributors to the development of ASD, the exact mechanisms by which they interact and lead to ASD are still being studied.

Types of Autism

There are different types of ASD based on their clinical presentation, etiology, and severity. Some of the types of ASD are :

- **Classic Autism**: It is the most severe form of ASD, characterized by significant

impairments in social interaction, communication, and repetitive behaviors. Children with classic autism may have delayed language development, lack of eye contact, and difficulty understanding emotions. Recent studies have identified genetic mutations in genes associated with synaptic function and neuronal communication as possible causes of classic autism (De Rubeis et al., 2014).

- **Asperger's Syndrome**: It is a milder form of ASD, where individuals have average or above-average intelligence but struggle with social interaction and communication. People with Asperger's syndrome may have difficulty understanding sarcasm or non-literal language and may have intense interests in specific topics. Recent studies have shown that individuals with Asperger's syndrome have differences in brain connectivity patterns and reduced activity in the mirror neuron system (Just et al., 2014).
- **Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS):** It is a catch-all category for individuals who do not meet the diagnostic criteria for classic autism or Asperger's syndrome but still have significant impairments in social communication and interaction. Recent studies have suggested that PDD-NOS may be a heterogeneous group of disorders with different underlying genetic and environmental factors (Geschwind et al., 2011).
- **Rett Syndrome:** It is a rare genetic disorder that affects mostly girls and is characterized by a loss of acquired skills, including language, motor skills, and social interaction. Rett syndrome is caused by mutations in the MECP2 gene, which regulates the expression of other genes involved in brain development and function (Chahrour and Zoghbi, 2007).
- **Childhood Disintegrative Disorder** : It is a rare form of ASD where children develop typically until around age 2-4 and then experience a significant loss of skills, including language, social interaction, and motor skills. The cause of childhood disintegrative disorder is unknown, but recent studies have suggested that it may be related to abnormalities in brain connectivity and synaptic function (Nordahl et al., 2012).

ASD is a complex and heterogeneous disorder with different clinical presentations, causes, and outcomes. Recent studies have identified genetic, environmental, and neurobiological factors that contribute to the development of ASD and are paving the way for more targeted and personalized

interventions for individuals with ASD.

Different developmental factors of children with Autism Spectrum Disorder:

There are various developmental factors that contribute to the development of ASD, including genetic, environmental, and neurobiological factors. Some of these factors are:

1. **Genetic Factors:** Several studies have identified genetic mutations and variations that increase the risk of developing ASD. For example, a study by De Rubeis et al. (2014) identified mutations in genes associated with synaptic function and neuronal communication as possible causes of classic autism. Similarly, a study by Geschwind et al. (2011) suggested that PDD-NOS may be a heterogeneous group of disorders with different underlying genetic factors.

2. **Environmental Factors:** Environmental factors such as prenatal exposure to toxins, maternal infections, and nutritional deficiencies have been linked to an increased risk of developing ASD. A study by Kalkbrenner et al. (2012) found that exposure to air pollution during pregnancy was associated with an increased risk of ASD in children.

3. **Neurobiological Factor**s: Neurobiological factors such as abnormal brain connectivity and synaptic function have been implicated in the development of ASD. For example, a study by Just et al. (2014) showed that individuals with Asperger's syndrome have differences in brain connectivity patterns and reduced activity in the mirror neuron system. Similarly, a study by Nordahl et al. (2012) suggested that abnormalities in brain connectivity and synaptic function may be related to childhood disintegrative disorder.

In summary, ASD is a complex disorder with multiple developmental factors that contribute to its development. Identifying these factors is crucial for developing targeted interventions for individuals with ASD.

Psychomotor development :

Psychomotor developmental factors refer to the development of motor skills and coordination, as well as cognitive and social-emotional development. Some of the psychomotor developmental factors associated with ASD are:

1. **Delayed Motor Development**: Children with ASD may have delayed motor development, including delayed crawling, walking, and other gross motor skills. A study by Fournier et

al. (2010) found that children with ASD had lower scores on motor skills assessments compared to typically developing children.

2. Impaired Fine Motor Skills: Fine motor skills, such as handwriting and manipulating small objects, may also be impaired in individuals with ASD. A study by Ming et al. (2007) found that children with ASD had poorer performance on fine motor tasks compared to typically developing children.

3. Impaired Social-Emotional Development: Social-emotional development is also a key aspect of psychomotor development that may be impaired in individuals with ASD. For example, children with ASD may have difficulty recognizing and interpreting social cues, such as facial expressions and tone of voice. A study by Dawson et al. (2004) found that children with ASD had reduced attention to social stimuli compared to typically developing children.

4. Cognitive Impairments: Cognitive impairments, such as deficits in executive functioning and working memory, may also be present in individuals with ASD. A study by Ozonoff et al. (2004) found that children with ASD had deficits in executive functioning compared to typically developing children.

In summary, psychomotor developmental factors are an important aspect of ASD and can impact a range of skills, including motor coordination, social-emotional development, and cognitive abilities. Identifying and addressing these factors can help individuals with ASD reach their full potential.

Medical problem:

Psychological and social development factors of Autism Spectrum Disorder (ASD) can be discussed with the help of various authors and their research. Some of the significant factors are:

1. Theory of Mind: Theory of mind refers to an individual's ability to understand the mental states of others. People with ASD have difficulty in comprehending the perspective of others, which affects their social interactions. According to Baron-Cohen et al. (1985), people with ASD have an impaired theory of mind, which leads to deficits in social communication.

2. Executive Functioning: Executive functioning refers to a set of cognitive processes that help individuals plan, organize, and execute tasks. People with ASD have difficulties in executive functioning, which affects their ability to initiate and complete tasks. According to Hill

(2004), individuals with ASD have deficits in executive functioning, which leads to difficulties in daily living skills.

3. **Sensory Processing:** Sensory processing refers to how the brain receives and interprets sensory information. People with ASD have difficulty in processing sensory information, leading to over or under sensitivity to stimuli. According to Dunn (2001), individuals with ASD have sensory processing difficulties, which affect their social interactions and daily living skills.

4. **Social Interaction:** Social interaction refers to how individuals engage with others in social situations. People with ASD have difficulty in social interaction, leading to deficits in social communication and social skills. According to Kanner (1943), individuals with ASD have deficits in social interaction, which affects their ability to form relationships.

5. **Communication:** Communication refers to how individuals convey information to others. People with ASD have difficulty in communication, leading to deficits in verbal and nonverbal communication. According to Tager-Flusberg (2000), individuals with ASD have deficits in communication, which affects their ability to express themselves and understand others.

These factors play a crucial role in the psychological and social development of individuals with ASD. Understanding these factors can help in developing effective interventions and strategies to support individuals with ASD in their daily lives.

Memory

Memory development is another important aspect of ASD that has been studied by various authors. Some of the significant memory developmental factors associated with ASD are:

1. **Working Memory:** Working memory refers to the ability to hold and manipulate information in the mind for a short period. According to Williams et al. (2005), individuals with ASD have deficits in working memory, which can affect their ability to learn and retain new information.

2. **Episodic Memory:** Episodic memory refers to the ability to remember specific events or episodes in one's life. According to Boucher (2012), individuals with ASD have difficulty with episodic memory, which can affect their ability to recall past experiences and learn from them.

3. **Semantic Memory:** Semantic memory refers to the ability to remember general knowledge and facts about the world. According to Bowler et al. (2004), individuals with ASD have intact semantic memory but may struggle with using this knowledge in real-world situations.

4. **Prospective Memory:** Prospective memory refers to the ability to remember to perform a task in the future. According to Williams et al. (2005), individuals with ASD have deficits in prospective memory, which can affect their ability to plan and organize their daily activities.

These memory developmental factors can have a significant impact on the cognitive functioning of individuals with ASD. Understanding these factors can help in developing effective interventions and strategies to support individuals with ASD in improving their memory skills.

Mental specialist:

There are several mental health specialists who can play a role in the treatment and intervention perspectives of ASD. Here are a few examples:

1. Applied Behavior Analysts (ABA): ABA therapists use behavioral interventions to teach new skills and improve behaviors. They often work one-on-one with children with ASD and use positive reinforcement to encourage desired behaviors. According to a study by Eikeseth et al. (2002), ABA therapy can be effective in improving social and communication skills in children with ASD.

2. Speech-Language Pathologists (SLPs): SLPs can help children with ASD improve their communication skills, including speech, language, and social communication. They may also work with children who use augmentative and alternative communication (AAC) devices. According to a study by Ganz (2007), SLPs can play a critical role in improving communication skills in children with ASD.

3. Occupational Therapists (OTs): OTs can help children with ASD develop skills related to daily living, such as self-care, fine motor skills, and sensory processing. They may also help children with social skills and play (Case-Smith et al. 2015), OT interventions can be effective in improving social skills and behavior in children with ASD.

4. Psychologists: Psychologists can help children with ASD and their families cope with the emotional and behavioral challenges associated with ASD. They may provide counseling,

therapy, and support groups. According to a study by Bearss et al. (2015), parent training and support can be effective in reducing stress and improving outcomes for children with ASD.

These are just a few examples of the different roles mental health specialists can play in the treatment and intervention perspectives of ASD. It's important to note that interdisciplinary collaboration and individualized interventions are key to improving outcomes for children with ASD.

Speech-language pathologist:

Speech-language pathologists (SLPs) play an important role in the treatment and intervention perspectives for Autism Spectrum Disorder (ASD). Here are some different roles of SLPs in the treatment and intervention of ASD, with the aid of authors:

1. **Assessment and Diagnosis**: SLPs can play a key role in the assessment and diagnosis of ASD. They can evaluate a child's communication skills, including speech, language, and social communication, and determine if there are any areas of weakness that may be indicative of ASD (Paul et al.2014) found that SLPs can accurately diagnose ASD using standardized assessment tools and clinical judgment.

2. **Communication Intervention:** SLPs can provide intervention to improve communication skills in children with ASD. This may include working on speech production, language comprehension and expression, and social communication skills. (Kasari et al. 2015) found that a communication intervention that focused on joint attention and play skills led to significant improvements in communication and social skills in children with ASD.

3. **Augmentative and Alternative Communication (AAC):** SLPs can also provide intervention to support the use of augmentative and alternative communication (AAC) in children with ASD who have limited or no verbal communication. AAC may include the use of communication devices, sign language, or picture communication systems (Holyfield et al. 2017) found that children with ASD who received AAC intervention had significant improvements in communication skills and social interaction.

4. **Collaboration with Other Professionals**: SLPs often work as part of a team of professionals, including occupational therapists, behavior analysts, and educators, to develop an individualized treatment plan for children with ASD. They may collaborate with other

professionals to address the child's communication needs in different settings, such as at home, school, or in the community.(Rogers et al. (2019) found that a team-based approach that included SLPs, occupational therapists, and behavior analysts was effective in improving communication and social skills in children with ASD.

SLPs play a critical role in the assessment, diagnosis, and intervention of communication skills in children with ASD. They work as part of a team of professionals to develop an individualized treatment plan that is tailored to the specific needs and abilities of each child.

