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The Role of Social Anxiety and Screen Time Exposure as Barriers to Functional Communication in Autistic Children: A Quantitative study from the Parental Perspective in Peshawar

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ABSTRACT
This study investigates parental perspective regarding the role of social anxiety and screen time exposure as barriers to functional communication in Autistic children. A total of 64 samples were recruited from prestigious institutes in Peshawar, including Autism unit, Department of Psychology (UOP), Ayla Bells, Peshawar, Bridges Autism Center Peshawar, Franklin Autism Center and Franklin Inclusive School Peshawar, and the Autism Jewel. The conceptual framework included independent variables as screen time exposure, social anxiety, and dependent variable as functional communication. The demographic information of the respondents was collected through questionnaire including respondent's age, education, employment, income, and ASD diagnosis age along with data on the study variables. The results explored a significant association among dependent and independent variables. In this regard, screen time exposure was reported with a highly significant association in relation to functional communication indicating its prominent role in communicative disorder in Autistic children. In addition, educational apps or games on electronic devices, were also found with a significant association (P = 0.000) to functional communication. Besides, social anxiety has been reported with a highly significant influence

on communicative disorder (P =0.000) because children were found anxious in their social situation. Overall, the study underscores the complex interplay between parental perception on communicative comportment among ASD children in Peshawar, highlighting the needs for targeted intervention and support services to address the diverse challenges faced by ASD children.
Keywords; *Autism spectrum disorder, parental perception, communicative behavior disorder, social anxiety*

INTRODUCTION

Mental health is a state of mental well-being that enables a person to cope with stresses faced in life, to realize the abilities that were missed despite having the ability to perform in a better way, to learn and work well but missed the chance, and to contribute to the community in a better way. This covers different aspects such as emotional, psychological, and social dimensions of life. However, a mental illness is a state where body changes normal function of the brain which may create stress that leads to disorders such as depression or anxiety. The causes of stress may vary but some are listed under major health conditions (William, 2000). This phenomenon not only prevails in the world but also exists in our country. It is one of the fundamental needs of health and wellbeing for a strong social life. It is because of its support in building healthy relationships however, abnormal conditions can create different situations. One such condition of the brain is known as autism spectrum disorder (ASD) (Brown and Miller, 2018; Jones et al., 2020; Johnson, 2021; Davis, 2017; Robinson, 2016).

According to the American Psychiatric Association's criteria from 2021, autism spectrum disorder (ASD) is a complex developmental abnormality characterized by difficulties with social communication, narrow interests, and repetitive activities. Similarly, autism is recognized as a chronic disorder, but the degree of illness depends on the conditions which may vary from person to person and region to region (Ramaswami and Geschwind, 2018).

The diagnosis of the ASD is a complex process because it cannot detected with a single behavior of the child. However, major symbols of the ASD within children may include numerous factors such as intellectual capacity, personality, temperament, environment within families, experiences from education and experience from community life. But a person with having autism spectrum condition always seeks to withdraw him/her from others (Al-Naimat, 2019).

The World Health Organization (WHO) has designated autism as a public health priority and founded a Worldwide Autism Partnership with all countries of the world. This unity indicates that WHO believes in the seriousness of disorder in order to help countries in understanding ASD and support individuals with this disorder to live a normal life. (Nyrenius, 2022; Gormley, 2020). A recent study from Pakistan shows 27% increase in mental health issues. It is an alarming situation for the country facing both social and economic problems having a significant factor of the population (+64%) as youth of the society. This figure of 27% is a news story

that can be reduced through the bifurcation of the individual from minor to major categories. However, the figures are alarming for the future to be taken into consideration for future prosperous growth of the country. No doubt, ASD is novel and one of the major health problems of the country which needs special attention for future survival and economic growth.

Theoretical framework

This section presents theoretical frameworks for the study. Here are some theoretical frameworks associated with barriers to functional communication.

Strain Theory by Robert K. Merton

Strain theory states that social structures and cultural expectations may lead to pressures or stress, as a result people may engage in deviant behavior as a coping mechanism. Sociologically, strain theory states that people commit crimes as a result of pressure from social conditions link poverty or lack of education. It may be difficult for children with autism to start or maintain discussion. Such children may struggle which highlights the importance of social connections. Certain youngsters with autism could have deep, specialized interests that aren't always the same as those of their classmates. They may find it challenging to participate in conversations or activities together. Such children may face difficulty in social situations hence struggle to live normal life.

