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COMMENTARY: "RAISING AUTISM AWARENESS IN NIGERIA": FROM CAMPAIGNS TO LEGISLATIVE ACTION

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Abstract

Autism Spectrum Disorder (ASD) continues to remain a public concern due to its increase in the prevalence and incidence globally. ASD is a neurological developmental disorder caused by either genetics, biochemical, environmental, or immunological factors. It is characterized by abnormalities in social relationships like poor eye contacts, difficulty comprehending social clues; repetitive/restricted behavioral pattern such as rocking, spinning, head banging, hand flapping; low to high functioning behavior and intelligence depending on the severity of the disorder. Also, some are fixated to routines or objects which could lead to frustration if not promptly addressed. Those on the spectrum have sensitivity to pain, temperature, sounds, touch and lights which sometimes impacts their activities of daily living. Although, there are numerous evidence-based initiatives in place to support people on the spectrum, not everyone has prompt access to and ability to afford some of those services due to the influence of their social determinants of health. The above aforementioned symptoms and signs pose huge challenges and burnout to parents, caregivers and other providers which calls for more awareness, ongoing supports at various levels or sectors from the society, policy/decision-makers, stakeholders through advocacy and provision of sustainable funding. The supports and interventions should be equitable, culturally accessible and affordable programs for all irrespective of their social determinants of health or geographical location because there are abilities in dis-abilities and everyone deserves the rights to good health and well-being.

Keyword: Autism, Awareness, Campaign, Legislature, Nigeria

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Adeola Dorcas Folorunso started her career in Nigeria as a registered nurse in 2010 before relocating to Canada in 2011 to embark on her Bachelor of Science in Nursing at the University of Saskatchewan, Canada, where she graduated with distinction in 2015. She obtained her Masters in Health Administration (MHA) at the University of Regina-Canada in 2020 with distinction. Adeola is finishing up a second masters in International Public Health (MPH) in England with the aim of addressing various Maternal, paternal and children mental health issues that are significantly impacting the overall quality of life globally. She constantly advocates for equitable health policies and culturally sensitive community programs to reduce the gaps in health disparities among vulnerable populations. Adeola actively participates in community health programs, speaking events, health event moderator, expert in planning community outreach programs and she serves as mentor to many.

Out of her passion to serve humanity, Adeola Folorunso founded **Matermental**, a Non-Governmental Organization with the goal of tackling those factors impacting good health and wellbeing across the spectrum. In 2023, she organized a summit on Beyond Baby Blues: postpartum depression where over 250 participants registered for the program along with experts from Nigeria and United States of America. Through this summit, majority of the participants had access to free mental health screening services, health information and resources provided by psychologists, Midwives and Mental Health Nurse practitioners. In addition to the above, in September 2024, Adeola Folorunso organized a free dental outreach for children living with Autism Spectrum Disorders (ASD) in an underserved area in Nigeria, Iwo Osun state, Nigeria where over 150 children with ASD and Special Needs. These children had free access to deep dental clearing, scaling and polishing to address the dental plagues and caries due to the challenges of oral care for children with ASD caused by high sensory sensitivity.

Adeola had volunteered for various International non-Governmental Organizations in multiple capacities both in West Africa and North America since 2008 till date. In 2024 she was awarded an Honorary doctorate degree; Doctor of Humanities and Leadership for her 16 years commitment to Humanitarian Services. She is a Certified Healthcare Executive with the Canadian College of Health Leaders in Ottawa and licensed to practice as a Registered Nurse in Canada, New-York and California. Adeola has won numerous awards both in Nigeria and Canada. Email: matermental23@gmail.com Orcid: **https://orcid.org/0009-0000-5126-5007**

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Introduction

Deficits in verbal and nonverbal social communication skills, social interactions, cognitive and physical abilities, and social interactions are all present in people with autism spectrum disorder (ASD). These patients exhibit odd responses to sensory inputs in addition to odd hobbies and repetitive activities. Significant levels of stress, worry, and loneliness can be experienced by families of people with autism spectrum disease. In addition, there is a financial impact on society and the families of individuals with ASD, and these patients require expensive medical care (Salari et al., 2022). Autism spectrum disorder (ASD) is an increasingly pressing issue worldwide, and Nigeria is no exception. As the incidence of ASD rises globally, communities are grappling with how best to support individuals and families affected by this condition. The concepts of Autism and its implications on quality of life continue to remain a public health concern globally. Despite the Universal Declaration of human rights (1948) on right to enjoy the highest attainable standard of health without discrimination and irrespective of ones' social health determinants (SDOH), religion, race, gender, and political belief, not everyone with autism have access to immediate, affordable, quality and prompt interventions and programs to support their daily needs (World Health Organization, 2023).