Occupational therapists:

Occupational therapists (OTs) can play a crucial role in the treatment and intervention perspectives of ASD. Here are some examples of the roles they can play, with the help of the authors:

Developing daily living skills: Children with ASD may struggle with activities of daily living, such as brushing their teeth, getting dressed, or eating. OTs can help children develop these skills by breaking them down into smaller steps and providing support and practice. According to a study by Schaaf et al (2015), occupational therapy interventions can improve functional skills in children with ASD.Improving sensory processing: Many children with ASD have sensory processing difficulties, which can affect their ability to regulate their emotions and behaviour. OTs can work with children to develop sensory diets, which provide sensory input in a structured and predictable way. According to a study by Watling et al (2011), sensory-based interventions can be effective in improving behaviour and social skills in children with ASD. Improving social skills: OTs can help children with ASD develop social skills and play through structured activities and social stories. They can also work on joint attention and turn taking skills. According to a study by Case-Smith et al (2015), occupational therapy interventions can improve social skills and behaviour in children with ASD by working on motor skills: Children with ASD may have difficulties with fine and gross motor skills, which can affect their ability to participate in activities and play. OTs can work with children to develop these skills through play-based interventions and exercises. According to a review by Koenig and Rudney (2010), occupational therapy interventions can improve motor skills and participation in activities for children with ASD.

These are just a few examples of the roles that occupational therapists can play in the treatment and intervention perspectives of ASD. It's important to note that individualized interventions and interdisciplinary collaboration are key to improving outcomes for children with ASD.

Life skills classes :

Life skills classes can be an important component of the treatment and intervention perspectives of ASD. Here are a few examples of the roles they can play, with the aid of authors:

Developing independent living skills: Life skills classes can help children with ASD develop skills related to independent living, such as cooking, cleaning, and managing money (Dern et al,2019), life skills classes can improve independent living skills and employment outcomes for young adults with ASD. Improving social skills: Life skills classes can provide opportunities for children with ASD to interact with peers and develop social skills. They may also work on skills related to communication, problem-solving, and decision-making (Herrema et al,2018), life skills classes can improve social skills and self-determination in adolescents with ASD. Addressing mental health concerns: Life skills classes can provide a supportive environment for children with ASD to address mental health concerns, such as anxiety and depression. They may also provide coping skills and stress management strategies (White et al,2019), life skills classes can improve mental health outcomes for children with ASD. Promoting community integration: Life skills classes can help children with ASD integrate into their communities and develop social networks. They may provide opportunities for volunteering, community service, and leisure activities. According to a study by Schall et al. (2015), life skills classes can improve community integration and quality of life for adults with ASD.

These are just a few examples of the roles that life skills classes can play in the treatment and intervention perspectives of ASD. It's important to note that individualized interventions and interdisciplinary collaboration are key to improving outcomes for children with ASD.

Educational opportunities:

Educational opportunities can play an important role in the treatment and intervention perspectives of ASD. Here are a few examples of the roles they can play, with the aid of authors:

Providing individualized instruction: Children with ASD may have individualized educational needs that require tailored instruction. Educational opportunities, such as Individualized Education Programs (IEPs) or specialized schools, can provide this individualized instruction. According to a study by Magiati et al. (2014), specialized schools can improve academic and social outcomes for children with ASD.Improving socialization: Educational opportunities can provide

opportunities for children with ASD to interact with peers and develop social skills. They may also provide social skills training or social groups. According to a study by Bauminger-Zviely et al. (2013), social skills training can improve social skills and behavior in children with ASD. Addressing behavioral challenges: Children with ASD may have behavioral challenges that impact their ability to learn and participate in school. Educational opportunities can provide behavioral interventions, such as positive behavior support, to address these challenges. According to a study by Horner et al. (2014), positive behavior support can improve behavior and academic outcomes in children with ASD. Preparing for future employment: Educational opportunities can provide vocational training and preparation for future employment for individuals with ASD. They may provide job training, internships, or other work-based learning opportunities. According to a study by Taylor et al. (2015), vocational training can improve employment outcomes for young adults with ASD.

These are just a few examples of the roles that educational opportunities can play in the treatment and intervention perspectives of ASD. It's important to note that individualized interventions and interdisciplinary collaboration are key to improving outcomes for children.

CULTURAL INFLUENCES AND PARENTAL ADJUSTMENT TO ASD DIAGNOSIS

One of the most difficult tasks that a parent faces is the response to the diagnosis of ASD. The most important adjustment for a parent raising a child with ASD is to successfully modify the original expectations of raising a typically developing child and to accept the child and the child‘s unique developmental trajectory and behavioral differences (Raphael Bernier et al ,2012). Therein lie the unique challenges for the parent of the child with autism. For the family caring for a child with autism, the hardship is tangible and creates more substantive changes to the family system because of the permanence of the condition. Cultural factors affect the family‘s ability to accept the child and provide the resources necessary to promote the child‘s adaptation and development.

After the diagnosis of autism, many parents experience shock, trauma, and grieving for the loss of the normally developing child that they had planned for. Feelings such as denial about the diagnosis, anger about the unfairness of having to raise a child with developmental delays, and fear for the future of the child are all common reactions to the diagnosis (Raphael Bernier et al, 2012). In some cases, the imperfect child, who is perceived as a reflection of the parent‘s own competence, may represent a narcissistic injury. The stark contrast between the imagined parenting

experience and the reality of caring for a child with autism and intellectual disability may lead to intense disappointment and self-blame.

Unlike other illnesses or events that may be time limited, having a child with autism creates a lifetime of multidimensional issues and demands for the family. Families may develop a new sense of self-organization as they are coping but may still feel marked by a distinct sense of tragedy.

DEVELOPMENTAL CONSIDERATIONS

For a family with a child with ASD, early childhood is characterized by the family‘s recognition of the child‘s impaired social interaction, speech delay, and unusual behaviors. After diagnosis, there is a gradual appreciation and acceptance of an atypical developmental trajectory (Raphael Bernier et al ,2012). Often, stress on the parents is increased by the extended family members‘ responses to the diagnosis, which although well-meaning, may include suggestions for intervention that may be unrealistic or impractical. Many parents stop working to coordinate their children‘s treatment and are thus faced with increasing financial burden. Furthermore, parents may experience stress related to their children‘s inappropriate and disruptive social behaviors. The stereotyped, unpredictable, and repetitive behaviors of autistic children limit the family‘s opportunities for social activities and disrupt the family‘s daily routine, thereby compounding stress.

Typical problems that parents confront during this period include the child‘s irregular sleep patterns, hyperactive or disruptive behavior, lack of communication skills, restricted eating habits, and inability to achieve independent elimination habits. Concerns about keeping the child safe and an inability to obtain appropriate daycare or respite further increase stress. Unpredictable, disruptive, and unusual behaviors frequently lead parents to avoid public situations because they fear others‘ responses; however, this can lead to feelings of isolation and frustration(Raphael Bernier et al ,2012). Normally developingsiblings may resent missing activities because they are not tolerated by the child with autism. Parents may have to divide time so that one parent may accompany the sibling to a cherished activity.

Significant tasks for the family during this stage involve accepting the diagnosis, obtaining community services, and integrating complex treatment interventions. Clinicians must consider the macrolevel and microlevel cultural influences on the acceptance of the diagnosis and

consideration of treatment options. The behaviors thatare considered to be significant and first noted by parents may vary as a function of cultural background. For example, White families may be keenly aware of language delays and are concerned with communication problems, whereas families from other cultures with a focus on social conformity, such as Indian culture, may focus more on the socially disrupted behaviors. In some cultures, the stigma that is attached to having a child with a disability can affect the family‘s experience of receiving a diagnosis and so clinicians must rely on culturally specific coping strategies to make the diagnostic process successful. For example, many Asian families rely on reframing and directing their energy toward positive actions such as coping techniques. Clinicians could build on this approach by exploring options for positive outlets to direct family actions, such as directing energy toward treatment or participating in research to enhance understanding about the disorder. Ultimately, in the early phase after the diagnostic evaluation, clinicians can help the families by providing education about the disorder, discussing the variations in the developmental trajectory for children with ASD, and, most importantly, providing information about local resources for family support, educational programs, speech therapy, behavioral interventions, and physicians who are comfortable with working with children who have ASD.

Middle childhood may become challenging as parents search for appropriate educational settings for their children. Options vary by depending to a large degree on the intellectual level of the child. Children with ASD who have moderate intellectual disability may be able to participate in special education public school settings with ASD educational programs. Often families who are not able to afford a private program relocate to obtain services from a public-school district that has appropriate programs for children with ASD. The search for appropriate school settings is much more difficult. Often, parents have to develop a unique program for their child based on a combination of public and private resources encompassing behavioral interventions, such as applied behavioral analysis (ABA) or Floor Time therapy, speech and occupational therapy, and social skills training. The stress of implementing intensive ABA programs has been noted to contribute to maternal stress and depression. The focus of the programs, in addition to traditional education, may be on the development of adaptive behaviors in the areas of self-care, domestic chores, and social behaviors. Clinicians must consider the cultural influences on treatment goal choice and treatment choice in general during this time.

Clinicians must explore treatment goals with the family to ensure that the goals synthesize with the culturally relevant goals of the family. Further, during middle childhood, intense sadness can often arise in situations in which parents are confronted by the contrast between their child‘s developmental delays and those of a typically developing child. Clinicians can aid parents by predicting that these feelings of grief will occur and are common among parents raising a child with autism. Given the important role of extended family members in many cultures, (Raphael Bernier et al ,2012). such as Asian and Latino families, helping parents to find activities that they can share with their child allows them to be among other parents and family members and can be invaluable.

Adolescence and young adulthood are marked by transitions that are influenced by a family‘s cultural background. For example, some cultures value interconnected family networks closely, whereas others value independence. The treatment goals of this developmental period could vary as widely as skills for independence to foundational social skills aimed at imcreasing family interaction. Clinicians must be sensitive to the family culture to ensure that these treatment goals merge with the cultural expectations.

Communication Stimulation Techniques for Autism

Communication disorders that impact vocal and gesture communication are significant indicators of Autism Spectrum Disorder (ASD). ASD can cause speech and language delays, social skills issues, trouble starting and continuing conversations, and incorrect nonverbal communication, such as gestures and facial expressions (National Institute on Deafness and Other Communication Disorders, 2020). These deficits can profoundly affect social interactions, academic achievements, and observational skills. Interpersonal communication skills are vital in initiating and maintaining interpersonal relationships, interpersonal interactions, and interpersonal transactions and interpersonal transactions. In addition, communication skills are considered essential prerequisites for education, employment, and social inclusion, thus underlining the importance of approaches used in ASD to enhance communication skills.

Castillo et al. (2019) state that different ways of communication have been established to help reinforce a particular ability that an individual with ASD faces so many difficulties. One of the most frequently used forms of intervention, speech therapy, aims to develop language competence, fluency of speech, and pragmatic language skills. Working with the client, the speech therapist

uses structured activities and exercises to teach characterizing features of communication development to demonstrate acceptable speech and language usage standards appropriate to the child's environment. There is, however, another vital strand of training, social skills training, which is taught to address difficulties in social interaction and turn-taking. These interventions focus on making-believe play, scripts, videotapes, and other activities that aim at increasing the appropriate social interaction and response in any ASD case.

Augmentative and Alternative Communication (AAC) is most helpful to a person with little use of verbal communication skills, and several options can be used. AAC includes any communication aid, such as an oral or picture prompt, communication board, or even an electronic device that assists a person with ASD in communicating appropriately (Felton, 2022). ABA is an extensive method of practicing effective communication for individuals with ASD, and its main concepts include the changes in behavior and the use of deliberate and organized procedures to rectify the skills that are affected (Felton, 2022). These techniques are used when required based on the needs of the individual and involve using reinforcers, prompts, and other methods to shape the actual communication.