Labeling Theory by Howard Becker

The sociological theory of deviance known as "Labeling theory" is concerned with how social control agents stigmatize particular groups and how the stigmatized change their behavior because of the label they are given. Becker's approach is connected to labeling theory, which is a reaction to sociological theories that emphasize the characteristics of the deviants rather than the institutions that oversee them. As per the notion put forward by Howard Becker in 1963, deviance stems from labels or external assessments that alter an individual's self-perception, and the way others see them.

We designed this study to address parental perception leading to problems in communication of Autism children. Hence, this study is designed with the objectives focusing on examination of demographic characteristics, investigation of social anxiety and screen time exposure in the problems related to functional communication and exploration of functional communicative behavior within Autistic children. Further, the study measures association between social anxiety, screen time exposure and functional communicative behavior within Autistic children.

REVIEW OF LITERATURE

Prizant et al. (2000) conducted a study to enhance communication and language skills of the autistic children. The study aimed at critical analysis and evaluation of different interventions including social-pragmatic techniques, developmental approaches, classic behavioral methods and hybrid approaches to integrate features

of behavioral and developmental research. The findings reported that integrated approach can help children with autism to develop communication and language skills.

Moreover, a research study by Harris et al (2001) explored those social skills for people with autism especially children. The study found that peers, adults and close social networks play a significant role in learning of social skills by autistic people. It also identified that teaching social skills can be easier to autistic people if close friends or peers are utilized as mediators. The study further examined the effectiveness of scripts as a teaching tool for social initiations, crucial response training, and class-wide interventions in inclusive settings.

Charman et al. (2002) in their study emphasized the significance of interdisciplinary analytical evaluation as assessment techniques. They explored the importance of early identification of non-verbal social behavior deficits, such as social orientation, joint attention, imitation, play, and reciprocal emotional behavior, as crucial signs of ASD in young children. The study further highlighted the need of clinical judgments in analytical processes and evaluations along with strong communication with parents during the process of analysis as vital components for improvement.

Furthermore, a study by Bitsika and his team in 2004 focused on worries and stress of parents due to their autistic children. The study found that 90% of the respondents were feeling tensed in managing the behavior of their children. In addition, some of the respondents were clinically depressed while majority were anxious about their children.

Similalry, Holmes et al (2005) reported in their research that children with autism take more interest in playing at natural classroom settings which help them to improve their cognitive and social behaviors. The main aim of the study was to compare play behavior of the autistic children at school and home. Hence, it highlighted that autistic child can improve their cognitive and social behaviors by engaging in play behavior in a group settings.

METHODOLOGY

This section explains methods and materials that are utilized by the study for its implementation. The study adopted positivistic approach with a cross-sectional design applying quantitative methods. This study was conducted in Peshawar city with a focus on children with autism spectrum disorder. Population of the study included the following centers: Autism Unit Psychology Department, the University of Peshawar, Ayla Bells Peshawar, Bridges Autism Center Peshawar, Franklin Autism Center, Franklin Inclusive School Peshawar, and the Autism Jewel, University town Peshawar.

A questionnaire was designed in light of the objectives of the study. Different sections of the questionnaire were well designed for required data collection. The sample questionnaire was initially tested for clarification and smooth understanding of the set variables and its sub-sections with the required answers. A convenient sampling technique was used to select samples from parents of the autistic children with random population in each institution. Through this approach, respondents were easily accessible through registration within the selected institutions. Hence, a total of 76 parents who children's were enrolled in these institutions were found where 64 were recruited as samples and distributed through proportional allocation to each school (Sekaran,

2003). Details and formula are given below.

Formula: $ni = \frac{n}{N} + Ni$

Where, N is the population of the study
Ni is the population of ASD children in the institutions and
ni = the sample size required from an institute

Table 1 . Registered institutes for ASD children in university complex, Peshawar.

