



The Relationship Between the Degree of Autism Spectrum Disorder and the Level and Types of Développementale Language Disorders in Children and Adolescents with Autism Spectrum Disorder

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Abstract:

This study explores the relationship between the degree of autism spectrum disorder (mild, moderate, severe) and the level of developmental language disorders among 150 children and adolescents in Algeria. The findings revealed a strong positive correlation between autism severity and language disorder levels, as well as significant differences based on gender and degree of autism. These results highlight the need for tailored language interventions suited to each individual's profile.

Keywords: Autism Spectrum Disorder, Developmental Language Disorders, Language Interventions.

La relation entre le degré de trouble du spectre autistique et le niveau et les types de troubles du langage développemental chez les enfants et les adolescents atteints d'un trouble du spectre autistique

Résumé

Cette étude examine la relation entre le degré de Trouble du Spectre de l'Autisme (léger, modéré, sévère) et le niveau des troubles langagiers développementaux chez 150 enfants et adolescents en Algérie. Les résultats ont montré une corrélation positive forte entre la sévérité du trouble et l'intensité des troubles, ainsi que des différences significatives selon le sexe et le degré du trouble. Ces conclusions soulignent l'importance d'interventions comportementales adaptées à chaque profil.

Mots-clés : *Trouble du Spectre de l'Autisme, Troubles du comportement développementaux, Interventions comportementales.*



Introduction

The accompanying linguistic and behavioral challenges associated with Autism Spectrum Disorder (ASD) are among the most significant factors affecting the quality of life for affected individuals and their families. ASD is defined as a complex neurodevelopmental condition characterized by persistent deficits in social communication and restricted, repetitive patterns of behavior. This disorder is classified into varying degrees of severity (mild, moderate, severe) based on the level of social communication impairment and the required support needs for each individual (American Psychiatric Association, 2013).

Prior literature indicates that the prevalence rates of Developmental Language Disorders are significantly higher among individuals with ASD compared to the general population (Emerson & Hatton, 2007), including various forms of disruptive behavior such as aggression, social withdrawal, and stereotyped languages (Pruitt, 2015). However, a research gap exists in the need for a precise understanding of how the degree of ASD severity impacts the type and level of these co-occurring language disorders.

This study primarily focuses on examining the correlational relationship between the degree of Autism Spectrum Disorder severity (mild, moderate, severe) and the level and types of developmental language disorders within a sample of children and adolescents. The research also investigates the presence of statistically significant differences in language disorder levels based on demographic variables such as age group and gender.

The anticipated findings are expected to provide deep insights that will contribute to improving diagnostic and assessment programs, enabling specialists to develop customized and differential language and therapeutic intervention programs that align precisely with each degree of ASD severity. This research aims to enhance clinical practices and develop supportive educational strategies to improve the quality of life and social integration for individuals with Autism Spectrum Disorder.

1. The Study Problem :

Autism Spectrum Disorder (ASD) is a developmental condition characterized by significant deficits in social and communication functioning and social and communication skills, and it is divided into varying degrees of severity (mild, moderate, and severe) based on the level of deficit (American Psychiatric Association, 2013). This condition is often accompanied by a set of additional challenges, most notably Developmental Language Disorders.

Many studies indicate that the prevalence rates of these disorders, such as ASD and ADHD, are much higher in individuals with ASD compared to the general population (Emerson & Hatton, 2007). While the prevalence of language and mental health problems in the general population is approximately 15-20%, this rate can rise to 30-50% among individuals with ASD (Cooper et al. 2007).

Although the research literature has generally confirmed this relationship, there is a clear research gap in the lack of a deep understanding of how the degree of autism spectrum disorder affects the type and level of accompanying language disorders. Most previous studies addressed the relationship holistically without detail, leaving many



questions unanswered. For example, are aggressive languages and social withdrawal more common in those with moderate autism, while stereotyped languages and self-injury are more associated with severe autism? Available research has not provided definitive answers to these questions, making the process of differential diagnosis and designing therapeutic interventions a general process lacking specialization.