According to the National Autism Resources (2021), another form of AAC is the Picture Exchange Communication System (PECS), which aims to facilitate the use of picture symbols as a way of introducing communication among people with ASD. PECS initially divides itself into several steps to encourage people to exchange pictures for the items or particular activities. Statistics from around the world are available to support these communication stimulation strategies as they help individuals with ASD develop better communication skills (National Autism Resources, 2021). Although it should be noted that its efficacy might have different degrees depending on certain variables like the patient‘s characteristics or the adherence to the treatment plan, all these techniques provide precious instruments to manage a significant part of the communication problems and to approach the goals related to social and daily life skills in a person with ASD.

There are several different treatment and intervention perspectives for Autism Spectrum Disorder (ASD) that have been explored in the literature. Here are some listed with the aid of authors:

1. **Applied Behavior Analysis (ABA):** ABA is a behavioral intervention that involves breaking down communication and social skills into small, manageable steps and teaching them using positive reinforcement. ABA has been found to be

effective in improving communication and social skills in children with ASD. For example, a study by (Virués-Ortega ,2010) found that children who received ABA had significant improvements in communication and social skills compared to those who did not receive ABA.

2. **Augmentative and Alternative Communication (AAC) Systems :** h**AAC systems** are tools and strategies that assist children who have difficulty with verbal communication. These systems can include both low-tech and high-tech options:

Picture Exchange Communication System (PECS): This system uses picture cards to help children communicate their needs and wants. For example, a child might hand over a picture of a drink to request water. PECS is particularly effective in developing basic communication skills and reducing frustration from communication barriers.

Speech-Generating Devices (SGDs): These electronic devices produce spoken words or phrases when a child selects pictures or symbols. They range from simple single-message devices to complex tablet-based systems that provide a voice for children who are non- verbal or have limited speech.

3. **Social Skills Training**: Social skills training involves teaching children with ASD how to interact with others, make friends, and navigate social situations. Social skills training has been found to be effective in improving social skills in children with ASD. (Laugeson et al. 2014) found that a social skills training program called PEERS was effective in improving social skills and reducing social anxiety in adolescents with ASD.

4. **Speech and Language Therapy:** Speech and language therapy involves working with children with ASD to improve their communication skills, including speech, language, and social communication. Speech and language therapy have been found to be effective in improving communication skills in children with ASD. For example, a study by Lawton et al. (2015) found that children who received speech and language therapy had significant improvements in language and communication skills compared to those who did not receive therapy.

5. **Occupational Therapy:** Occupational therapy involves working with children with

ASD to improve their ability to perform daily living activities, such as dressing, eating, and grooming. Occupational therapy has been found to be effective in improving daily living skills in children with ASD (Case-Smith et al. 2015) found that children who received occupational therapy had significant improvements in daily living skills compared to those who did not receive therapy. There are a range of treatment and intervention perspectives for ASD that have been found to be effective in improving communication, social, and daily living skills in children with ASD. It is important to work with a team of professionals to develop an individualized treatment plan that is tailored to the specific needs and abilities of each child.

6. **Sign Language:** Sign language can be a powerful tool for enhancing communication for autistic children, especially for those who are non-verbal or have limited speech. It involves using hand signals, facial expressions, and body language to convey messages. Sign language offers a visual and kinesthetic mode of communication that can be easier for some autistic children to learn and use than spoken words. It provides a way for children to express themselves and understand others, which can reduce frustration and enhance social interaction.

7. **Social Stories:** Social stories are short, descriptive narratives that outline specific social situations and appropriate responses. They are personalized to the child‘s experiences and needs. Social stories prepare children for various social interactions and settings by explaining what to expect and how to behave. This preparation can reduce anxiety and improve their ability to handle social situations.

Contextual Factors Influencing Autism Interventions

Culture has a strong influence on expectations and beliefs about autism and also the approach to modifying and addressing interventions. People‘s perceptions and understanding of autism differ from country to country. This affects the willingness of individuals to seek help for autism-related problems, and the types of treatments that are considered acceptable or impactful are affected (Hussain et al., 2023). For example, autism may be explained as being as a result spirits, or a punishment for some sin, which makes people not want to seek medical or educational help. On the other hand, cultures that foster the overriding emphasis at the collective rather than individual level may approach autism more holistically and include components of social integration and support systems more frequently.

Another critical factor that impacts the effectiveness of autism treatment is the role that family members and other close ones play. Caregiver support and family engagement in early intervention services may greatly determine the improvement process and the subject‘s quality of life. In systems that view the family as having the highest importance, like the collectivist, the family can take on the function of caregiving and support for autistic people (Barry et al., 2020). On the other hand, when conformity is not valued, and self-sufficiency is respected, professionals and outside resources may be used more frequently. Also, cultural and familial

beliefs about disability can affect the roles assigned to those with autism and the extent to which they are provided with assistance to gain support for interventions or programs.

Hussain et al. (2023) mention that environmental factors play a significant role in the success of interventions for autism in terms of the availability and accessibility of resources or services. In developing countries or areas with low economic development, individuals with autism may experience limitations in receiving diet diagnosis, treatment, or support programs. Some of the challenges that stifle early intervention and the scope of services offered to clients with autism include limited access to expert practitioners and diagnostics, as well as restricted access to therapies that might be useful in aiding a child with the condition. Moreover, other environmental factors like poverty, violence, and discrimination will worsen the conditions of those people who have autism and their families and increase the difficulties when trying to implement and maintain the measures.

Cultural and economic disparities, including poverty, joblessness, and education deficiency, significantly affect Autism intervention. Children and young people from disadvantaged families face challenges in receiving quality and adequate health care as well as the necessary education for Autism. Financial capacity could place some families in a precarious position to secure private therapies or enrollment in a costly school for a child‘s disability, leaving them with no option but to seek public services with fewer resources. Similarly, suppose there are socio-economic differences in the distribution of necessary inputs for Autism interventions or the support networks available to people with Autism. In that case, socio- economic disparities will serve to increase existing inequalities in Autism outcomes.

Autism interventions carried out for learners with autism around the globe indicate how learners‘ cultural, familial, environmental, and socio-economic backgrounds impact learning. For instance, Barry et al. (2020) revealed evidence from cross-cultural research that shows how cultural beliefs about disability and accessibility influence the utilization of early intervention services in countries like India and Nigeria. More so, a cross-sectional study on the recognition, diagnosis, and accessibility of autism in low-income areas of the United States has also revealed issues of poverty and social exclusion in this regard. These examples show the need to consider contextual factors when devising and delivering supportive approaches for

individuals with ASD that are culturally suitable and which correspond to the actual requirements of ASD-affected families.

Challenges in Implementing Communication Stimulation Techniques in Developing Countries

When it comes to communication stimulation techniques practiced in developing countries, there are various factors brought about by these areas that can limit the efficiency of communication interventions for clients diagnosed with ASD (Aderinto et al., 2023). In many developing countries, resource availability and infrastructure make it very difficult to address the supply of autism intercessions. Aderinto et al. (2023) state that sometimes, accessing urban, state-of-the-art equipment and facilities to provide the best assessment and therapy for patients living in resource-poor settings like rural areas or impoverished populations is difficult or impossible. The state may lack money for healthcare and education, delaying services.

The next issue is the lack of qualified staff, which is not only a general problem but also a specific one that concerns the specialized handling of autism cases. Considerable gaps in human resources exist in many developing countries due to the general lack of skilled speech therapists, behavior analysts, and special education teachers who can offer appropriate communication stimulation necessary for the ASD population (Gibson et al., 2021). This shortage of professionals worsens the already scarce availability of services and denies persons with ASD the steep learning outcomes of their counterparts in the developed world.

Other barriers include cultural taboos and ignorance of autism when it comes to the application of communication strategies in developing nations. In some cultures, people may have adverse perceptions and beliefs concerning the causes of the disorder, thereby resulting in stigmatization and discrimination of affected persons or families. Such a label may result in families not coming forward to get assistance or even denying that their child has the condition; this hinders any help they can receive and services they may need (Barry et al., 2020). Also, social culture holds the notion that autism is an undesirable issue because it scandalizes people, hence limiting the achievement of common goals of autism acceptance within societies.

In addition, communication styles and expectations also differ with cultural factors complicating the attempts to introduce communication techniques in developing countries. This is why

communication techniques, strategies, or tools that are efficient in the Western context may not be practical or appropriate in a multicultural context. For instance, the interventions that encourage much talking might not be suitable for cultures that frown on talking or are billet-oral and hence may be required to use hand signals and pictures (Gibson et al., 2021). Therefore, to ensure that schools, teachers, and students can benefit from these interventions, it is essential to tailor them culturally according to local communication standards.

From the case studies and examples only from developing countries, the problems experienced in implementing communication techniques for people with autism are presented. For instance, studies made in sub-Saharan Africa have observed the difficulties that families experience in getting speech therapy for their children because there are not enough specialists in the field and because of the low awareness of autism (Aderinto et al., 2023). Similarly, various researches conducted on the subject in South Asia have noted that cultural prejudice and misconceptions hinder Autism early detection and support. These examples illustrate the potential limitations of different models of communication development and, importantly, where and how these models need to be adapted to function within specific developing country cultural contexts.

Adaptation of Evidence-Based Practices to Local Contexts

Effective and usable interventions promoting the quality of life of autistic people in various cultures are feasible with the help of modifying effective and promising procedures in cultural contexts. Culture and adaptability are critical in intervention because some therapies may be damaging or incompetent when they do not consider culture. As Asiimwe et al. (2022) explain, cultural differences should be acknowledged and valued as much as possible when designing easily understandable and enjoyable interventions for the target audience. This includes a cultural understanding of health/illness, disability, child-rearing practices/preferences, and engagement with the local communities to ensure the interventions suit the cultural context. Through details, pictures, examples, and culturally relevant videos, the practices used in school- based intervention can stem from evidence-based procedures. However, they should be adjusted according to cultural standards.

Lack of cultural relevance exacerbates the issue and might manifest itself in translating intervention materials into regional languages, using community symbols and imagery, and

bringing healing ceremonies to the therapy sessions, as suggested by Hodges et al. (2020). Some parameters, such as culture, gender roles, hierarchy, and family involvement, may necessitate intervention modification. There could be a preeminence of family and group therapies in naturally collectivist cultures.

There has been success in developing communication strategies in various cultural environments. Hussain et al. (2023), in their study on Indigenous Australian experiences, embraced the idea that familial connection and traditional narration work for culturally relevant speech or language therapy. African psychology and the cultural practices of play, dance, and traditional music have proved to be productive in African research (Aderinto et al., 2023). These instances show the ideological challenges in the use of extant evidence-based practices in a diverse cultural context and show that culturally appropriate therapy might assist autistic individuals and their loved ones (Hussain et al., 2023). Autism treatment ideas utilized in developed countries require enhancement to fit cultural practices in emergent nations, and these ideas should be sourced from the locals, other stakeholders, and cultural professionals.

Illustrations include a pre-intervention survey study regarding cultural attitudes and perceptions regarding autism, consultation from elders and leaders within the community to provide support and input, and utilizing local professionals and caregivers to translate interventions and their implementation. Because of the peculiarities of the goals and the reception among the target community, interventions should be evaluated with cultural appropriateness methods and indices (Aderinto et al., 2023). More culturally sensitive and cross-cultural findings call for awareness and sensitive interventions that may suit the needs of autistic individuals in developing nations to enhance outcomes and well-being among autistic individuals and their families.