The incidence and prevalence of autism spectrum disorder continue to be on the rise from 1in 150 in the year 2000 to 1 in 36 in 2020, about 28.3 million children are diagnosed of autism

spectrum (ASD) globally, and it is four (4) times more prominent in boys than girls across all racial, ethnic, and socioeconomic groups (Center for Disease Control, 2023). Sadly, between 2009-2017, about 1 in 6 (17 %) of children aged 3-17 years were diagnosed with autism which poses huge burden in terms of mental-physical burnout/stress to not only the children diagnosed but also to their caregivers and a burden to healthcare budgets of $268.3 billion annually (Center for Disease Control, 2023). Similarly, in Nigeria (West Africa), there has been a record of (1 in 2 birth) increase in ASD in the last ten (10) years and despite the rise, the research on ASD is sparse and limited (Bakare, 2022).

ASD is a neurological developmental disorder characterized by abnormalities in social relationships, repetitive/restricted behavioral pattern caused by either genetics, biochemical, environmental, or immunological factors (Salari et al., 2022). Reducing family stress and related deficits is a key component of ASD treatment plans. Helping people with ASD become more functionally independent is another goal of treatment programs, which aims to improve their quality of life. Personalized treatment regimens are usually followed by people with ASD because no one therapeutic method is effective for them all. In addition to traditional healthcare facilities, family and educational institutions are the primary sources of resources for the treatment of ASD (Hinbest & Chmiliar, 2021). In Nigeria, public awareness campaigns and policy reforms are urgently needed to address the gaps in understanding and support for autism. Matermental a Non-governmental Organization is a frontier and a strong advocate for autism awareness and to bring about the desired change in Nigeria.

Conceptual Review

Autism Global Public Health Concern

According to estimates from the Global Burden of Disease Study 2010, there was little change in the prevalence of ASD between 1990 and 2010. ASD incidence is thought to have increased

over time, according to a number of recent studies; however, administrative record data, not community-based research, is used to support this theory. The National Health Interview Survey conducted in the United States indicates that between 2009 and 2017, there was a 1.1-2.5% increase in the prevalence of ASD among children aged 3 to 17 years (Li et al., 2022). Similarly, the World Health Organization (WHO) reports that during the past 20 years, the prevalence of autism has been gradually increasing. Current estimates indicate that 1 in 36 children worldwide have an ASD diagnosis, up from one in 150 in year 2000. All racial, ethnic, and socioeconomic groups are affected by ASD, according to the US Centers for Disease Control and Prevention (CDC). However boys are affected by the disorder around four times more frequently than girls (Li et al., 2022). Scholars have expounded extensively on the factors contributing to the global increase in the prevalence of ASD, occasionally offering conflicting findings. Some researchers claim that the prevalence rates reported in different countries are significantly influenced by the diagnostic criteria employed for ASD. For instance, the DSM-IV criteria are often preferred in North American countries. Different instruments are used by other countries, including Iran (a combination of SCQ and ADI-R), China, India (INDST-ASD), and others. Further research is necessary due to the substantial clinical and scientific consequences of the inconsistent diagnostic criteria (Hinbest & Chmiliar, 2021).

Research on autism lags well behind research conducted globally on other psychiatric disorders and medical issues. This deficit results from the flawed assumptions around autism that emerged after its clinical detection in 1943. The most well-known of these misconceptions was that autism was caused by "refrigerator moms" and bad parenting, which implied cold and unloving mothers. In contrast to today, it is difficult to comprehend the additional burden that moms in the 1950s and 1960s who were already attempting to raise their autistic children carried. Instead of receiving help from child psychologists and other professionals, these

mothers were told that the reason they hadn't bonded with their autistic child was because they couldn't relate to them (Hinbest & Chmiliar, 2021).