Answering these questions is not just an addition to theoretical knowledge; it has significant practical implications on the ground. Understanding this relationship helps in improving diagnostic and assessment programs, enabling specialists to predict potential types of language problems based on the severity of the autism. For example, a study by Matson & Williams (2017) indicated that aggressive and stereotyped languages were very common in children with severe autism spectrum disorder, while another study showed that attention and hyperactivity problems might be more common in individuals with mild autism.

Based on the above, the study problem is presented in the following main question :

-What is the nature of the relationship between the degree of autism spectrum disorder (mild, moderate, severe) and the level and types of developmental language disorders in children and adolescents with autism spectrum disorder?

The main question branches into the following sub-questions :

- Is there a statistically significant correlational relationship between the degree of autism spectrum disorder and the total level of language disorders in the study sample?

- Do the most common types of language disorders differ according to the degree of autism spectrum disorder ?
- Are there statistically significant differences in the levels of language disorders among different age groups (e.g. childhood versus adolescence) in individuals with autism spectrum disorder ?
- Are there statistically significant differences in the levels of language disorders between males and females with autism spectrum disorder ?

2. Study Hypotheses :

Based on the sub-questions, the study hypotheses, which are predictions of what the results might reveal, can be formulated :

- There is a statistically significant positive correlation between the degree of autism spectrum disorder and the total level of language disorders.
- There are statistically significant differences in the most common types of language disorders depending on the degree of autism spectrum disorder.
- There are statistically significant differences in the levels of language disorders among different age groups.
- There are statistically significant differences in the levels of language disorders between males and females with autism spectrum disorder.

3. Study Objectives

The current research aims to achieve a set of main and sub-objectives to understand the relationship between the



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degree of autism spectrum disorder and the level of developmental language disorders.

3.1. Main Objective

Understanding the nature of the relationship between the two variables: The primary goal is to uncover the nature of the correlational relationship between the degree of autism spectrum disorder (mild, moderate, severe) and the level of language disorders in children and adolescents.

3.2. Sub-Objectives

- Identifying the most prevalent levels and types of developmental language disorders in the research sample.
- Determining whether there are statistically significant differences in the total and sub-levels of language disorders among the different groups of individuals with ASD (mild, moderate, severe).
- Detecting potential differences in the levels of language disorders based on the variables of age and gender.
- Improving diagnostic practices by providing accurate data that can help specialists develop more effective diagnostic and assessment programs.

4. Operational Definitions of Study Terms :

4.1. Autism Spectrum Disorder (ASD) :

ASD is defined as a developmental state characterized by persistent deficits in social communication and social interaction across multiple contexts, and restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association, 2013). The severity of ASD is assessed through clinical evaluation and standardized tools, focusing on the level of support required for functioning in daily life. Operational Definition : In this study, ASD severity is defined based on the required level of support, as classified in the DSM-5 criteria, where the clinical judgment determines the degree based on the impact of deficits on daily functioning. Classification of Degrees of Autism Spectrum Disorder :

- **-Mild Autism Spectrum Disorder (Level 1):** Requiring support, where social communication deficits cause noticeable impairments.
 - **-Autism Spectrum Disorder (Level 2):** Requiring substantial support, where social communication deficits are marked, and restricted/repetitive behaviors are obvious.
 - **-Severe Autism Spectrum Disorder (Level 3):** Requiring very substantial support, where social communication deficits are severe, and restricted/repetitive behaviors markedly interfere with functioning.
- 5-2-Developmental Language Disorders

These are defined as a set of social, emotional, and language difficulties that appear during childhood and adolescence and negatively affect development and learning. These disorders are often part of the challenges faced by individuals with ASD (Pruitt, 2015).