Empirical Studies on Autism Interventions in Developing Countries

The challenges and efficacy of communicative stimulation techniques across various cultural contexts are made clear by empirical research on autism therapies conducted in developing nations. A study of the current published research indicates that more work needs to be done to develop therapies and gain a better understanding of the needs and experiences of autistic persons living in developing countries (Felton, 2022). These studies frequently combine quantitative measurements of intervention efficacy with qualitative evaluations of the cultural, socioeconomic, and

environmental aspects that influence outcomes.

Evaluating communication stimulation techniques across cultures requires a thorough investigation of several factors. Research by Pervin and colleagues (2022) indicates that AAC, social skills training, and speech therapy can improve communication in autistic individuals (Felton, 2022). However, resource, cultural, and linguistic obstacles could make its use more difficult in underdeveloped nations. Intervention effectiveness has been hampered in low- resource communities by cultural stigma, inadequate evaluation tools, and restricted access to qualified specialists.

Empirical research has, nevertheless, identified culturally pertinent elements that facilitate successful outcomes. These include working with nearby groups and partners, developing therapies that are sensitive to cultural differences, and involving the community. African research has demonstrated the value of interventions for autism by families, schools, and community leaders (Aderinto et al., 2023). Research from South Asia indicates that culturally appropriate treatments that include local customs, beliefs, and customs are effective.

Even with progress in understanding and addressing autism intervention in developing countries, the literature remains full of unsolved questions. Access to services, autism misinformation, and cultural stigma still hinder intervention implementation. Future research should focus on creative solutions and how technology-based therapy, community collaborations, and capacity-building programs might improve autism treatments in developing countries (Khatab et al., 2024). By bridging these gaps and enhancing knowledge, academics and professionals can better support autistic people and their families in other cultures.

Theoretical Frameworks for Understanding Autism Interventions

Theory helps us understand autism interventions from beneficial angles. Ecological Systems Theory and Social Interaction Theory are well-known theories in this field. According to social interaction theory, communication and social contacts shape people's growth and behavior (Hoppler et al., 2022). Autism affects social engagement and communication due to social cue comprehension and response deficiencies. Autistic people can socialize better by improving their social communication skills. Hence, autism therapies should focus on these. In contrast, ecological systems theory emphasizes how the environment affects growth and behavior (Kalra et al., 2023).

This theory states that autism affects the family, school, community, and culture. Environmental systems affect socialization and communication. Therapies must address autistic people's unique traits and social and cultural circumstances.

Ecological Systems Theory and Social Interaction Theory help explain the positives and cons of communicative stimulation for autism. Social interaction theory underpins social skills training and peer-mediated interventions to improve communication (Hoppler et al., 2022). Interventions that help autistic people with social sign recognition, discourse, and relationships address underlying issues. Additionally, ecological systems theory supports therapy methods considering social support systems and family dynamics (Pervin et al., 2022). By improving awareness of the many elements that affect a person's behavior and development, these interventions may permanently improve social and communication skills.

In intervention formulation and execution, theoretical frameworks and empirical data should be evaluated simultaneously. Professionals use theoretical knowledge and empirical research to provide culturally competent, theoretically sound, evidence-based treatments (Hoppler et al., 2022). This integration clarifies the intricate relationship between an individual's traits, environment, and intervention strategies, suggesting that autistic people receive adequate therapy and evidence-based interventions.

PART TWO: METHODOLOGICAL AND EMPIRICAL FRAMEWORK OF THE STUDY

CHAPTER 3: RESEARCH METHODOLOGY

Recall of the General Research Question

Our central research question is: Does factors that affect communication stimulation techniques practiced in Cameroon influence their efficiency in improving socialization of autistic children?

Specific Research Questions

These specific questions aim to address our overarching research question:

- Does the family settings in Cameroon influence the socialization outcome of autistic children?
- Does the culture and environment impact the socialization of autistic children in Cameroon ?
- Does the severity of autism cases in Cameroon influence the results of these communication stimulation techniques?

General Objectives of Research

The primary goal of our research is to to show the effectiveness of communication stimulation techniques practiced in Cameroon in influencing the socialization of autistic children.

. This objective is supported by the following specific goals:

Specific Objectives

1. To show family settings in Cameroon influence socialization of children with autism.
2. To show environmental, and cultural factors influence socialization of autistic children.
3. To analyze how the severity of autism cases affects the efficiency of these communication stimulation techniques.

Recall of the Research Hypotheses

The research hypothesis is a provisional answer or prediction about the relationship among study variables, which will be tested throughout the study. According to Anapama Ayanand (2018), a hypothesis articulates the researcher‘s expectations or predictions about these relationships.

It serves as a predictive solution to the problem. For our study, we propose the following hypotheses:

General Hypotheses

Factors that affect communication stimulation techniques practiced in Cameroon influence their efficiency in improving socialization of autistic children.

In line with Anapama Ayanand (2018), who suggests that a research process starts and concludes with a hypothesis, we propose that inclusion strategies for mentally disabled persons significantly contribute to the adaptation process of children with autism. Our hypothesis involves both independent (IV) and dependent variables (DV).

According to De Landshere (1969), the independent variable is the cause-and-effect variable, also known as the experimental, stimulus, or active variable, and can be manipulated by the researcher to explain the observed phenomena. In our research, the independent variable—factors affecting communication stimulation—includes the following modalities: family setting, environment, and severity of autism.

Independent Variable: Factors Affecting Communication Stimulation

Modality 1 : Family Setting

- **Center of Interest :** Family dynamics

- **Indicators:**
    - Type of family (nuclear or extended)
    - Socio-economic status
    - Number of siblings
    - Household size
    - Use of symbolic communication

Modality 2: Environment

- **Center of Interest:** Environmental characteristics

- **Indicators:**

    - Infrastructure
    - Community awareness
    - Technological access
    - Language environment

Modality 3: Severity of Autism

- **Center of Interest:** Child's behavioral responses

- **Indicators:**

    - Communication abilities
    - Behavioral issues
    - Emotional skills
    - Cognitive functioning

Dependent Variable: Socialization of Children with Autism

This variable represents the observed phenomenon affected by the independent variable.

Modality: Adaptation to the Social Environment in Educational Settings

- **Indicators :**

    - Participation in group activities
    - Communication with teachers
    - Interaction with peers

Logical Structure of the General Hypothesis

This logical structure forms the basis of our research hypothesis, guiding our investigation into the factors influencing the socialization of autistic children.

The Independent Variable		**The Dependent Variable**
Environment		Socialization
Family setting		
Severity of Autism		

Overview of the Einstein Center

The Einstein Center is a psych pedagogical institution dedicated to supporting and educating children with special and typical needs. Its mission focuses on implementing educational strategies to facilitate learning for children facing learning disabilities.

Established in 2001, the Einstein Center began as a consultation office specializing in children with specific educational needs. By 2007, due to the increasing number of learners, it expanded into a full-fledged psych pedagogical center. Today, it operates under the oversight of the Ministries of Basic Education and Social Affairs.

Situated in the economic hub of Cameroon, the center is located in the Central Region, Mfoundi Department, Yaoundé 6 District, specifically in the Nkolbikok area behind the transformer near the MATGENIE national park.

The center was founded by Mrs. KATIHABWA, née NJONKOU MARIANNE GISELE, a seasoned special education teacher and family therapist. Leadership is provided by Mrs. Payou Zenabou Zita, an experienced educator specializing in the care of children with neurodevelopmental disorders (NDDs).

The professional team at the Einstein Center comprises:

- A psychologist
- A pediatrician
- A speech therapist
- A psychomotor therapist
- Two specialized educators
- Social workers
- Teachers

Definition of the Study Population

According to Anger (1992, p. 238), the study population includes all elements sharing one or more characteristics that distinguish them from others. This population serves as the basis for research, enabling the extraction of insights and conclusions. In the context of our study, we are focusing on

children with autism who are enrolled in inclusive educational and psychopedagogical centers in Yaoundé. This focus aligns with our primary objective: to assess the quality of adaptation in children with autism within these inclusive educational settings.

The Target Population

As defined by Louise Barnbee and Son Ngiem (2018), the target population consists of individuals on whom the research is conducted and from whom conclusions are drawn. The selection of this population is guided by the literature, practical considerations, the aims of the study and contextual factors.

For our study, the target population includes children with autism attending a psycho-educational institute in the Montè du Parque area, specifically in the Mellen neighbourhood of Yaoundé. Given the large size of the general population, focusing on this specific sector allows us to obtain more precise and applicable results.

Definition of sample

In the context of our research, the chosen sample method aims to reflect the characteristics of the broader research population or the target population. However, since our study is qualitative, representativeness is not a primary concern. Qualitative research focuses on understanding the participants' experiences and behaviors, offering insights that are more empirical and pragmatic rather than purely ideological (Rahman, M.S., 2016).

Given the time-intensive nature of qualitative research, the researcher must judiciously select participants based on the study's purpose and their discretion (Musarrat Shaneen, 2021). Not every individual can or should participate, as the selection is critical to ensuring reliable and insightful responses, which simplify the interpretation of findings. The researcher‘s task is to document and analyze the detailed input provided by participants, making the selection process crucial to the study's outcome.

For our study, we will use a non-probability sampling technique, which is appropriate given our existing knowledge of the characteristics of the population. This approach does not aim to

The purposive sampling method does not give equal opportunity to all potential subjects, but focuses on selecting specific individuals who can provide rich, detailed insights relevant to our research questions.

Given the qualitative nature of our study and our familiarity with the population, we will use purposive sampling. This technique allows us to select participants who are best suited to provide in-depth information. Specifically, our research will focus on three carefully selected individuals or cases in order to explore their experiences in depth.This targeted approach ensures that our sample, while not representative in the traditional statistical sense, will offer valuable and nuanced insights into the research topic, aligning with the goals of qualitative research.

Choice of Method of Data Analysis

Observation as a research tool

We selected observation as our primary tool because of its significance and versatility in social sciences, especially in contexts involving children. Observation allows us to gather factual insights directly, avoiding potential illusions that can arise from indirect methods. This direct connection between the researcher and the observed subjects provides a more authentic understanding of the research phenomena.

There are two main types of observation:

- **Participant Observation**: In this method, the observer immerses themselves in the environment and lifestyle of the population under study. The goal is to integrate seamlessly and understand the group's dynamics without disrupting them. This method helps achieve research objectives by providing a deep, insider perspective without imposing on the group's natural behavior.
- **Non-Participant Observation**: Here, the observer remains detached from the group, observing from a distance without interacting. This method is more objective as the researcher does not influence the observed environment but adapts their role to align with the research objectives set at the study's outset.

Regardless of the observation type, the observer must remain objective and follow clearly defined research objectives. In our study, we employ participative observation. This involves

integrating into the group while respecting the participants' freedom to avoid influencing their natural behavior. Our aim is to provide a genuine social experience, maintaining a balance between immersion and non-disruption.

For interviews, we utilize semi-structured techniques. These allow for collecting qualitative data by guiding discussions around specific themes while encouraging free expression. The semi-structured approach is particularly effective in qualitative research, enabling the collection of comprehensive and nuanced information through direct contact (Quivy & Campenhoudt, 2006, p. 174).

Our interviews at the Einstein Psychopedagogical Institute were conducted in quiet settings, such as offices and meeting rooms, over two days. We used an interview guide to facilitate conversations and ensure all relevant topics were covered. Throughout, we focused on allowing the participants to express themselves freely while gently steering the conversation towards our research goals. The interview durations varied between fifteen and twenty-six minutes, creating a relaxed atmosphere where participants felt comfortable sharing their insights.