S. No	Area Name	Total Population (N)	Sample Size (ni)
1	Autism Unit Psychology Department (University of Peshawar)	17	15
2	Ayla Bells, Peshawar	10	8
3	Bridges Autism Center, Peshawar	22	19
4	Franklin Autism Center and Franklin Inclusive School, Peshawar	15	12
5	The Autism Jewel	12	10
	Total number	76	64

Data Computation and Analysis

The collected data were properly entered in to a personal computer and thoroughly verified according the variables and entries collected through structured questionnaire for each set of data. Every variable was analyzed in statistical package for social sciences (SPSS) as per appropriate statistical test explained in the findings. Detail of each analysis is shown in the following paragraphs.

Uni-Variate Analysis

Uni-Variate analysis is a statistical technique commonly used for examining a condense information derived from a solitary of the single variable. Its primary aim is to assess the normal distribution, central tendency, and variance of data set, accordingly.

Bi-Variate Analysis

Bi-Variate analysis is statistical technique which is commonly used to examine the connection between two

variables. This method is frequently employed to explore the interplay between two quantitative variables. Through this analysis, researchers can judge the magnitude and direction of the relationship between two variables. To assess the association between dependent and independent variables, chi-square test of significance was practiced.

Chi-Square

The Chi-square (x^2) test is accepted to determine the relationship between two different variables that are being studied. It is the most important test in statistics to determine the level of association between the dependent variables in association with an independent variable. $x^2 = \sum_{i=1}^{r} \sum_{j=1}^{c} \frac{(Oij-eiJ)^2}{eij}$

Where x^2 = Chi-square
O is the Observed variable
E is the expected Frequencies of the observed variable, and
r is the number of rows of chi-square table, and
C is the number of columns of the chi-square table

Results

This section presents findings of the study. The findings are the results of two levels of analysis including Univariate and Bi-Variate. At Uni-Variate level findings are shown in frequency and percentage form while at Bi-Variate level association between independent and dependent variables is measured.

In Uni-Variate analysis, the findings about parental perception regarding functional communication behavior, have reported that majority of the parents agreed that their child initiate communication with others, use facial expressions to communication emotions, make eye contact & respond to verbal communication. However, they further agreed that their child avoid communication due to excessive use of screen and show signs of fear and shyness while meeting new people. Moreover, the respondents expressed their views about screen time exposure as a majority approved that child are overexcited by load noises or bright lights of the screen, parents have noticed impacts of screen during sleep, while child demands same food which have seen by the children on screen however, educational apps or games are also used by the children. Furthermore, the respondents accepted that child seems anxious in social situation, feels fear and start shivering while talking to people, anxiety increases while living with siblings at home, they also find it challenging and feel worried to ask for help and make mistakes and they believed that social anxiety affect daily life of the child.

Bivariate variables

Bivariate variables analysis expressed association of the independent variables (like the screen time exposure, and social anxiety) with dependent variables i.e. functional communication through the application of the famous statistical chi-square test. Discussion between the response of the applied statistical test for

association between the variables along with logical reasoning and outcomes are explained in depth with support of the valid published literature.

Association between Screen time Exposure and functional Communication

The findings revealed a significant association between screen time exposure and functional communication. In this regard, the results highlighted that children spend maximum time on electronic devices and excessively use them. In addition, they avoid interaction with family members. Hence, parents perceived that these factors have significant effect on functional communication of the children. It is found that children interest in electronic devices may be due to loud noises or bright lights of the screen. Moreover, the educational apps or games are also used by the children with a greater interest while they prefer those foods which are seen by them on the screen. These results have highly significant association with the problem of functional communication in the children.

Overall, results of the table.1 revealed that communicative behavior has a significant association with screen time, which leave the memories in mind. These results are similar to other studies such as Berger (2000) who reported that infants noticed with their ability very actively and try to understand our listening and actions which they try to reproduce accordingly. All such kind of moments they are conceived and/or language skills thy conceive from surrounding in start of their development, as babies, practiced babbling and communicating through sounds and gestures (Andonegi et al., 2017). Screens can naturally improve learning and education in terms of cognitive growth, if they are properly purchased or subscribed for a child with his/her age and objectives. A random electronic screen obviously provides an opportunity to keep the child busy but not necessarily add in growth and developmental process of a child to make them a viable societal member with education and development. Such random opportunities allowing children with maximum screen time obviously keep them quite and busy but might be possible to convert them from a normal to an ASD child. Furthermore, excessive use of screens can also result in various physical issues with weight gain, sleep disorders, partial anxiety, depression as well as restriction from social and emotional interaction that played a significant role in the body development. This might be possible to lead towards aggressive conduct, which restricted the children social and emotional skills and comprehension (Radesky and Christakis, 2016).