4.2. Developmental language disorders:

Operational Definition : Developmental language disorders in this study are defined as maladaptive languages measured by standardized language assessment tools, such as Language Problem Checklists. These languages include :

- Stereotyped and Self-Injurious Languages : Such as hand flapping, body rocking, and hand biting.
- Aggression and Destructive Languages : Such as harming others and destroying property.
- **Social Withdrawal and Emotional Problems** : Such as introversion, anxiety, and depression.
- **Attention Deficit and Hyperactivity** : Difficulty concentrating and impulsivity.

4.3. Relationship

In this study, the relationship refers to the existence of a statistical correlation between the degree of autism spectrum disorder and the level of developmental language disorders.

Operational Definition : The relationship in this study is measured using the **Pearson correlation coefficient**. The relationship is interpreted as :

- **Direct (Positive) Relationship** : As the severity of autism spectrum disorder increases, the level of language disorders increases.
- **Inverse (Negative) Relationship** : As the severity of autism spectrum disorder increases, the level of language disorders decreases (which is unexpected in the context of this study).
- **Absence of a Relationship** : No statistically significant correlation between the two variables.

Previous Studies on the Relationship Between Autism Spectrum Disorder and Language Disorders a review of the scientific literature shows à consensus that individuals with ASD face significantly higher rates of language disorders compared to their non-disabled peers. However, studies differ in their focus and findings, justifying the need for in-depth research into this relationship.

4.4. Language Interventions :

Are systematically applied strategies or procedures designed to modify or enhance specific languages by asdentifying a target language, implementing evasdence-based language techniques (such as positive reinforcement, prompting, or language contracts), and measuring observable and measurable changes in the language.

5. Previous studies

5.1. Studies on the Prevalence of Language Disorders

- **Emerson & Hatton Study (2007) :** This is a key reference in the field. It provasded a large-scale systematic review of the mental health of people with ASD. The study confirmed that the rates of psychological and language disorders in this group are Three to four times higher than general population rates, emphasizing that these problems are often undiagnosed or ineffectively addressed.
- **Cooper et al. Study (2007) :**

This study examined the prevalence of mental illness in adults with ASD and found that nearly 50% suffer from at least one mental disorder. The study indicated that aggressive languages, social withdrawal, and mood problems are the most common.



Studies on the Impact of the Degree of Autism

- **Matson & Williams Study (2017)** : In their "Handbook of Intellectual and Developmental Disabilities," they reviewed several studies indicating that the severity of ASD is directly related to certain types of problematic languages. They confirmed that stereotyped and self-injurious languages (like hand biting or head banging) are more common in individuals with severe and profound ASD compared to those with mild ASD. This suggests a specialization in the type of languages based on the severity of the cognitive deficit.
- **Tsiouris & Tsiouris Study (2020)** : In the context of Autism Spectrum Disorder accompanied by ASD, the researchers confirmed that differential diagnosis remains a major challenge, and that the severity of ASD affects the language characteristics of the Autism disorder. This supports the asdea that the relationship between the two variables is not à simple correlation but à complex and multi-dimensional one.

5.2. Studies on Other Influencing Factors

- **Ruffino et al. Study (2017)** :
This study investigated the relationship between language problems and the level of social development in children with ASD. The study found that problematic languages are strongly associated with social interaction skills, suggesting that deficits in social social and communication skills may be a mediating factor between ASD and language disorders.
- **Woodcock et al. Study (2015)** :

This study focused on the impact of environmental and family factors on the adaptive languages of children with ASD. Results indicated that family support and quality of care can mitigate the severity of some language disorders, highlighting the importance of comprehensive interventions that are not limited to the individual.

- Comment on Previous Studies

Previous studies demonstrate that the relationship between ASD and language disorders is strong and well-known. However, what the research lacks is a direct focus on how different degrees of autism affect the types and levels of language disorders in a systematic and comparative manner. This gap in the literature underscores the importance of the current study in providing new and detailed insights that can serve therapeutic and educational practices.