Analysis and Techniques of Result

Given our qualitative research approach, we opted for qualitative data analysis. This method focuses on psychological insights rather than quantitative metrics, allowing us to delve deeper into the observed phenomena and make our research more tangible.

Techniques for Analyzing Results

To analyze our qualitative data, we used content analysis. This method involves systematically and objectively interpreting what was said during interviews, aiming for reliability and accuracy. As Berenson (1952) defines it, content analysis is a "technique for the objective, systematic, and qualitative description of the content manifested in communication."

Content analysis helps transform oral discourse into text, providing a structured way to study the meaning of the participants' remarks. Bardin (1977, p. 43) describes content analysis as encompassing various communication analysis techniques. This process includes converting spoken words into text and constructing analytical instruments to explore the meanings conveyed in the conversations.

We focused on understanding both the explicit content and the nuances in participants' behaviors, words, gestures, and implied meanings. This approach allowed us to capture the full spectrum of communication, making our qualitative analysis robust and comprehensive. Despite the challenges inherent in ensuring complete analyses, content analysis remains a powerful tool for uncovering the deeper elements necessary for our research.

CHAPTER 4: PRESENTATION OF RESULTS AND DISCUSSION

The presentation of the studied cases

This section presents detailed case studies of autistic children in Cameroon, focusing on how various inclusive strategies influence their adaptation and socialization in educational settings. These cases were evaluated using an observation grid that assesses the impact of family, environment, and individual characteristics on socialization skills.

Table 1 : Observation grid to test the inclusion strategies which influence adaptation of children with autism

FAMILY	**Fair**	**Poor**	**Good**	**Excellent**
How would you rate the influence of a child‘s family type (nuclear or extended) on their socialization skills?				
Socio-Economic Status - To what extent does the socio-economic status of the family affect the socialization of the autistic children you teach?				
Number of Siblings - How significant is the number of siblings a child has in impacting their socialization abilities?				

ENVIRONMENT	Fair1	Poor2	Good3	Excellent4
. Infrastructure - How impactful is the quality of the physical environment and infrastructure (such as classroom setup and learning facilities) on the socialization of autistic children?				
Community Awareness - How would you rate the influence of community awareness and understanding of autism on the socialization of the autistic children you teach?				
. Technological Access - To what extent does access to technology and digital tools enhance the socialization skills of autistic children?				

SEVERITY OF AUTISM	Fair1	Poor 2	Good 3	Excellent4
. Communication Abilities - How would you assess the impact of a child's communication abilities on their				

ability to socialize with peers and adults?				
Behavioral Issues - How influential are behavioral issues (such as repetitive behaviors or difficulty with transitions) in affecting a child‘s socialization with others? - None				
Emotional Skills - To what degree do emotional skills (like managing emotions and empathy) play a role in the socialization of autistic children?				

- **case 1:**

The subject is a seven-year-old child with autism enrolled in an initiation class, which is equivalent to primary level. The child is generally quiet and exhibits significant phobic tendencies, particularly a need for emotional touch to engage in learning activities. The child thrives in a familiar, emotionally supportive environment.

The environmental conditions of the subject

The seating arrangement for our seven-year-old subject is crucial for his comfort and social development. He is seated at the back of the classroom next to his close friend, who is also autistic. This specific placement was chosen because of the positive bond they share. Observations revealed that the child's ability to interact and engage with others significantly improves when he is alongside this friend.

The child's attachment to his friend is instrumental in mitigating his phobic tendencies. Typically, he is very quiet and exhibits a phobic attitude, often avoiding new social interactions. However, when playing or participating in activities with his friend, these anxieties diminish. This companionship provides a sense of inclusion and safety, encouraging him to engage more freely with his peers and reduce his social inhibitions.

Emotional and Sensory Engagement:

Our subject thrives on emotional and physical connection. He requires a degree of emotional touch or physical contact to engage in classroom activities and learning processes. This need for emotional exchange is evident when he interacts with teachers or caregivers, who often need to offer comforting touches to encourage his participation and help him acquire new skills.

Like many children with autism, he is drawn to vivid colors and familiar images. These strong visual stimuli provide him with a sense of security and emotional attachment. For example, he feels comforted by the repeated sight of the center's proprietress, whose image has become a reassuring presence in his mind. This familiarity helps him feel more secure and included in his environment, facilitating better learning and social interactions.

Table 2: Observation grid to test the inclusion strategies which influence adaptation of children with autism

		Scores
FAMILY	How would you rate the influence of a child‘s family type (nuclear or extended) on their socialization skills?	**5/15**
	Socio-Economic Status - To what extent does the socio-economic status of the family affect the socialization of the autistic children you teach?	
	Number of Siblings - How significant is the number of siblings a child has in impacting their socialization abilities?	

ENVIRONMENT	. Infrastructure - How impactful is the quality of the physical environment and infrastructure (such as classroom setup and learning facilities) on the socialization of autistic children?	

	Community Awareness - How would you rate the influence of community awareness and understanding of autism on the socialization of the autistic children you teach?	**7/15**
	Technological Access - To what extent does access to technology and digital tools enhance the socialization skills of autistic children?	
Social interaction	. Communication Abilities - How would you assess the impact of a child's communication abilities on their ability to socialize with peers and adults?	**9/15**
	Behavioral Issues - How influential are behavioral issues (such as repetitive behaviors or difficulty with transitions) in affecting a child‘s socialization with others?	
	Emotional Skills - To what degree do emotional skills (like managing emotions and empathy) play a role in the socialization of autistic children?	

- **Case 2 :**

The second subject is a seven-year-old child with autism who experiences significant anxiety, often leading to aggressive behavior when stressed. The child requires close monitoring and structured interventions to adapt to social changes and engage with peers.

The environmental conditions of the subject

Our subject's seating arrangement at the front of the class reflects the careful attention and monitoring he receives from teachers. This positioning is deliberate, aiming to support him in managing social interactions and minimizing distractions. It became evident that he was occasionally bullied by peers, prompting teachers to seat him at the front to shield him from provocation.

The child shows less interest in playful activities typical of his peers, preferring to focus intently on details around him. However, he finds great joy and comfort in interactions with his teacher, appreciating the strong social connection they have cultivated. This bond is pivotal in fostering his engagement and emotional well-being within the classroom environment.

Structured Learning and Adaptation

In terms of physical and educational adaptation, the child has developed specific routines and activities that help him navigate his daily schedule effectively. Teachers have tailored these activities to suit his unique learning style and preferences, using visual aids and color cues extensively. These aids not only capture his attention but also facilitate his understanding of didactic materials, making learning more accessible and engaging for him.

Despite his reserved demeanor, he shows openness to structured play activities, which play a crucial role in broadening his understanding and social skills. This structured approach, coupled with patient guidance from his teacher, allows him to thrive in an environment that supports his individual needs and promotes his development.

		Scores
FAMILY	How would you rate the influence of a child‘s family type (nuclear or extended) on their socialization skills?	**6/15**
	Socio-Economic Status - To what extent does the socio-economic status of the family affect the socialization of the autistic children you teach?	

	Number of Siblings - How significant is the number of siblings a child has in impacting their socialization abilities?	
ENVIRONMENT	. Infrastructure - How impactful is the quality of the physical environment and infrastructure (such as classroom setup and learning facilities) on the socialization of autistic children?	**7/15**
	Community Awareness - How would you rate the influence of community awareness and understanding of autism on the socialization of the autistic children you teach?	
	Technological Access - To what extent does access to technology and digital tools enhance the socialization skills of autistic children?	
Social interaction	. Communication Abilities - How would you assess the impact of a child's communication abilities on their ability to socialize with peers and adults?	**9/15**
	Behavioral Issues - How influential are behavioral issues (such as repetitive behaviors or difficulty with transitions) in affecting a child‘s socialization with others?	
	Emotional Skills - To what degree do emotional skills (like managing emotions and empathy) play a role in the socialization of autistic children?	

Case 3 :

This seven-year-old child in initiation 2 displays a cautious demeanor towards his environment but exhibits a playful nature, particularly thriving in interactions with teachers. Despite his autism, he demonstrates a developed intellectual capacity, often attempting to communicate by echoing words spoken by educators. His unique stereotype behavior manifests as melodious humming when he feels comfortable, showcasing his keen intelligence and ability to interpret messages conveyed to him.

Social Development and Classroom Environment

The child's integration into the classroom is marked by a warm and welcoming atmosphere at the center. Notably, children with disabilities greet visitors and educators warmly, a testament to the inclusive habits instilled by teachers. Despite communication challenges, he actively participates in social rituals like greeting teachers each morning, even if imperfectly articulated, fostering a sense of social engagement and interaction.

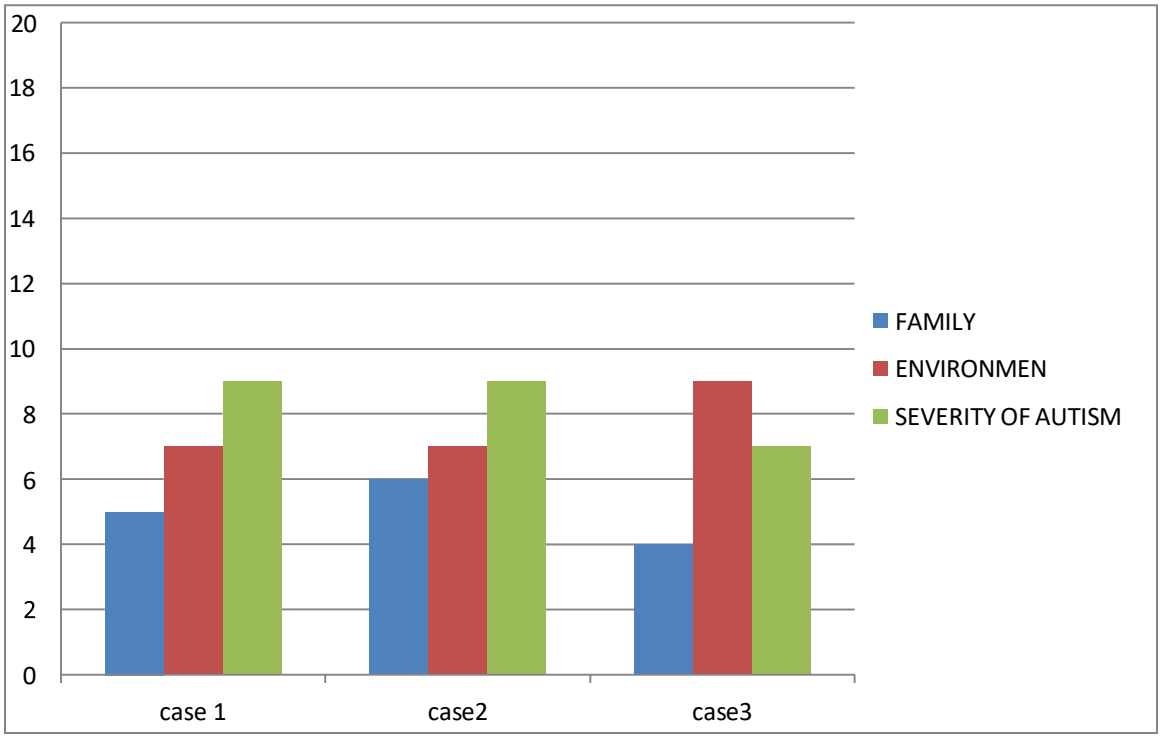
Educational Approach and Behavioral Support

The center employs effective behavioral strategies tailored to the child's needs, utilizing specialized tools and methods to enhance learning and socialization. This structured approach ensures that expertise from educational theory translates effectively into practice, providing a supportive environment for children facing similar difficulties.