Table. 1 Association between Screen Time Exposure and Parental Perception on functional Communication

Screen time	Perception	Parental Perception on Communicative Behavior				Chi-Square (P-value)
		Yes	No	Do not know	Total	
1. Does the child spend	Yes	8 (12.5)	11 (17.2)	5 (7.8)	24 (37.5)	$\chi^2 = 2.963$ (P=0.046)

more time using electronic devices (TV, tablets, and smartphones) than family?	No	7 (10.9)	21 (32.8)	11(17.2)	39 (60.9)	
	Don't know	0 (0)	1 (1.6)	0 (0)	1 (1.6)	
2. Due to excessive screen use the child avoids peer interaction	Yes	13 (20.3)	19 (29.7)	11 (17.2)	43(67.2)	χ^2 =5.666 (P=0.002)
	No	2 (3.1)	11 (17.2)	5 (7.8)	18 (28.1)	
	Don't know	0 (0)	3 (4.7)	0 (0.0)	3 (4.7)	
3. The child seems overexcited by loud noises or bright lights of the screen?	Yes	15 (23.4)	29 (45.3)	1 (1.6)	45 (70.3)	χ2=43.607 (P=0.044)
	No	0 (0)	4 (40.6)	12 (18.8)	16 (25.0)	
	Don't know	0 (0)	0 (0)	3 (4.7)	3 (4.7)	
4. Have you noticed the impact of screen time on the child during sleep	Yes	15 (23.4)	26 (40.6)	12 (18.8)	53 (82.8)	χ^2 = 4.657 (P=0.324)
	No	0 (0)	4 (6.3)	3 (4.7)	7 (10.9)	
	Don't know	0 (0)	3 (4.7)	1 (1.6)	4 (6.3)	
5. The child use educational apps or games on electronic devices?	Yes	15 (23.4)	29 (40.6)	1 (1.6)	45 (70.3)	χ^2 = 43.607 (P = 0.000)
	No	0 (0)	4 (6.3)	3 (4.7)	7 (10.9)	
	Don't know	0 (0)	3 (4.7)	1 (1.6)	4 (6.3)	
6. Do you think the child	Yes	15 (23.4)	29 (45.3)	1 (1.6)	45 (70.3)	χ^2 = 43.607 (P=0.000)
	No	0 (0)	4 (6.3)	12 (18.8)	16 (25.0)	

demands same food which he/she sees on the screen	Don't know	0 (0)	0 (0)	3 (4.7)	3 (4.7)	

Association between Social Anxiety and Parental Perception on functional Communication

The findings reported that social anxiety and functional communication are associated with one another. In this regard, significant associations were found as parents perceived that their children were anxious in social situations, in addition, these aspects are affecting their daily life including facing troubles while living with normal siblings. Hence, these were negatively affecting their functional communication. Moreover, parents further perceived that their children start shivering and feel fear while talking to others. Besides, they feel worried about making mistakes, these results have highly significant association with functional communication within ASD child.

Overall, the results revealed that social anxiety has a significant association with functional communication, which reflects that social anxiety is negatively affecting communication of the children with ASD. These results are similar to previous studies

According to Hackman et al. (2000), those who suffered from social anxiety disorder (SAD) often depicted themselves with negative thinking for others. Especially when they are in social interaction, circumstances when have public gathering, and are found frightening. A fundamental premise of the vast majority of cognitive models of a SAD child is that s/he expressed a negative picture which may have a role on the sustaining social anxiety (Clark and Wells, 1995; Rapee and Heimberg, 1997; Hofmann, 2007). Such child is often seemed with expression or feeling of anxiety and depression but seldomly has been noticed, especially in a society when parents are not socially well educated or socially trained for noticing such kind of expression in their children. The survey of this study has also confirmed with an almost 15% in agreement and 28% disagreement. The lacking of the confidence development in children facing a foreigner out of the family or in a public gathering is another kind of character, which develops in children having poor attention and led to convert them form a normal to an ASD child.