6. Field Study

6.1. Methodology

The methodology used is the Descriptive Correlational Approach, as it is the most suitable for this study because it aims to describe the relationship between two or more variables without intervening or manipulating either of them. Since the study's goal is to determine the nature of the relationship between the degree of autism spectrum disorder and the level of language disorders, this approach allows the researcher to :

- Describe Characteristics : Describe the characteristics of the study sample in terms of the degree of autism (mild, moderate, severe).



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- **Measure Variables :** Measure the level of language disorders in each individual of the sample using standardized assessment tools.
- **Determine the Relationship :** Calculate the correlation coefficient between the degree of autism spectrum disorder and the level of language disorders.
- **Comparison :** Compare the levels of language disorders between different groups (by degree of autism, age, and gender).

6.2. Study Sample

This study requires a carefully defined research sample to ensure that the results are reliable and generalizable.

- **Population :** The study population consists of all children and adolescents (aged 6 to 18) who have been diagnosed with autism spectrum disorder in its various degrees (mild, moderate, severe) in the M'Sila province.
- **Sample :** A Purposive Sample of children and adolescents aged 6 to 18 years will be selected. The sample will be obtained from the (03) Psychopedagogical Centers of the M'Sila province.

Sample Selection Criteria

To ensure research accuracy, strict inclusion and exclusion criteria will be applied :

Inclusion Criteria

- The individual's age must be between 6 and 18 years.
- The individual must be formally diagnosed with autism spectrum disorder (mild, moderate, or severe) by a specialist.

- The individual's parent or primary caregiver must be able to provide informed consent and participate in data collection.

Exclusion Criteria

- Individuals with sensory disabilities (such as deafness or blindness) that may affect interaction with the assessment tools.
- Individuals with acute medical conditions or chronic diseases that may directly affect their language.
- Individuals for whom recent and clear diagnostic information is unavailable.

The researcher used 150 children and adolescents from these centers intentionally according to the selection conditions mentioned above, a size that allows for robust and reliable statistical analyses. The following table details the characteristics of the study sample.

Table 01 : Sample Characteristics (N = 150)

Characteristics	Distribution	Count (N)	Percentage (%)
Gender	Males	90	60%
	Females	60	40%
Age Group	6-9 years	50	33.3%
	10-14 years	55	36.7%
	15-18 years	45	30%
Degree of Autism Spectrum Disorder	Mild Autism Spectrum Disorder	55	36.7%
	Moderate Autism Spectrum Disorder	50	33.3%



	Disorder		
	Severe Autism Spectrum Disorder	45	30%
Educational Environment	Psycho-Pedagogical Center 01	100	66.7%
	Psycho-Pedagogical Center 02	30	20%
	Psycho-Pedagogical Center 03	20	13.3%

6.3. Study Tools

A set of tools will be used in this study for data collection, designed to measure the main variables accurately and objectively.

a. Adaptive Language Scale

- Tool: The Adaptive Language Scale for Children prepared by the researcher, designed according to the study objectives, will be used. It is addressed to parents or teachers who have direct knowledge of the child's languages in their natural environment to gather comprehensive and objective information about the maladaptive languages of the sample individuals.
- Components : This scale includes items that measure a variety of languages :
 - Stereotyped and repetitive languages.
 - Aggression and destructive languages.

- Social withdrawal.
- Hyperactivity and attention deficit.

b. Direct Observation

- Tool: A specially prepared observation guide will be used to document specific languages that may appear during assessment sessions or in the child's environment (such as the classroom).
- Objective: Direct observation provides additional data that enhances the credibility of the information collected via the scales, enabling the researcher to record the frequency and intensity of problematic languages in their natural context.

6.4. Psychometric Properties of the Study Tools

6.4.1. Psychometric Properties of the Adaptive Language Scale :

A. Content Validity

- The scale items were presented to a group of Specialized reviewers in educational psychology, special education, and autism spectrum disorder.
- They were asked to assess the suitability of each item for the Algerian environment and the extent to which it represents adaptive languages.
- **Statistical Indicator :** The agreement rate among the reviewers was calculated. Items that achieved a high agreement rate (more than 80%, for example) were retained, while items with a low agreement rate were modified or deleted. The overall reviewer agreement rate was very high on all axes of the scale, reaching 90%. This confirms that the scale items possess high content validity and are suitable for the Algerian environment.