		Scores
FAMILY	How would you rate the influence of a child‘s family type (nuclear or extended) on their socialization skills?	**4/15**
	Socio-Economic Status - To what extent does the socio-economic status of the family affect the socialization of the autistic children you teach?	
	Number of Siblings - How significant is the number of siblings a child has in	

	impacting their socialization abilities?	
ENVIRONMENT	. Infrastructure - How impactful is the quality of the physical environment and infrastructure (such as classroom setup and learning facilities) on the socialization of autistic children?	**9/15**
	Community Awareness - How would you rate the influence of community awareness and understanding of autism on the socialization of the autistic children you teach?	
	Technological Access - To what extent does access to technology and digital tools enhance the socialization skills of autistic children?	
Social interaction	. Communication Abilities - How would you assess the impact of a child's communication abilities on their ability to socialize with peers and adults?	**7/15**
	Behavioral Issues - How influential are behavioral issues (such as repetitive behaviors or difficulty with transitions) in affecting a child‘s socialization with others?	
	Emotional Skills - To what degree do emotional skills (like managing emotions and empathy) play a role in the socialization of autistic children?	

The chart of Adaptability



THE INTERVIEW GUIDE OF THE EDUCATORS FROM THE INSTITUT PSYCHOPEDAGOGIQUE ENSTEINE

The interview guide which we passed was for the educators of the centre psychopedagogique Einstein given that this was taken for our second tool concedering that the children have links to the educators who share the same educative environment with them. We were permited to carry out interview on the educators by the director of the center herself in the name of:

1. **How do you think the type of family (whether nuclear or extended) influences the socialization skills of the autistic children you teach?**

In my experience, children from extended families often struggle more with socialization compared to those from nuclear families. Extended families can be chaotic, with many voices and less focused attention on the child. For instance, one of my students lives with his grandparents, parents, and several cousins. The noise and lack of individual attention make it hard for him to follow our communication techniques at school. This setting contrasts sharply with the focused, quiet environments seen in smaller, nuclear families. In Cameroon, where extended families are

common, this poses a significant challenge to our efforts.

2. **In your experience, how does the socio-economic status of a family affect the socialization and development of autistic children?**

Socio-economic status profoundly impacts the resources available for an autistic child‘s development. Many families I work with struggle financially and can't afford the specialized tools or therapies needed to support their children. One family, for example, can't even afford the bus fare to bring their child to therapy regularly. This lack of resources means that the child misses out on consistent, effective communication practices. It‘s frustrating because without adequate funding and government support, these children‘s potential is significantly hindered.

3. **How does the number of siblings an autistic child has impact their ability to socialize and interact with others?**

Children with many siblings often have fewer opportunities for one-on-one interaction, which is crucial for their social development. One of my students, who has five siblings, is always vying for attention at home. This competition makes it difficult for him to engage in the focused communication exercises we practice at school. Unlike first-world countries where there‘s better support for family planning and child care, families here often lack such resources, leading to overcrowded homes where autistic children get lost in the shuffle.

4. **Can you describe how the size of a child's household influences their social interactions and overall socialization?**

Larger households can be overwhelming for autistic children, creating environments where they can't find the peace or space to practice communication skills effectively. One child I teach lives with ten other people in a small home. He often comes to school visibly distressed and withdrawn, unable to participate in group activities. These overcrowded living conditions, common in developing countries like ours, severely impact our ability to reinforce effective communication strategies.

5. **How does the use of symbolic communication methods (like sign language or visual aids) within a family setting affect a child’s socialization skills?**

In many families, there's a lack of understanding and use of symbolic communication methods. For instance, one of my students‘ families is unaware of how to use visual aids effectively. They expect him to understand verbal instructions that are too complex for him. This gap between what

we teach at school and what is practiced at home means that the child‘s progress is stunted. More training and support for families are desperately needed to bridge this gap.

Teacher 2

1. **How do you think the type of family (whether nuclear or extended) influences the socialization skills of the autistic children you teach?**

In Cameroon, extended families are common, and while they provide a broader support network, they also introduce complexities in socialization for autistic children. One of my students, living in a household with twelve members, finds it hard to follow our structured communication routines. The varied interactions and expectations from different family members confuse him, making it hard for us to reinforce our school‘s communication techniques.

2. **In your experience, how does the socio-economic status of a family affect the socialization and development of autistic children?**

Low socio-economic status severely restricts access to essential resources for autistic children. A student of mine lives in a single-room home and his parents can't afford the therapy sessions that could help him. His development is slower compared to those who can access more resources. Without adequate financial support from the government, our efforts are constantly undermined by these socio-economic barriers.

3. **How does the number of siblings an autistic child has impact their ability to socialize and interact with others?**

Having many siblings often means less focused attention for the autistic child. One of my students, who is the youngest of seven, struggles with social interactions because his parents are too occupied with his siblings. He doesn‘t get the individual attention he needs at home, which affects how he engages in our communication exercises. In contrast, children from smaller families often receive more direct support, making a noticeable difference in their social skills.

4. **Can you describe how the size of a child's household influences their social interactions and overall socialization?**

Large households tend to create environments where autistic children feel overwhelmed and isolated. One student lives in a crowded apartment with eight family members. The constant noise and lack of personal space make it difficult for him to focus on social interactions. Our

communication techniques often fall short when applied in such tumultuous settings, highlighting the need for better housing and support systems in our community.

5. **How does the use of symbolic communication methods (like sign language or visual aids) within a family setting affect a child's socialization skills?**

The use of symbolic communication methods at home is inconsistent at best. Many families either don‘t know how to use them or don‘t see their value. For example, a student‘s family relies solely on verbal communication, which he struggles with. This lack of continuity between school and home practices means we have to start from scratch every day. Training for families on these methods is crucial to improve their effectiveness.

Teacher 3

1. **How do you think the type of family (whether nuclear or extended) influences the socialization skills of the autistic children you teach?**

Extended families can be both a blessing and a curse for autistic children. One of my students lives with his parents, grandparents, and cousins. While he benefits from multiple caregivers, the varied expectations and interaction styles often confuse him. He struggles to adapt to our structured communication techniques because he gets mixed signals at home. In smaller, nuclear families, such inconsistencies are less common.

2. **In your experience, how does the socio-economic status of a family affect the socialization and development of autistic children?**

Families with lower socio-economic status often can't provide the resources needed for effective socialization of autistic children. One of my students comes from a low-income family that can't afford therapy or educational materials. This lack of support directly impacts his ability to socialize and respond to communication techniques. Inadequate government funding and social services make our job incredibly challenging in these situations.

3. **How does the number of siblings an autistic child has impact their ability to socialize and interact with others?**

Children with many siblings often have less personal attention, which is crucial for their social development. A student with five older siblings often feels left out and struggles to keep up with social interactions both at home and school. The siblings‘ attention is divided, leaving little room

for the focused, individualized support he needs. This dynamic can significantly hinder the effectiveness of our communication strategies.

4. **Can you describe how the size of a child's household influences their social interactions and overall socialization?**

Large households can overwhelm autistic children, making it hard for them to practice and internalize social skills. One student, who lives with ten family members, often comes to school stressed and uncommunicative. The constant noise and activity at home make it difficult for him to relax and engage in our communication exercises. This is a common issue in many Cameroonian households where space and calm are luxuries.

5. **How does the use of symbolic communication methods (like sign language or visual aids) within a family setting affect a child's socialization skills?**

Many families lack the training or understanding to effectively use symbolic communication methods. One of my students benefits greatly from visual aids at school, but his family doesn't use them at home. This inconsistency hampers his progress and makes it hard for him to integrate what he learns at school into his daily life. There is a dire need for more comprehensive training for families to support these methods.

Teacher 4

1. **How do you think the type of family (whether nuclear or extended) influences the socialization skills of the autistic children you teach?**

Extended families often create complex social environments that are difficult for autistic children to navigate. One of my students, living in a large extended family, finds it challenging to communicate because everyone has different ways of interacting with him. This diversity can be overwhelming and counterproductive, making our school-based communication techniques less effective. In nuclear families, there is typically more consistency and focus on the child's needs.

2. **In your experience, how does the socio-economic status of a family affect the socialization and development of autistic children?**

Lower socio-economic status greatly limits a child's access to necessary developmental resources. I have a student whose parents can't afford regular therapy sessions, resulting in inconsistent progress in his social skills. This economic barrier is a significant obstacle in our efforts to provide

effective communication stimulation. Without proper financial support from the government, we are constantly battling to give these children the help they need.

3. **How does the number of siblings an autistic child has impact their ability to socialize and interact with others?**

Having multiple siblings can dilute the attention and care an autistic child receives, affecting their socialization negatively. One of my students, who is one of six children, rarely gets individual time with his parents, which is crucial for his development. This lack of focused interaction at home makes it difficult for him to engage in our communication exercises at school. This is a stark contrast to children from smaller families who often progress better.

4. **Can you describe how the size of a child's household influences their social interactions and overall socialization?**

Children from large households often face overstimulation and lack the calm environments needed to practice social skills. One of my students lives in a small apartment with eight family members. The constant noise and cramped space at home make it hard for him to concentrate and apply the social skills we teach. These conditions are unfortunately common in Cameroon and significantly hinder the effectiveness of our communication techniques.

5. **How does the use of symbolic communication methods (like sign language or visual aids) within a family setting affect a child's socialization skills?**

Symbolic communication methods are underutilized at home due to a lack of knowledge and resources. A student of mine excels with visual aids in the classroom but struggles at home where such tools aren't used. This inconsistency makes it challenging for him to retain and apply these skills outside school. More training and resources for families are essential to make these techniques effective in all environments.

Teacher 5

1. **How do you think the type of family (whether nuclear or extended) influences the socialization skills of the autistic children you teach?**

Extended families often complicate socialization for autistic children due to the varied interactions they experience. One of my students lives with his parents, grandparents, and several cousins. The differences in how each family member interacts with him make it hard for him to grasp consistent

communication cues. This lack of consistency can be frustrating and confusing for the child, making our school-based efforts less effective.

2. **In your experience, how does the socio-economic status of a family affect the socialization and development of autistic children?**

Children from low socio-economic backgrounds often lack access to essential developmental support, severely impacting their social skills. One student comes from a family that struggles to provide basic necessities, let alone afford specialized therapy or tools. This financial constraint means that his socialization and communication skills develop much slower than they should. The government‘s inadequate funding for special needs education only exacerbates these challenges.

3. **How does the number of siblings an autistic child has impact their ability to socialize and interact with others?**

Large families often mean less attention for each child, especially for those with special needs. A student with three older siblings rarely gets individual attention at home, leading to underdeveloped social skills. This lack of focused interaction makes it challenging for him to engage in our classroom communication activities. It‘s clear that children in smaller families, where they receive more personal attention, fare better in socialization.

4. **Can you describe how the size of a child's household influences their social interactions and overall socialization?**

Large households can overwhelm autistic children, making it difficult for them to practice social skills. One student, living with nine family members in a small house, often arrives at school anxious and withdrawn. The constant noise and lack of personal space at home impede his ability to engage in social interactions. These living conditions, common in many parts of Cameroon, severely limit the effectiveness of our communication techniques.

5. **How does the use of symbolic communication methods (like sign language or visual aids) within a family setting affect a child’s socialization skills?**

There is a significant gap in the use of symbolic communication methods at home. One of my students benefits greatly from visual aids in our classroom but his family doesn't use them at home. This inconsistency hinders his ability to communicate effectively in different settings. Without proper training and support for families, our efforts to teach these methods at school are often undermined when the child goes home.