Table.2 Association between Social anxiety and Parental Perception on functional Communication

Social Anxiety	Perception	Parental Perception on Communicative Behavior				Chi-square (P-value)
		Yes (%)	No (%)	Do not know (%)	Total (%)	
1. the child seem anxious in social situations (meeting people, participating in groups)?	Yes	13 (20.3)	13 (20.3)	9 (14.1)	35 (54.7)	$\chi^2 = 9.801$ (P = 0.044)
	No	2 (3.1)	13 (20.3)	5 (7.8)	20 (31.3)	
	Don't know	0 (0)	7 (10.9)	2 (3.1)	9 (14.1)	
2.the child feels fear and start shivering while talking with the people	Yes	15 (23.4)	29 (45.3)	1 (1.6)	45 (70.3)	$\chi^2 = 43.607$ (P = 0.000)
	No	0 (0)	4 (6.3)	12 (18.8)	16 (25.0)	
	Don't know	0 (0)	0 (0)	3 (4.7)	3 (4.7)	
3.Anxiety increases in a child with autism while living with normal siblings at home	Yes	15 (23.4)	29 (45.3)	1 (1.6)	45 (70.3)	χ 2 = 43.607 (P = 0.044)
	No	0 (0)	4 (40.6)	12 (18.8)	16 (25.0)	
	Don't know	0 (0)	0 (0)	3 (4.7)	3 (4.7)	
4. Do you find it challenging to ask for help or clarification from others?	Yes	15 (23.4)	26 (40.6)	12 (18.8)	53 (82.8)	$\chi^2 = 4.657$ (P = 0.324)
	No	0 (0)	4 (6.3)	3 (4.7)	7 (10.9)	
	Don't know	0 (0)	3 (4.7)	1 (1.6)	4 (6.3)	
5. the child is worried about making mistakes in social situations?	Yes	36 (80.0)	7 (15.6)	2 (4.4)	44 (68.8)	$\chi^2 = 43.607$ (P = 0.000)
	No	0 (0)	6 (37.5)	2 (12.5)	16 (25.0)	
	Don't know	0 (0)	2 (66.7)	1 (33.3)	3 (4.7)	

6.Social anxiety affect your daily life of the children?	Yes	10 (15.6)	28 (43.8)	13 (20.3)	51 (79.7)	$\chi^2 = 5.697$ (P = 0.223)
	No	5 (7.8)	5 (7.8)	2 (3.1)	12 (18.8)	
	Don't know	0 (0)	0 (0)	1 (1.6)	1 (1.6)	

Conclusion

This study investigates parental perspectives regarding the role of screen time exposure and social anxiety as barriers to functional communication within ASD children.

In this context, the study concluded that screen time exposure could lead to avoidance of peer interaction. The child spends more time using electronic devices than family which might be the result of overexcitement by loud noises or bright lights on the screen. Besides, excessive use of screen has impact on them during sleep. In addition, the child demands same food which h/she sees on the screen.

Moreover, Social anxiety was also remarkable aspect which significantly affected communicative behavior of ASD children, because the child feels anxious while talking or interacting with the people. Anxiety ratio increases while having normal siblings at home, clarification to the other, child worries about making mistakes in public which is negatively effecting the communication of ASD children.

Hence, keeping in view the above findings of the study, it can be concluded that this study supports labeling theory. This theory suggest that social structure can create pressure that push the child social control agents and stigmatize to change their behavior because of the label they are given. In this context, the current study reported that screen time, social anxiety, in the presence of parental neglect and lack of social support are the aspects of social structure, which were creating pressure on ASD children that exposed them to label in the form of negative effects on the communicative behavior.