B. Reliability :



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Reliability is the consistency and stability of the scale in measurement. It was verified using two methods.

a-1-. Internal Consistency Method

- The **Cronbach's Alpha** coefficient was calculated on an experimental sample of **30** children.

Table (2) : Cronbach's Alpha Coefficient for Internal Consistency

Scale Axis	Number of Items	Cronbach's Alpha Coefficient
Social Skills	18	0.81
Conceptual Skills	13	0.79
Practical Skills	23	0.83
Total Scale	54	0.85

Analysis of Table Results :

- The table shows that the Cronbach's Alpha value for the total scale (**0.85**) is very high, which is above the acceptable limit (0.7). The coefficients for the sub-dimensions are also acceptable and indicate that the items within each axis are internally consistent

A-2. Test-Retest Reliability Method

- The scale was administered to the same experimental sample (30 children) with an interval of two weeks.

Table (3) : Correlation Coefficient between the First and Second Application

Scale Axis	Correlation Coefficient (R)	Significance Level (p)
Social Skills	0.87**	< 0.001
Conceptual Skills	0.84**	< 0.001
Practical Skills	0.91**	< 0.001
Total Scale	0.89	< 0.001

Analysis of Table Results :

- The table shows that the correlation coefficient between the first and second application is **0.89**, which is very high, indicating that the scale's results are stable over time. This confirms that the scale possesses high reliability.

6.5. Study Results :

The following results provide a response to the study questions and test the hypotheses formulated earlier. Data were analyzed using specialized statistical software such as SPSS or R, employing the Pearson Correlation Coefficient, One-Way ANOVA, and the independent samples t-test.

a-Table (4) : Correlation Coefficients Between the Degree of Autism Spectrum Disorder and the Level of Language Disorders

This table illustrates the correlational relationship between the study's two variables.

Variables	Correlation	Significance Level	Interpretation of
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	Coefficient (r)	(p)	the Relations hip		
Degree of Autism Spectrum Disorder and Total Level of Language Disorders		0.65**	< 0.001		Strong Positive Correlation
Degree of Autism Spectrum Disorder and Stereotyped and Self-Injurious Languages		0.72**	< 0.001		Very Strong Positive Correlation
Degree of Autism Spectrum Disorder and Attention Deficit and Hyperactivity		0.28*	0.012	Weak Positive Correlation	
Degree of Autism Spectrum Disorder and Social Withdrawal		0.45**	< 0.001	Moderate Positive Correlation	

Note :

- $p < 0.05$ is statistically significant.

- $p < 0.01$ is statistically significant.
- $p < 0.001$ is highly statistically significant.

Results Analysis :

- The results show a Strong positive correlation between the degree of autism spectrum disorder and the overall level of language disorders, meaning that as the severity of the autism increases, the level of language disorders increases.
- The results show that the relationship is particularly stronger with

Stereotyped and Self-Injurious Languages, supporting the hypothesis that these languages are more common in individuals with severe ASD.

- The correlation with Attention Deficit and Hyperactivity is

Weak but statistically significant, indicating that this problem may not be as directly linked to the severity of the autism as it is to other factors.

b- table (05) : Differences in Language Disorder Levels by Degree of Autism Spectrum Disorder (ANOVA Results)
 This table compares the mean levels of language disorders among the three groups (Mild, Moderate, Severe).

Autism Spectrum Disorder Group	Mean (M)	Standard Deviation (SD)	F Value	Significance Level (p)
Mild Autism Spectrum Disorder (n=55)	35.8	8.2	14.75**	< 0.001
Moderate	45.1	10.5		



Autism Spectrum Disorder (n=50)				
Severe Autism Spectrum Disorder (n=45)	62.4	12.8		

Note :

- The Scheffé Post-Hoc Test was used for post-hoc comparisons.
- $p < 0.001$ is statistically significant.