CHAPTER 5: INTERPRETATION OF THE RESULT, DISCUSSION AND SUGGESTION

Interpretation of the result according to the Evidence Based Theory

Autism spectrum disorder (ASD) presents unique challenges globally, impacting children's socialization and communication skills. Effective communication stimulation techniques are crucial in supporting these children, yet their efficacy can vary significantly across different socio-cultural contexts. This final chapter explores the efficiency of these techniques in Cameroon, a developing country where socio- economic factors and cultural norms may influence their implementation and outcomes. By integrating insights from educators and applying theoretical frameworks, this study aims to understand why techniques proven effective elsewhere may encounter challenges in Cameroon.

The development of adaptive behaviors liked to autistic socialization

This research draws upon two main theoretical perspectives: Evidence-Based Theory (EBT) and Social Interactions Theory (SIT). EBT emphasizes the use of scientifically validated practices to guide interventions, focusing on outcomes supported by empirical evidence. SIT, on the other hand, underscores the role of social interactions in shaping cognitive development and adaptive behaviors, highlighting the significance of social contexts in learning and communication,

Socialization of autistic children in Cameroon

Cameroon, like many developing countries, faces unique socio-economic and cultural dynamics that impact the lives of children with autism. Extended families are common, providing both support and complexity in socialization efforts. Socio-economic disparities limit access to essential resources such as therapy and specialized educational tools, posing significant challenges for autistic children's development.

Interpretation of result in connection to the various cases Seven-Year-Old Child in Initiation Class

This child demonstrates significant phobic tendencies and a need for emotional touch to engage in learning activities. The supportive environment of the classroom, particularly the seating arrangement next to a close autistic friend, facilitates improved social interactions and reduced

anxieties. Visual stimuli and emotional exchanges with caregivers enhance his comfort and participation in educational activities.

Teachers emphasized the impact of family dynamics on socialization, noting that extended families may introduce conflicting expectations and interactions that hinder consistent communication techniques. The socio-economic status of families often limits access to therapeutic resources, impacting the child's progress.

Case 2: Seven-Year-Old Child with Anxiety

This case highlights the challenges of managing anxiety-driven behaviors in autistic children within classroom settings. Structured interventions and close monitoring are essential in fostering social engagement and minimizing distress. The child's responsiveness to visual aids and structured routines shows their importance in facilitating learning and communication.

The teachers stressed that socio-economic constraints significantly hinder the families' ability to support their children effectively. Large family sizes and overcrowded living conditions contribute to sensory overload, complicating the implementation of communication strategies taught at school.

Case 3: Seven-Year-Old Child in Initiation 2

This child displays cautious behavior but does well in interactions with teachers, demonstrating a developed intellectual capacity despite communication challenges. The supportive environment of the educational center encourages social rituals like greeting teachers, fostering a sense of belonging and engagement.

Teachers noted that community awareness and understanding of autism vary, impacting the acceptance and support available to autistic children. Access to technology and specialized tools such as communication support devices, and technology providing access to online lesson varied, influencing the effectiveness of communication stimulation techniques.

Insights from Educators

Interviews with educators provided critical insights into the socio-cultural factors affecting the efficiency of communication stimulation techniques in Cameroon. They highlighted:

1. **Family Dynamics:** Extended families may provide support but they can also complicate consistent communication approaches due to varied interactions and expectations when the kids are back home.
2. **Socio-Economic Status:** Limited resources constrain the families' access to speech therapies, specialists and high-tech educational tools, hindering the children's developmental progress.
3. **Number of Siblings and Household Size:** Larger families often result in less individualized attention and crowded living conditions, challenging children's ability to focus and engage effectively, thus having a reverse effect on the progress made at school due to lack of consistency.
4. **Use of Symbolic Communication Methods:** Inconsistent use of visual aids and symbolic communication methods at home undermines the integration of skills learned at school into the daily life of the kids.

RESULT AND THE CONNECTION TO THE THEORY OF EVIDENCE BASED THEORY

Evidence-Based Theory (EBT)

EBT advocates for the implementation of various proven strategies based on rigorous research. In Cameroon, challenges such as the limited availability of resources and varying family dynamics pose barriers to the consistent application of evidence-based practices. The discrepancy between the research findings and practical implementation highlights the need for tailored interventions that considers these local contexts and constraints.

Social Interactions Theory (SIT)

SIT emphasizes the role of social environments in shaping learning and development. In Cameroon, cultural norms and community awareness significantly influence the acceptance and integration of autistic children. The supportive educational environments observed show us the positive impact of social interactions and inclusive practices in improving socialization skills.

Implications for Practice and Policy

Effective communication stimulation techniques require tailored approaches that acknowledge and address the socio-cultural realities of Cameroon. Strategies should include:

- **Community Engagement:** Enhancing community awareness and understanding of autism to foster acceptance and support.
- **Family-Centered Interventions:** Providing training and resources for families to facilitate consistent application of communication techniques at home.
- **Accessible Education:** Improving access to technology and therapeutic resources to support children's developmental needs effectively.

Technology

Improvements in technology offer promising avenues to enhance communication stimulation techniques for autistic children in Cameroon. Access to digital tools and technological advancements can significantly augment the effectiveness of interventions aimed at improving socialization skills in these children. For instance, the use of interactive apps and software specifically designed for autistic learners can provide personalized learning experiences tailored to their unique needs and preferences. These tools can offer visual schedules, social stories, and virtual simulations that simulate real-life social interactions in a controlled and supportive environment.

Furthermore, technological advancements in communication devices and augmentative and alternative communication (AAC) systems can empower non-verbal or minimally verbal autistic children to express themselves more effectively. AAC tools such as speech-generating devices, picture exchange systems, and voice-output communication aids can bridge communication gaps, allowing children to initiate and maintain social interactions more confidently.

Moreover, teletherapy and online resources can overcome geographical barriers, bringing specialized interventions and support to remote or underserved areas of Cameroon. This is crucial in a country where access to specialized therapists and resources is often limited. Telehealth platforms can connect families with experts for remote consultations, training sessions, and ongoing support, facilitating continuous learning and skill development.

In conclusion, integrating these technological advancements into educational and therapeutic settings holds tremendous potential to enhance the efficiency and impact of communication stimulation techniques for autistic children in Cameroon. By leveraging technology, educators, therapists, and families can collaborate more effectively to create inclusive learning environments that promote socialization and communication skills development across diverse contexts and settings.

Training

Proper teacher training and increased availability of specialists play pivotal roles in enhancing the efficiency of communication stimulation techniques for autistic children in Cameroon. Firstly, well-trained educators equipped with knowledge about autism spectrum disorders (ASD) can effectively implement evidence-based strategies tailored to individual student needs. Training should encompass understanding sensory sensitivities, behavior management, and adapting curriculum materials to support diverse learning styles. Additionally, ongoing professional development ensures teachers remain updated with the latest research and techniques, fostering a dynamic classroom environment conducive to learning and socialization.

Moreover, the availability of specialists such as speech-language pathologists, occupational therapists, and behavioral analysts is critical. These professionals provide specialized interventions that address specific communication challenges and behavioral issues associated with autism. Their expertise enables comprehensive assessment, personalized therapy plans, and collaborative support for educators and families. By integrating these specialists into school settings and ensuring their accessibility across the country, Cameroon can significantly enhance the effectiveness of communication stimulation techniques. This holistic approach empowers teachers with the tools and support needed to optimize outcomes for autistic children, bridging the gap between theory and practical application in inclusive education.

Culture

Creating culturally adaptable techniques for communication stimulation can significantly enhance their effectiveness in diverse contexts like Cameroon. This adaptation involves tailoring strategies to fit local cultural norms, beliefs, and practices, thereby increasing relevance and acceptance within communities. For instance, integrating traditional storytelling or community rituals into therapeutic practices can resonate more deeply with families and children, fostering greater engagement and

compliance. Moreover, training local educators and caregivers in culturally sensitive approaches ensures sustainable implementation and long-term impact. By embracing cultural diversity and adapting techniques accordingly, interventions become more inclusive and accessible, addressing unique social and environmental challenges effectively. This approach not only enhances the outcomes of communication stimulation but also promotes respect for cultural differences, contributing to holistic support for autistic children in Cameroon's educational settings.

In exploring the efficiency of communication stimulation techniques for autistic children in Cameroon, several key indicators emerge as critical factors that influence their effectiveness. These indicators include the severity of autism spectrum disorders (ASD), cultural considerations specific to Cameroon, the impact of large family sizes, and negative governmental views towards autism. Understanding how these factors interplay provides insights into why techniques proven effective elsewhere may encounter challenges in this context.

Severity of Autism Spectrum Disorders

The severity of ASD varies widely among children, impacting their communication abilities and socialization skills differently. In Cameroon, as in many developing countries, children with severe autism often face profound challenges in accessing appropriate educational and therapeutic interventions. The limited availability of specialized resources and trained professionals exacerbates these difficulties, leading to gaps in effective communication stimulation.

For example, children with severe autism may show significant communication impairments, including non-verbal behaviors and limited social interactions. This often leads to frustrations on the kid‘s behalf, which is expressed through difficult behavior. Inadequate resources and support structures mean that tailored interventions to address these very unique challenges are scarce. Moreover, the focus on verbal communication in traditional educational settings may not accommodate the diverse communication needs of autistic children with severe ASD in Cameroon. As a result, techniques that rely heavily on verbal interaction or structured language-based approaches may fall short in achieving meaningful progress.

Efforts to enhance communication stimulation techniques must therefore prioritize a holistic approach that considers the spectrum of communication abilities within ASD. This includes augmentative and alternative communication (AAC) methods, visual supports, and sensory-based strategies that can accommodate children with varying levels of communication impairment. By

acknowledging and addressing the severity of autism in Cameroon, interventions can be tailored to meet the diverse needs of autistic children more effectively.

Cultural Considerations in Cameroon

Cultural factors profoundly influence perceptions and practices related to autism in Cameroon. Traditional beliefs, societal norms, and perceptions of disability shape how autism is understood and addressed within communities. In many Cameroonian cultures, disabilities are often stigmatized, and misconceptions about autism prevail. These cultural attitudes can hinder acceptance of evidence-based communication stimulation techniques that may conflict with traditional beliefs or practices.

For example, the emphasis on community harmony and collective responsibility in Cameroonian culture may influence how families perceive and respond to their child's autism diagnosis. Seeking external support or admitting a child's disability may be viewed as a sign of familial failure or weakness, leading to delays in seeking appropriate interventions. Moreover, traditional healing practices or spiritual beliefs may be preferred over modern medical or educational interventions, further complicating the adoption of effective communication stimulation techniques.

To overcome these challenges, culturally adaptable approaches are essential. This involves integrating local cultural practices and beliefs into therapeutic interventions, fostering community engagement and

acceptance. Collaborating with community leaders, educators, and traditional healers can help bridge gaps between traditional and modern approaches to autism care. By respecting and incorporating cultural diversity, communication stimulation techniques can become more relevant and accessible to Cameroonian families, thereby improving outcomes for autistic children.

Impact of Large Family Sizes

The size of a child's household plays a significant role in their socialization and development, particularly in contexts like Cameroon where large families are common. Autistic children from large families often experience reduced individual attention and support, which are crucial for their social and communication skills development. The competing demands within large households can create environments that are overwhelming and chaotic, making it challenging for children with autism to engage in structured communication activities effectively.