To ensure that people with autism thrive, a coordinated, evidence-based approach to screening and assistance is essential. Of course, autism is a worldwide phenomenon. Although the definition and importance of this condition will always differ from culture to culture, epidemiological research show that rates and presentations are the same in all countries and ethnic/racial groups. It is true that providing high-quality services to individuals with autism is acknowledged as both a universal human right and a top priority for global health (Fearon & Sonuga-Barke, 2021). The ability of a country to meet the needs of people with autism is inevitably limited by their financial circumstances, even though the care needs of people with autism are generally similar across the globe. As a result, less wealthy nations will inevitably face a disproportionate financial burden from these needs (Fearon & Sonuga-Barke, 2021).

The Situation in Nigeria: Limited Awareness and Support

Although autism is acknowledged as a worldwide health issue, high-income countries (HICs) provide the majority of the information on the condition. 95% of people with autism are thought to reside in low- and middle-income nations (LMICs). Studies have revealed a significant frequency of neuro-developmental disorders in children in low- and middle-income countries (LMICs), particularly in sub-Saharan Africa (Adams, 2024). The rising numbers are a result of both better diagnostic procedures and an increase in the proportion of kids who survive their first five years of life. Furthermore, Nigeria ranks in the top 10 nations in the world for the prevalence of various developmental disabilities in children under the age of five. Low- to middle-class Even though there is a growing body of study on autism in Africa, little is known about the condition currently; only 1% of research on the condition comes from sub-Saharan Africa (Adams, 2024). Most study on autism is carried out in developed western countries. The

bulk of autistic individuals globally live in low- and middle-class settings without access to culturally appropriate screening and diagnosis resources. There isn't a thorough list of all the possible cultural and contextual factors that might affect how individuals with autism spectrum disorders (ASD) are identified and diagnosed (de Leeuw, Happé & Hoekstra, 2020). The situation for autism assistance and awareness is considerably more difficult in Nigeria. The prevalence of ASD has significantly increased during the last ten years; according to current estimates, 1 in every 2 babies may be afflicted with autism. Despite this increase, there is still a glaring lack of study on ASD in Nigeria, and both the general public and even medical experts have little understanding of the condition. There are a variety of factors contributing to Nigeria's lack of support and awareness. Cultural misconceptions and preconceived notions about autism continue to exist, which frequently causes social exclusion and stigma for those who are affected and their family. Many groups misinterpret autism as the result of spiritual or supernatural influences, which makes it more difficult to raise awareness and offer.

The Impact of Social Determinants of Health

The conditions under which people live and grow within the larger framework of systems and factors influencing daily life are known as the social determinants of health (SDH). Social determinants of health include things like food insecurity, immigration status, parental educational achievement, poverty, lack of insurance, unstable housing, and obstacles to transportation. These elements support rising healthcare expenses, unequal access to care, and subpar clinical results (Davey et al., 2021). Environmental factors are external and include things like other people's attitudes, cultural standards, and the availability of help, whereas social determinants of health are internal and include things like gender, age, and education that have an impact on functioning but are unrelated to the condition. The International Classification of Functioning, Disability, and Health (ICF) provides guidance for individualized interventions and enhances communication between autistic individuals and

professionals by providing information on specific needs and opportunities (Lundin, Mahdi, Isaksson & Bölte, 2021).

The social determinants of health in Nigeria further exacerbate the difficulties experienced by autistic children. Low-income families frequently lack the resources to pay for the specialized therapies and interventions that are frequently required for treating autism. Cultural preconceptions and prejudices can also make it more difficult for people to get the care they need because some communities see autism as a spiritual or supernatural illness rather than a medical one. See, for instance, the fascinating article "A Psychologist's Perspective on the Taboo of Autism in Nigeria" from Autism around the Globe, which made a comparison between the pre-1943 American and Nigerian situations. The Nancy Lurie Marks (NLM) Family Foundation has launched a global public awareness initiative called Autism around the Globe.