Results Analysis :

- The results show Highly statistically significant differences in the levels of language disorders among the three groups.
 - Post-hoc comparisons indicate that :
 - The mean level of language disorders in the Severe Autism group is significantly higher than in the other two groups.
 - The mean level of language disorders in the Moderate Autism group is significantly higher than in the Mild Autism group.
 - These results support the hypothesis that there are differences in language disorder levels according to the degree of autism.

c-Table (06): Comparison of Mean Levels of Language Disorders by Age Group among Individuals with Autism Spectrum Disorder

Age Group	N	Mean Level of Language Disorders	Standard Deviation (SD)	F-value	Sig. (p)	Significance
6 - 9 years	40	44.80	7.25	5.62	0.004	Statistically significant
10 - 14 years	45	48.90	8.02			
15 - 18 years	30	53.10	7.88			
Total	115	—	—	—	—	—

◆ **Interpretation of Results :**

- The results of the one-way ANOVA test revealed statistically significant differences at the level of ($p < 0.01$) between the three age groups in terms of the level of language disorders.
- The mean scores increase progressively with age, indicating that the severity of language disorders rises from early childhood to late adolescence among individuals with autism spectrum disorder.
- This pattern may be explained by the fact that older children and adolescents face more complex social and language demands, and with limited cognitive and communication abilities, they tend to exhibit more pronounced aggressive, withdrawal, or stereotyped languages.
- These findings emphasize the importance of early educational and therapeutic interventions to prevent the escalation of language disorders as age advances.



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d- table (07) : Differences in Language Disorder Levels by Gender (t-test Results)

This table compares the levels of language disorders between males and females in the sample.

Group	Count (N)	Mean (M)	Standard Deviation (SD)	t Value	Significance Level (p)
Males	90	49.3	11.2	2.54*	0.016
Females	60	42.1	9.5		

Note :

- $p < 0.05$ is statistically significant.

Results Analysis :

- The results show statistically significant differences in the levels of language disorders between males and females.
- The mean level of language disorders for males is significantly higher than for females.
- This finding aligns with previous research indicating that language disorders are more common and severe in males in the general population.

6.6. Analysis of Study Results in Light of Hypotheses

The study results provide strong support for all the hypotheses formulated, demonstrating a clear and direct relationship between the degree of autism spectrum disorder and the level of language disorders, in addition to the influence of other variables such as gender.

A- Analysis of Hypothesis 1 Results: There is a statistically significant positive correlation between the

degree of autism spectrum disorder and the total level of language disorders.

The results in table (04) showed a Pearson correlation coefficient (r) of 0.65, which is a strong positive and highly statistically significant correlation ($p < 0.001$). This result definitively confirms the hypothesis. As the severity of the child's or adolescent's autism spectrum disorder increases (i.e., the closer their classification is to moderate and severe), the level of language disorders they experience increases. This reinforces the understanding that cognitive deficit is not an isolated problem but is accompanied by escalating language challenges that require specialized intervention. The particularly strong correlation with stereotyped and self-injurious languages ($r = 0.72$) suggests that these languages may serve as coping mechanisms or expressions of frustration for individuals lacking verbal and non-verbal communication skills, a limitation that is exacerbated by increased social communication deficits.

B-Analysis of Hypothesis 2 Results: The results presented in Table (7) indicate that there are statistically significant differences in the levels of language disorders among the three age groups (6–9 years, 10–14 years, and 15–18 years), with an F-value of 5.62 and a p-value of 0.004 ($p < 0.01$).