Recommendations

In light of this study, we are suggesting some of the recommendations as;

1. It is time to conduct community awareness campaigns to educate public about ASD, its challenges to help addressing mental health issues in children with ASD
2. Parents need to enhance time management for their children to control and minimize screen time which will lead to positive impacts on their communication behavior
3. Facilitate the formation of supportive environment for ASD children which can build a sense of belonging and reduce anxiety

4. Government needs to enhance support services at community and institutional levels to address mental health issues especially in children

REFERENCES

Al-Kandari, S., Alsalem, A., Abohalmed, S., Al-Orf, F., AlZoubi, M., Al-Sabah, R., & Shah, N. (2017). Brief report: Social support and coping strategies of mothers of children suffering from ASD in Kuwait. Journal of Autism Developmental Disorders, 47, 3311–3319. doi:10.1007/s10803-017-3225-y

Alnaimat, S., Oseni, A., Yang, Y., Melvani, V., Aronson, A., Harris, K., & Panaich, S. (2019). Missing vitamin C: A case of scorbutic cardiac tamponade. JACC: Case Reports, 1(2), 192-196.

American Psychiatric Association (APA). (2013). Diagnostic and statistical manual of mental disorders (5th ed.). American Psychiatric Association.

Ansari, Z. (2002). Parental acceptance-rejection of disabled children in non-urban Pakistan. North American Journal of Psychology, 4(1), 121–128.

Barr, B., Taylor-Robinson, D., Stuckler, D., Loopstra, R., Reeves, A., & Whitehead, M. (2016). 'First, do no harm': Are disability assessments associated with adverse trends in mental health? A longitudinal ecological study. J Epidemiol Community Health, 70(4), 339-345.

Benson, P. R. (2014). Coping and psychological adjustment among mothers of children with ASD: An accelerated longitudinal study. Journal of Autism and Developmental Disorders, 44(8), 1793–1807.

Davis, M. A., Lin, L. A., Liu, H., & Sites, B. D. (2017). Prescription opioid use among adults with mental health disorders in the United States. *The Journal of the American Board of Family Medicine*, *30*(4), 407.

Davis, M. T., Watts, G. W., & López, E. J. (2021). A systematic review of firsthand experiences and supports for students with autism spectrum disorder in higher education. *Research in Autism Spectrum Disorders*, *84*, 101769.

Dillenburger, K., McKerr, L., Jordan, J. A., Devine, P., & Keenan, M. (2015). Creating an inclusive society… How close are we in relation to Autism Spectrum Disorder? A general population survey. *Journal of Applied Research in Intellectual Disabilities*, *28*(4), 330-340.

Gillespie-Lynch, K., Brooks, P. J., Someki, F., Obeid, R., Shane-Simpson, C., Kapp, S. K., ... & Smith, D. S. (2015). Changing college students' conceptions of autism: An online training to increase knowledge and decrease stigma. *Journal of autism and developmental disorders*, *45*, 2553-2566.

Gormley, N., & Melby, V. (2020). Nursing students' attitudes towards obese people, knowledge of obesity risk, and self-disclosure of own health behaviours: An exploratory survey. *Nurse education today*, *84*, 104232.

Hirota, T., & King, B. H. (2023). Autism spectrum disorder: A review. *Jama*, *329*(2), 157-168.

Holmes, E. A., & Mathews, A. (2005). Mental imagery and emotion: A special relationship?. *Emotion*, *5*(4), 489.

Howlin, P., Savage, S., Moss, P., Tempier, A., & Rutter, M. (2014). Cognitive and language skills in adults with autism: A 40-year follow-up. *Journal of Child Psychology and Psychiatry*, *55*(1), 49-58.

Johnson, C. N., Ramphal, B., Koe, E., Raudales, A., Goldsmith, J., & Margolis, A. E. (2021). Cognitive correlates of autism spectrum disorder symptoms. *Autism Research*, *14*(11), 2405-2411.

Khan, M. S., Lateef, N., Siddiqi, T. J., Rehman, K. A., Alnaimat, S., Khan, S. U., ... & Krasuski, R. A. (2019). Level and prevalence of spin in published cardiovascular randomized clinical trial reports with statistically nonsignificant primary outcomes: a systematic review. *JAMA network open*, *2*(5), e192622-e192622.