Addressing Sensory Sensitivities and Health Implications

Anxiety and other detrimental psychological effects are frequently experienced by caregivers of children with ASD and other developmental disorders. Due to issues including communication problems, erratic behavior, social stigma and isolation, difficulties with self-care, and a lack of community understanding, raising a kid with ASD presents extra burdens. Compared to caregivers of children with other developmental disorders, research shows that parents of children with ASD report higher levels of psychological distress, including sadness, physical problems, feelings of rejection, and lower well-being (Azubuike et al., 2024). There are significant gaps in our knowledge of autism from majority global environments due to the existing lack of evidence in low- and middle-income countries (LMICs). Context-specific differences exist in the awareness, support, and resources available for individuals with autism and their families (Adams, 2024). It's vital to remember that, despite the recent exponential

surge in research on autism, the majority of this research comes from the US and other HICs. Because of the scarcity of trained healthcare professionals, the stigma associated with autism, the limited awareness of autism, and the need for contextually and culturally appropriate materials and procedures for implementation, resources and intervention programs developed in HICs cannot be transferred to other LMICs (Adams, 2024).

Everyday tasks like personal hygiene may be challenging for children with autism due to their frequently heightened sensory sensitivity. The work of Matermental organization by Dr. Folorunso discovered that many children on the spectrum have increased sensitivity to pain, light, sound, and touch, which can make receiving dental care difficult and distressing. Over time, neglecting oral hygiene can lead to serious health issues like dental cavities, plaque buildup, halitosis, and even respiratory and cardiovascular conditions caused by mouth bacteria. In recognition of these challenges, Matermental have been involved with interventions; the latest being the conduction of a community dentistry outreach program at the School for Special Needs Children in Iwo, Osun State. This program was held in collaboration with several organizations, including Gateway Dental Care, Mindcare Mental Health Clinic, DAB Foundation, and Literareach (Matermental, 2024). At the School for Special Needs Children in Iwo, Osun State, Matermental led a community dentistry outreach program in recognition of these difficulties. The goal of this effort was to meet the unique dental care needs of children with autism. It is being organized in partnership with several organizations, such as Literareach, Mindcare Mental Health Clinic, DAB Foundation, and Gateway Dental Care. The outreach program provided free dental services, including scaling, polishing, and mouth-washing, to over 150 pupils, along with health education on proper dental hygiene practices (Matermental, 2024

Building Community Support and Awareness

Compared to White Americans, Black Americans typically have lower health outcomes and receive worse healthcare. The fact that these differences exist irrespective of income or education level raises the possibility that provider biases and cultural obstacles are at play. Autism science and clinical practice both clearly show these differences. Even though Black and White parents report having first worries when their children are of similar ages, and even though Black autistic children are frequently misdiagnosed with other psychiatric diseases, Black children are less likely than White children to receive an autism spectrum disorder (ASD) diagnosis. The average clinical presentation of children diagnosed with autism is more severe than that of White children, indicating that Black children with less severe symptoms may go unnoticed (Jones & Mandell, 2020). Research and awareness initiatives in the United States and other countries have had an impact on the care that Nigerians receive for developmental impairments and autism spectrum disorder. Nigerian cultural views and family engagement, societal attitudes, a lack of resources and infrastructure, uneven policies, and the implementation of disability laws are some of the forces affecting progress. Families may be impacted by these factors in both positive and bad ways. Students with disabilities have limited access to specialized education programs and inclusion in classrooms due to a lack of standardized teacher training and accreditation programs (Hill, Fayemi & Ostrowski, 2024). United Nation members voiced grave concern on December 18, 2007, regarding the global prevalence of autism and the need to address long-term effects on children, families, and communities. A resolution was passed designating April 2 as World Autism Day worldwide. On this day, representatives of non-governmental organizations (NGOs) and the United Nations would discuss the fundamental human rights of individuals with autism as well as spread awareness of autism throughout the world and even with the global awareness raising, West Africans still don't know much about ASD (Oisaghie, 2022).

In addition to providing direct autism therapy, Matermental organization emphasizes the value of raising awareness and fostering community support. She thinks that in order to lessen stigma and alter attitudes, community actions are essential. She is planning a health summit to address the general difficulties that children with autism in Nigeria encounter in order to create a supportive atmosphere. Experts, parents, caregivers, professionals, and legislators will come together at the summit to talk about issues and create practical solutions. The focus will be on accessible, reasonably priced, and long-lasting interventions, with topics including mental health, education, and community support networks (Matermental, 2024).