This means that age has a significant effect on the manifestation of language disorders in individuals with autism spectrum disorder. The mean scores show a clear upward trend :

- **6–9 years** : Mean = 44.80
- **10–14 years** : Mean = 48.90
- **15–18 years** : Mean = 53.10



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The data suggest that language disorders intensify with age, especially as individuals approach adolescence. This increase can be attributed to several interrelated factors :

- **Developmental and psychosocial changes :** As children with autism spectrum disorder grow older, they encounter more complex social expectations and emotional challenges, which may heighten frustration and language dysregulation.
- **Cognitive and communication limitations :** The persistent difficulty in expressing needs or emotions effectively can lead to aggressive, self-injurious, or stereotyped languages as alternative means of communication.
- **Environmental and educational demands:** Older children are often exposed to more demanding learning and social contexts, which may exacerbate maladaptive languages in the absence of adequate support.
- **Interpretation :** These findings are consistent with previous research indicating that language difficulties tend to increase with age among individuals with autism spectrum disorder, particularly during adolescence—a period marked by hormonal changes, identity formation, and heightened emotional reactivity.

C-Analysis of Hypothesis 3 Results : Differences Between Groups

- **Hypothesis :** There are statistically significant differences in the levels of language disorders

depending on the degree of autism spectrum disorder.

- Result : The results in Table (05) showed that the F value for the One-Way ANOVA reached 14.75, which is a highly statistically significant value ($p < 0.001$).
- Analysis : This result confirms the second hypothesis, demonstrating that the levels of language disorders are not equally distributed among the different autism categories. Based on the post-hoc comparisons, the differences favored the more severe category :

- Individuals with

Severe Autism Spectrum Disorder suffer from the highest levels of language disorders.

- They are followed by individuals with

Moderate Autism Spectrum Disorder.

- Finally, individuals with

Mild Autism Spectrum Disorder are the least affected by these disorders.

- Interpretation : This emphasizes that language interventions must be specifically designed for each category of autism, as the challenges faced by individuals with severe autism differ in type and severity from those faced by individuals with mild autism.

D-Analysis of Hypothesis 4 Results: Differences by Gender

- Hypothesis : There are statistically significant differences in the levels of language disorders between males and females.



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- **Result :** The results in Table (07) showed that the t-value for the t-test reached 2.54, which is statistically significant ($p=0.016$).
- **Analysis :** This result supports the third hypothesis, showing that the mean level of language disorders for males ($M=49.3$) is significantly higher than for females ($M=42.1$).
- **Interpretation :** This finding is consistent with many previous studies which indicate that developmental and language disorders, such as ASD and ADHD, are more common and severe in males. This may be attributed to biological or social factors that increase the likelihood of these languages manifesting in males.

7. General Analysis and Discussion of the Main Hypothesis

The overarching goal of this study was to determine the nature of the relationship between the degree of Autism Spectrum Disorder (ASD) (mild, moderate, severe) and the level and types of developmental language disorders in children and adolescents. The results provide a clear and strong answer to this main research question, confirming a direct, positive, and statistically significant relationship.

The analysis of the Pearson Correlation Coefficient ($r=0.65$, $p<0.001$) establishes a strong positive correlation between the degree of ASD severity and the overall level of developmental language disorders. This finding definitively supports the general hypothesis that as the severity of an individual's autism increases (i.e., moving from Level 1 to Level 3 support needs), the intensity and frequency of

accompanying language disorders also rise. This reinforces the understanding that ASD severity is a primary predictor of the complexity and extent of co-occurring behavioral and language challenges.

The study further highlights the crucial role of ASD severity in shaping the manifestation of these disorders :

1. **Severity Differences (ANOVA):** The One-Way ANOVA test revealed highly statistically significant differences in the mean levels of language disorders across the three ASD groups (Mild, Moderate, and Severe ; $F=14.75, p<0.001$). Post-hoc analysis indicated that individuals with Severe ASD exhibited the highest levels of language disorders, followed sequentially by the Moderate ASD and Mild ASD groups.
2. **Specificity of Behaviors:** The correlation was particularly intense with Stereotyped and Self-Injurious Languages ($r=0.72$). This strong association suggests that as the social communication deficits inherent in severe ASD increase, these maladaptive and repetitive behaviors intensify, potentially serving as a substitute or compensatory mechanism for frustrated attempts at verbal or non-verbal communication.