Lauer, S. A., Grantz, K. H., Bi, Q., Jones, F. K., Zheng, Q., Meredith, H. R., ... & Lessler, J. (2020). The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: estimation and application. *Annals of internal medicine*, *172*(9), 577-582.

Lindsey, R. A., & Barry, T. D. (2018). Protective factors against distress for caregivers of a child with autism spectrum disorder. Journal of Autism Development Disorders, 48, 1092–1107. doi:10.1007/s10803-017- 3372-1

Miranda, A., Mira, A., Berenguer, C., Rosello, B., & Baixauli, I. (2019). Parenting stress in mothers of children with autism without intellectual disability. Mediation of behavioral problems and coping strategies. Frontiers in Psychology, 10, 464. doi:10.3389/fpsyg.2019.00464

Nation, K., Clarke, P., Wright, B., & Williams, C. (2006). Patterns of reading ability in children with autism spectrum disorder. *Journal of autism and developmental disorders*, *36*, 911-919.

Nyrenius, J., Eberhard, J., Ghaziuddin, M., Gillberg, C., & Billstedt, E. (2022). Prevalence of autism spectrum disorders in adult outpatient psychiatry. *Journal of Autism and Developmental Disorders*, *52*(9), 3769-3779.

Papageorgiou, V., & Kalyva, E. (2010). Self-reported needs and expectations of parents of children with autism spectrum disorders who participate in support groups. Research in Autism Spectrum Disorders, 4(4), 653–660. doi:10.1016/j.rasd.2010.01.001

Pozo, P., & Sarriá, E. (2014). A global model of stress in parents of children with autism spectrum disorders (ASD). Annals of Psychology, 30, 180–191. doi:10.6018/analesps.30.1.140722 Rao, P. A., & Beidel, D. L. (2009).

Robinson, E. B., St Pourcain, B., Anttila, V., Kosmicki, J. A., Bulik-Sullivan, B., Grove, J., ... & Daly, M. J. (2016). Genetic risk for autism spectrum disorders and neuropsychiatric variation in the general population. *Nature genetics*, *48*(5), 552-555.

Salari, N., Rasoulpoor, S., Rasoulpoor, S., Shohaimi, S., Jafarpour, S., Abdoli, N., ... & Mohammadi, M. (2022). The global prevalence of autism spectrum disorder: a comprehensive systematic review and meta-analysis. *Italian Journal of Pediatrics*, *48*(1), 112.

Sikich, L., Kolevzon, A., King, B. H., McDougle, C. J., Sanders, K. B., Kim, S. J., ... & Veenstra-VanderWeele, J. (2021). Intranasal oxytocin in children and adolescents with autism spectrum disorder. *New England Journal of Medicine*, *385*(16), 1462-1473.

Simmons, D. R., Robertson, A. E., McKay, L. S., Toal, E., McAleer, P., & Pollick, F. E. (2009). Vision in autism spectrum disorders. *Vision research*, *49*(22), 2705-2739.

Stevens, S. S. (2017). *Psychophysics: Introduction to its perceptual, neural and social prospects*. Routledge..

Terrault, N. A., Lok, A. S., McMahon, B. J., Chang, K. M., Hwang, J. P., Jonas, M. M., ... & Wong, J. B. (2018). Update on prevention, diagnosis, and treatment of chronic hepatitis B: AASLD 2018 hepatitis B guidance. *Hepatology*, *67*(4), 1560-1599.

Vismara, L. A., & Rogers, S. J. (2010). Behavioral treatments in autism spectrum disorder: what do we know?. *Annual review of clinical psychology*, *6*, 447-468.

Wetherby, A. M., & Prizant, B. M. (Eds.). (2000). *Autism spectrum disorders: A transactional developmental perspective*

Williams, J. G., Higgins, J. P., & Brayne, C. E. (2006). Systematic review of prevalence studies of autism spectrum disorders. *Archives of disease in childhood*, *91*(1), 8-15.

Yates, M. K. (2016). *Building better schools: A new model for autism inclusion in Seattle* (Doctoral dissertation).

Zwaigenbaum, L., Bryson, S., & Garon, N. (2013). Early identification of autism spectrum disorders. *Behavioural brain research*, *251*, 133-1