Advocacy for Policy Reform

While community initiatives are crucial, the Chief Executive Officer, Dr. Folorunso of Matermental organization also stresses the need for policy reform to ensure that the rights of individuals with autism are protected and promoted. Currently, Nigeria lacks a comprehensive legislative framework for supporting individuals with autism and their families. There are no national guidelines for diagnosing and managing autism, and access to specialized services remains limited, particularly in rural and underserved areas. In a recent article, the first lady of Nigeria, Oluremi Tinubu in marking world autism day 2024 called for early diagnoses of autism in the country. That was a good sign in the right direction, but more still needs to be done.

Therefore, Matermental organization through Dr. Folorunso through this paper appeals to the Nigerian government to take a more active role in autism awareness and support initiatives. She argues that the government must prioritize the development and implementation of policies that promote early diagnosis, access to quality care, and ongoing support for individuals with autism and their families.

This can include investing in training for healthcare professionals, expanding access to specialized services, and addressing the social determinants of health that impact care for

individuals with autism. As the prevalence of autism continues to rise globally, countries like Nigeria must take steps to improve awareness, support, and care for individuals with autism and their families. Matermental and her advocacy for policy reform highlights the urgent need for a comprehensive approach to autism in Nigeria one that includes public awareness campaigns, community support initiatives, and legislative action. To achieve the above, this paper seek the cooperation of all stakeholders, government officials, healthcare providers, community organizations, and the general public to join in the effort to raise awareness about autism and advocate for the rights of individuals on the spectrum.

Dr. Adeola Folorunso has witnessed firsthand the challenges faced by children with autism and their families in Nigeria. Through her work as the founder of Matermental, a non-governmental organization (NGO) focused on improving healthcare access for vulnerable populations, she has seen how caregivers and healthcare professionals navigate a complex and often frustrating landscape to support children on the spectrum. Caregivers, according to her experience, face immense pressures as they try to manage the needs of children with ASD. The demands of providing consistent care and support can lead to physical and emotional burnout, especially when resources are scarce, and social support is limited. Many children with autism in Nigeria require various therapies such as speech, occupational, and behavioral therapies that are not always accessible or affordable. The lack of these essential services often exacerbates the challenges faced by families and hinders the development and well-being of children on the spectrum.

Conclusion

The interventions to address the significant increase in Autism Spectrum in Nigeria require a multi-disciplinary approach and efforts along with ongoing awareness to reduce the stigma by the society. ASD requires a collective and intentional input from both medical and non-medical

personnel such as community leaders, religious leaders, caregivers to mention a few. More importantly, ongoing funding and resources should be made available in all sectors to address the above concerns in order to improve the quality of life of those on the spectrum. While there have been some progress in creating awareness through NGOs and other private efforts, policy-makers should prioritize the need to support children and adults on the spectrum in various capacities.

Recommendations

Given the significant rise in autism spectrum disorder in Nigeria, the writers advocate for the below recommendations to address the challenges from ASD:

- Creation of awareness and educating the citizens about Autism Spectrum Disorders. The awareness should aim at educating parents, caregivers, health professionals and teachers on the possible causes of ASD and evidence-based interventions that are available, accessible and affordable. Awareness could be done via various media platforms and well publicized to curb the biases and stigma around ASD
- Advocacy for screening at all levels of health care institutions to foster early diagnosis and prompt interventions.
- Training of healthcare professionals, caregivers and teacher on the signs and symptoms of early onsets and late onsets of ASD through availability of screening tools and ongoing training.
- Review of educational curriculum for all health sciences students in Nigeria by incorporating topics on neurodivergence. The myths that Autism Spectrum Disorder is a white man disorder should be addressed. ASD is not limited to any race, ethnicity and social status.
- In addition to the above, fostering a supportive environment in school for children and adults on the spectrum through the adoption of individualized Education Plans (IEP)

that is tailored to the unique need of the child along with opportunities to be exposed to mainstream learning.

- Creation of specialized learning centers and services that is accessible to all especially for those in underserved communities. Services like Applied Behavioral Speech (ABA), occupational therapy, sensory integration and speech therapy should be made available, subsidized and affordable to all.
- Lobbying for funding, resources and policies in the favor of those on the spectrum to support programs to improve their quality of life and outcomes
- Funding to generate locally collected data and research opportunities in Nigeria such that those data gathered are unique to Nigeria and are utilized to design the needed programs.
- Creation of jobs and skills which help to increase inclusiveness, belonging and independence and employment for people on the spectrum. No one should be ostracized or ignored due to disability. Every child deserves right to good health and well-being irrespective of their Social Determinants of Health (SDOH).
- Community supports for caregivers with children or adults on the spectrum to mitigate care-giver burnout for those with family member(s) on the spectrum

References

Adams, S. N. (2024). The Unmasking of Autism in South Africa and Nigeria, *Neuropsychiatric Disease and Treatment*, 947-955.