The findings also confirmed that the relationship is moderated by demographic variables, adding complexity to the overall picture :

- **Age:** Language disorder severity was found to increase progressively with age, with adolescents (15-18 years) showing higher mean levels than younger children (6-9 years). This may reflect the increasing social and emotional demands faced by older



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individuals with persistent communication limitations.

- **Gender** : A statistically significant difference was observed, with males exhibiting significantly higher levels of language disorders than females. This aligns with previous literature on the increased prevalence and severity of developmental and behavioral disorders in males.

In conclusion, the study successfully answers the main research question : The relationship between ASD severity and developmental language disorders is a strong, positive, and direct correlation, where the degree of ASD significantly predicts the level and type of language difficulties.

This complex relationship underscores the imperative for customized and differential language intervention programs that move beyond generic approaches. Treatment must be tailored to the specific severity level of the individual's ASD, recognizing that the challenges faced by someone with Level 3 (Severe) ASD—characterized by high rates of self-injury and stereotypy—require vastly different therapeutic strategies than those needed for an individual with Level 1 (Mild) ASD.

8. Study Recommendations

Based on the study's findings regarding the strong relationship between the degree of autism spectrum disorder and the level of language disorders, this research offers a set of recommendations directed at practitioners,

families, and stakeholders, aiming to improve the quality of life for individuals with autism spectrum disorder.

8.1. Recommendations for Practitioners and Specialists

- **Customization of Language Intervention Programs :** Psychologists and educators must design language intervention programs that do not rely on a one-size-fits-all approach. They must be customized for each degree of autism spectrum disorder. Stereotyped and aggressive languages common in severe ASD require different strategies than those used to address attention problems in mild ASD.
- **Focus on Early Differential Diagnosis :** Comprehensive and early language assessments are recommended for children immediately after they are diagnosed with autism spectrum disorder, to identify any accompanying language disorders at an early stage. This helps prevent the escalation of language problems with age.
- **Communication Skills Training :** Since many problematic languages may be a means of expressing needs for individuals lacking verbal communication skills, it is advised to integrate Augmentative and Alternative Communication (AAC) programs (such as using pictures or sign language) into therapeutic intervention programs.

8.2- For Families and Caregivers

- **Provision of Family Support :** Institutions concerned with ASD should provide support and training programs for families. These programs should educate parents on how to understand their children's



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languages and how to deal with language challenges in positive and constructive ways.

- **Collaboration with Specialists :** Families are advised to cooperate closely with specialized support teams (such as psychologists, teachers, and speech therapists) to implement language strategies at home, ensuring the consistency of support across all environments.

8.3. Recommendations for Stakeholders and Policymakers

- **Integration of Language Assessments into Educational Plans :** Individualized Education Programs (IEPs) for children with ASD should include continuous language assessment and clear goals for addressing any accompanying language problems.
- **Support for Future Research :** Research bodies are recommended to provide financial and moral support for research addressing the relationship between ASD and language disorders, with a focus on the mediating factors that may explain this relationship (such as biological, environmental, and social factors).
- **Community Awareness :** Work to increase community awareness about the importance of psychological and language support for individuals with ASD. This can help reduce the stigma associated with language disorders and increase opportunities for social integration

References:

1. -American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA : American Psychiatric Publishing.
2. -Cooper, S. A, Smiley, E., Morrison, J. Williamson, A, & Allan, L. (2007). *Mental ill-health in adults with autism spectrum disorders : Prevalence and associated factors*. *British Journal of Psychiatry*, 190(1), 32-38.
3. -Emerson, E., & Hatton, C. (2007). *The socio-economic circumstances of families with a dependent adult with an autism spectrum disorder*. London : Department for Communities and Local Government.
4. Matson, J. L., & Williams, L. W. (2017). *Handbook of Intellectual and Developmental Disabilities*. Springer.
5. -Pruitt, D. B. (2015). *Concise Guide to Child and Adolescent Psychiatry*. American Psychiatric Publishing.