For instance, a child with autism in a large family may struggle to find quiet, focused environments necessary for learning and social interaction. Constant noise, lack of personal space, and limited access to individualized support can hinder their progress in communication stimulation programs. Moreover, the distribution of caregiving responsibilities among family members may not prioritize the specialized attention and consistency needed for effective intervention.

Addressing the impact of large family sizes requires a multifaceted approach that includes family education, caregiver training, and community support. Educating families about the unique needs of autistic children and providing strategies for creating supportive home environments is crucial. Encouraging sibling involvement in structured play and communication exercises can foster positive interactions and peer support. Additionally, advocating for policies that support family planning and childcare resources can alleviate some of the burdens faced by large families in supporting autistic children.

Governmental Views and Policies Towards Autism

Negative governmental views and inadequate policies regarding autism pose significant barriers to the implementation of effective communication stimulation techniques in Cameroon. In many developing countries, including Cameroon, autism is often overlooked in national health and education agendas. Limited funding, lack of trained professionals, and outdated policies contribute to gaps in services and support for autistic individuals and their families.

For example, the absence of specific legislation or policies that prioritize autism spectrum disorders means that resources for early diagnosis, intervention, and educational support are limited. The reliance

general special education frameworks may not adequately address the unique needs of autistic children, particularly in communication and social skills development. Furthermore, negative perceptions of disability within government institutions can perpetuate stigma and discrimination, further marginalizing autistic individuals and their families.

To address these systemic challenges, advocacy efforts are crucial. Collaborating with policymakers, healthcare providers, and educators to raise awareness about autism spectrum disorders and the importance of evidence-based interventions is essential. Advocacy initiatives aimed at influencing policy reform and securing dedicated funding for autism services can facilitate the implementation of effective communication stimulation techniques. Strengthening partnerships

between government agencies, non- governmental organizations (NGOs), and community stakeholders can also enhance coordination and resource allocation towards improving outcomes for autistic children in Cameroon.

CONCLUSION

The theory of ecosystem provides a useful framework for understanding how factors such as family, culture, and the environment of a developing country can influence the efficiency of communication stimulation techniques in improving the socialization of autistic children attending special needs schools.

At the core of the ecosystem theory is the recognition that an individual's development and well-being are inextricably linked to the various systems and environments they are embedded within. In the case of autistic children, this ecological perspective helps explain how the different layers of their surrounding context can shape the outcomes of communication stimulation techniques.

The innermost layer of the child's ecosystem is the family unit. The family setting, including the parents' understanding of autism, their attitudes and involvement in the child's therapy, and the overall family dynamics, can significantly impact the effectiveness of communication stimulation techniques. Families with a stronger grasp of autism and a willingness to reinforce the strategies learned at school in the home environment are more likely to see tangible improvements in their child's socialization skills. Conversely, families with limited knowledge or a lack of engagement in the intervention process may hinder the child's progress, as the communication stimulation techniques are not consistently applied across the different settings the child encounters.

Moving outward, the cultural beliefs and practices prevalent in the developing country context also play a pivotal role. cultural stigmas surrounding disability, societal expectations around child-rearing, and the general level of awareness and acceptance of autism within the community can all influence the school's approach to communication stimulation techniques. In some cases, cultural barriers may undermine the family's receptiveness to the interventions, or limit the school's ability to garner the necessary community support and resources to implement the techniques effectively.

Furthermore, the physical environment and infrastructure of the special needs school itself are crucial determinants of the efficiency of the communication stimulation techniques. The availability of specialized equipment, the quality of the teaching facilities, and the access to assistive technologies can significantly enhance or hinder the school's capacity to deliver effective interventions. In the context of a developing country, where resources and funding for special education may be scarce, the school's physical environment can become a significant constraint on the implementation and outcomes of the communication stimulation techniques.

Addressing these layers of the ecosystem - the family setting, cultural beliefs, and the physical environment - is essential for improving the efficiency of communication stimulation techniques in special needs schools within developing countries. Strategies such as providing comprehensive family education and support, fostering community awareness and acceptance of autism, and investing in the improvement of school infrastructure and technology can help create a more conducive ecosystem for the success of these interventions.

By adopting a holistic, ecosystem-based approach, special needs schools can better understand and address the complex interplay of factors that influence the efficacy of communication stimulation techniques. This, in turn, can lead to more tailored and effective interventions that are responsive to the unique challenges and opportunities presented by the developing country context, ultimately enhancing the socialization and overall development of the autistic children in their care.

In conclusion, the theory of ecosystem offers a valuable lens through which to examine the factors that shape the efficiency of communication stimulation techniques in improving the socialization of autistic children attending special needs schools in developing countries. By considering the child's family setting, cultural influences, and the physical environment of the school, educators and policymakers can design and implement more comprehensive and impactful interventions, addressing the multifaceted needs of this vulnerable population and fostering their meaningful inclusion in their communities.

In conclusion, the efficiency of communication stimulation techniques for autistic children in Cameroon is profoundly influenced by several interconnected factors. The severity of autism spectrum disorders, cultural beliefs and practices, family dynamics, and governmental policies all play critical roles in shaping the effectiveness of interventions. Recognizing these factors and their implications is essential for developing tailored approaches that meet the diverse needs of autistic children in Cameroon.

Moving forward, efforts should focus on promoting inclusive practices that respect cultural diversity, empower families, and advocate for policy changes that prioritize autism spectrum disorders. By integrating evidence-based strategies with culturally adaptable approaches, communication stimulation techniques can become more accessible, effective, and sustainable in improving socialization outcomes for autistic children across Cameroon. Collaborative efforts among stakeholders, including families, educators, policymakers, and advocacy groups, are pivotal in creating supportive environments where autistic children can thrive and reach their full

potential.

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APPENDICES

UNIVERSITE DE YAOUNDE I
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FACULTE DES SCIENCES DE L'EDUCATION
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CENTRE DE RECHERCHE ET DE FORMATION DOCTORALE EN SCIENCES DE L'EDUCATION ET INGENIRIE EDUCATIVE

THE UNIVERSITY OF YAOUNDE I
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FACULTY OF SCIENCES OF EDUCATION
******
DOCTORAL RESEARCH AND TRAINING SCHOOL IN EDCUATION AND EDUCATIONAL ENGINEERING
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INTERVIEW GUIDE

FAMILY	Fair	Poor	Good	Excellent
How would you rate the influence of a child's family type (nuclear or extended) on their socialization skills?			√	
Socio-Economic Status - To what extent does the socio-economic status of the family affect the socialization of the autistic children you teach?	√			
Number of Siblings - How significant is the number of siblings a child has in impacting their socialization abilities?		√		

ENVIRONMENT	Fair1	Poor2	Good3	Excellent4
. Infrastructure - How impactful is the quality			√	

of the physical environment and infrastructure (such as classroom setup and learning facilities) on the socialization of autistic children?				
Community Awareness - How would you rate the influence of community awareness and understanding of autism on the socialization of the autistic children you teach?		√		
. Technological Access - To what extent does access to technology and digital tools enhance the socialization skills of autistic children?				√

SEVERITY OF AUTISM	Fair1	Poor 2	Good 3	Excellent4
. Communication Abilities - How would you assess the impact of a child's communication abilities on their ability to socialize with peers and adults?				√
Behavioral Issues			√	

- How influential are behavioral issues (such as repetitive behaviors or difficulty with transitions) in affecting a child‘s socialization with others? - None				
Emotional Skills - To what degree do emotional skills (like managing emotions and empathy) play a role in the socialization of autistic children?		√		

CASE 2

FAMILY	**Fair**	**Poor**	**Good**	**Excellent**
How would you rate the influence of a child's family type (nuclear or extended) on their socialization skills?			√	
Socio-Economic Status - To what extent does the socio-economic status of the family affect the socialization of the autistic children you teach?	√			

Number of Siblings - How significant is the number of siblings a child has in impacting their socialization abilities?		√		

ENVIRONMENT	**Fair1**	**Poor2**	**Good3**	**Excellent4**
. Infrastructure - How impactful is the quality of the physical environment and infrastructure (such as classroom setup and learning facilities) on the socialization of autistic children?	√			
Community Awareness - How would you rate the influence of community awareness and understanding of autism on the socialization of the autistic children you teach?		√		
. Technological Access - To what extent does access to technology and digital tools enhance the socialization skills of autistic children?				√

SEVERITY OF AUTISM	**Fair1**	**Poor 2**	**Good 3**	**Excellent4**
. Communication Abilities - How would you assess the impact of a child's communication abilities on their ability to socialize with peers and adults?				√
Behavioral Issues - How influential are behavioral issues (such as repetitive behaviors or difficulty with transitions) in affecting a child‘s socialization with others? - None			√	
Emotional Skills - To what degree do emotional skills (like managing emotions and empathy) play a role in the socialization of autistic children?		√		

CASE 3

FAMILY	**Fair**	**Poor**	**Good**	**Excellent**
How would you rate the influence of a child's family type (nuclear or extended) on their socialization skills?			√	
Socio-Economic Status - To what extent does the socio-economic status of the family affect the socialization of the autistic children you teach?	√			
Number of Siblings - How significant is the number of siblings a child has in impacting their socialization abilities?		√		

ENVIRONMENT	Fair1	Poor2	Good3	Excellent4
. Infrastructure - How impactful is the quality of the physical environment and infrastructure (such as classroom setup and learning facilities) on	√			

the socialization of autistic children?				
Community Awareness - How would you rate the influence of community awareness and understanding of autism on the socialization of the autistic children you teach?		√		
. Technological Access - To what extent does access to technology and digital tools enhance the socialization skills of autistic children?				√

SEVERITY OF AUTISM	Fair1	Poor 2	Good 3	Excellent4
. Communication Abilities - How would you assess the impact of a child's communication abilities on their ability to socialize with peers and adults?				√
Behavioral Issues - How influential are behavioral issues (such as repetitive behaviors or difficulty with			√	

transitions) in affecting a child‘s socialization with others? - None				
Emotional Skills - To what degree do emotional skills (like managing emotions and empathy) play a role in the socialization of autistic children?		√		

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INTERVIEW

Dear Sir/Madam, we are conducting a study as a part of our university research on; **—THE EFFICIENCY OF COMMUNICATION STIMULATION TECHNIQUES IN IMPROVING SOCIALIZATION IN AUTISTIC CHILDREN‖**. We will kindly ask you to answer this interview guide in all sincerity and we assure you of the confidentiality of the information we will obtain from you, according to the code of the profession in educational psychologist.

0-Socio-demographic information of the participant

-Date and place of interview ……

-Time and start……..

-Age of respondent……

-Educational level…….

-Profession……

During this interview I would like to discuss with you certain events related to the way autism is being handled by you. So, I will be as fast as possible, go through a set of themes that I will propose to you. But in the meantime, tell me a little about the children and their autistic problems.

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0-Theme 0: Brief History of the participant

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…… I would now like us to discuss the following themes that I will propose to you.

Theme 1: Artistic kills

Sub-theme1: **How do you think the type of family (whether nuclear or extended) influences the socialization skills of the autistic children you teach?**……
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Sub-theme 2: **In your experience, how does the socio-economic status of a family affect the socialization and development of autistic children?**……
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Sub-theme 3: How does the number of siblings an autistic child has impact their ability to socialize and interact with others?

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Sub-Theme 4: Can you describe how the size of a child's household influences their social interactions and overall socialization?

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. How does the use of symbolic communication methods (like sign language or visual aids) within a family setting affect a child's socialization skills?

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