Azubuike, A. O., Azubuike, P. C., Onyekachi, E. L., Enyam, M. O., Akinreni, T., Abuo, J., ... & Adai, G. S. (2024). Experiences and unmet needs among caregivers of children living with Autism Spectrum Disorder in Nigeria: A qualitative study using the socio-ecological model, *Research Square*, https://doi.org/10.21203/rs.3.rs-4744808/v1

Bakare MO, Frazier TW, Karpur A, Abubakar A, Nyongesa MK, Mwangi PM, Dixon P, Khaliq I, Gase NK, Sandstrom J, Okidegbe N, Rosanoff M, Munir KM, Shih A (2022) Brief report:

Validity and reliability of the Nigerian Autism Screening Questionnaire. *Autism.* Vol 26(6):1581-1590. doi: 10.1177/13623613221080250.

Center for Disease Control and Prevention (2023). Data and Statistics on Autism Spectrum Disorder, Accessed from: https://www.cdc.gov/ncbddd/autism/data.html.

Davey, B., Sinha, R., Lee, J.H. *et al.* (2021). Social determinants of health and outcomes for children and adults with congenital heart disease: a systematic review. *Pediatr Res* **89**, 275–294. https://doi.org/10.1038/s41390-020-01196-6

de Leeuw, A., Happé, F., & Hoekstra, R. A. (2020). A conceptual framework for understanding the cultural and contextual factors on autism across the globe, *Autism Research, 13*(7), 1029-1050

Fearon, P., & Sonuga-Barke, E. (2021). Commentary: "Harvest for the World": Working locally to grow autism services globally–reflections on Divan et al.(2021). *Journal of Child Psychology and Psychiatry, 62*(5), 536-538.

Hinbest, C., & Chmiliar, L. (2021). Autism as a Global Challenge: Examining the Increased Childhood Prevalence of Autism, *Journal of Student Research*, *10*(1). https://doi.org/10.47611/jsr.v10i1.1157

Hill, D. A., Fayemi, A., & Ostrowski, S. (2024). The Evolution of Services for Children with Autism and Developmental Disabilities in Nigeria, *International Journal of Disability, Development and Education*, 1–17. https://doi.org/10.1080/1034912X.2023.2291570

Jones, D. R., & Mandell, D. S. (2020). To address racial disparities in autism research, we must think globally, act locally. Autism, 24(7), 1587-1589. https://doi.org/10.1177/1362361320948313

Lundin, K., Mahdi, S., Isaksson, J., & Bölte, S. (2021). Functional gender differences in autism: An international, multidisciplinary expert survey using the International Classification of Functioning, Disability, and Health model, *Autism,* 25(4), 1020-1035. https://doi.org/10.1177/1362361320975311

Li Z, Yang L, Chen H, et al. (2022). Global, regional and national burden of autism spectrum disorder from 1990 to 2019: results from the Global Burden of Disease Study 2019, *Epidemiology and Psychiatric Sciences*. 31:e33. doi:10.1017/S2045796022000178

Matermental, (2024). Retrieved 1st October, 2024, https://matermental.com/

Oisaghie, O. (2022). *Autism Awareness in Nigeria, Its Implications and a Call to Action* (Master's thesis, Saint Mary's College of California)

Salari, N., Rasoulpoor, S., Rasoulpoor, S. *et al.* (2022). The global prevalence of autism spectrum disorder: a comprehensive systematic review and meta-analysis. *Ital J Pediatr* **48**, 112. https://doi.org/10.1186/s13052-022-01310-w

World Health Organization (2023). Autism. Accessed from : https://www.who.int/news-room/fact-sheets/detail/autism-spectrum
disorders#:~:text=Autism%20spectrum%20disorders%20%28ASD%29%20are%20a%20diverse%20group,degree%20of%20difficulty%20with%20social%20interaction%20and%20communication