

Original research**CHILDHOOD AUTISM SPECTRUM DISORDER: KNOWLEDGE, ATTITUDES, AND PRACTICE OF HEALTH PROFESSIONALS IN TOGO**

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Abstract: Background. Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by impairments in behavior, social communication, and interaction.

Objectives. To describe health staff's knowledge, attitudes, and practices regarding ASD in Lomé.

Methods. From January to March 2020, we conducted a multicenter, cross-sectional, descriptive, and analytical study on ASD in childhood. A survey was administered to a sample of healthcare professionals in 5 facilities in Lomé, Togo. A questionnaire assessed the knowledge, attitudes, and practices of ASD among 139 participants (pediatricians, neurologists, general practitioners, psychologists, speech therapists, and nurses).

Results. The participation rate was 84.2 % (117 / 139). One hundred seven health workers (91.5 %) had heard of ASD. Inaccurate knowledge was observed: 65.4 % gave a good definition of autism, 73.2 % did not know the autistic triad, the early warning signs (64.6 %), or the age of onset (61.0 %). Only 22.0 % of staff were familiar with autism screening tools. The highest knowledge was significantly associated with being a speech therapist or pediatrician practicing in a tertiary health facility ($p < 0,0001$). Higher-graded staff also observed better knowledge levels ($p = 0, 0128$). Concerning attitudes or practices regarding autistic children, 26 of those surveyed (22,2 %) had already screened for ASD, of whom 23 (88,5 %) worked with other specialties in case management.

Conclusion. This study highlights inappropriate levels of knowledge, attitudes, and practices among health staff. These findings warrant the need for good initial training on ASD, awareness campaigns, and the setting up a specialized center in Togo.

Keywords: Autism, knowledge, attitudes, practice, health professionals, Togo.

INTRODUCTION Autism spectrum disorder (ASD) is a neuro-developmental disorder characterized by impairments in social communication and interaction and restricted or repetitive patterns of behavior, interests, and activities [1]. The global median prevalence of autism is estimated at 0.62 %, according to WHO [2]. The burden of ASD in Sub-Saharan Africa (SSA) remains unclear owing to the lack of large-scale population studies in this region [1].

Its symptoms generally become evident before the age of three, but in most parts of the world, these disorders are not diagnosed until several years later. Available treatments enable patients to achieve a much better quality of life than was previously possible, but early intervention is crucial as treatment can be less effective in older children. Thus, the prognostic benefits of early diagnosis and management of children with autism have long been widely accepted. However, there are wide variations between healthcare professionals around the world in terms of their ability to recognize or diagnose autistic behavior in children. Frontline healthcare workers caring for children potentially have a crucial role to play in

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promoting early identification and diagnosis of autism. However, they may lack adequate training or know-how, delaying diagnosis and case management. In Togo, most clinicians are unaware of this disability. There is no diagnostic team or adequate technical facilities for diagnosing these disorders. Studies on autism from SSA indicate a low level of autism knowledge and awareness, even among healthcare workers [3 - 10]. The knowledge of autism in any healthcare setting is crucial to the provision of optimal services and the reduction of the burden associated with autism. This is the first study to assess the knowledge of ASD among healthcare workers in Togo. This study aimed to describe health staff's knowledge, attitudes, and practice on ASD in Lomé to address the gap and improve autism outcomes in our environment.

METHODS A cross-sectional, descriptive, and analytical study of the Knowledge, Attitudes, and Practices type was conducted from 1st January to 31st March 2020 in Togo's Grand Lomé health region. Five health facilities were selected for their frequentation and the availability of qualified staff. These were the CHU Sylvanus Olympio (national reference hospital), the CHU Campus, the CHR Lomé Commune, the Bè hospital and the Centre National d'Appareillage et d'Orthopédie (CNAO). The study included nursing staff responsible for consulting children, staff in departments involved in managing pathologies related to children's psychomotor development, and pediatric practitioners.

The administrative staff of the health facilities, those accompanying the patients, the patients themselves, and

the nursing staff who refused to participate in the study or were unavailable (on leave, furlough, unavailability, external missions or training courses, etc.) were not taken into account. The non-probabilistic method was used to select all our targets. The purposive sampling technique selected the facilities and healthcare workers concerned. The university hospital centers were selected because of the availability of specialists in ASD, as was the CNAO. The professional category and specialty of the agents guided our choice. Given the purposive sampling technique defined, it isn't easy to estimate the size of the sample accurately. The interview technique was used to collect data from all the targets. The twenty-six-question survey form covered three variables: demographic and professional data, general knowledge and sources of information about autism, and attitudes and practices towards ASD.

The data were entered using Epidata software version 3.1, and the statistical analyses were performed using R software version 3.6.1. The statistical tests used were the chi-2, Fisher, and Student tests. The selected significance threshold was 0.05. Authorizations were received from the various hospital administrations concerned, and free consent and confidentiality were guaranteed.

RESULTS Demographic and professional data

The participation rate among healthcare staff was 84.2 % (117 / 139), with a sex ratio 2.4 (83 / 34). The average age of those surveyed was 33.1 ± 7.8 years, with 1/3 (32.2 %) in the 25-29 age group. The center of practice and professional category are shown in Table 1.

	CHU SO	CHU Campus	CHR LC	Bè Hosital	CNAO	Total	%
Pediatricians	7	3	2	6	0	18	15.4
Psychiatrists	1	1	0	0	0	2	1.7
ENT Doctors	3	0	1	0	0	4	3.4
Neurologists	2	6	0	0	0	8	6.8
General Practitioners	12	8	6	8	0	34	29.1
Speech Therapists	7	1	0	0	6	14	12.0
Psychologists	1	4	0	1	2	8	6.8
Nurses	12	7	7	3	0	29	24.8
Total	45	30	16	18	8	117	100.0
%	38.5	25.6	13.7	15.4	6.8		

Table 1. Distribution of respondents by center of practice and socio-professional category (N = 117).

The workforce of the two university hospitals accounted for 2 / 3 (66.1 %) of the total sample. General practitioners, nurses, and pediatricians accounted for 29.1 %, 24.8 %, and 15.4 %, respectively. Pediatrics (48.7 %), neurology (17.1 %), and general medicine (12.0 %) were involved. More than half of those surveyed (55.6 %) had been in the service for over 5 years.

Knowledge on ASD One hundred and seven (91.5 %) healthcare professionals stated that they had once heard of autism. Table 2 shows healthcare professionals' knowledge of communication disorders, social interactions, and stereotyped gestures.

In terms of communication disorders, the children were seen in pediatric wards (41.1 %), by pediatricians (20.5 %), and at the CHU-SO (32.9 %). The diagnosis of communication disorders was significantly associated with health structure (p = 0.0176), department (p = 0.0008), and socio-professional category (p < 0.0001).

As for impairment of social interactions, half (52.2 %) of the healthcare professionals said they had already met patients. Children suffering from impaired social interaction were mainly seen at the CHU SO (32.2 %), in pediatrics (33.9 %), and by pediatricians (15.3 %). There was an association between center (p = 0.0214), department (p = 0.0008), and socio-professional category (p < 0.0001).

Finally, 44.4 % of healthcare professionals stated that they had seen children consulted with stereotyped gestures. Children displaying stereotyped gestures were seen more at the CHU SO (32.7 %), more in pediatrics (36.5 %), and more by speech therapists (25.0 %). There was an association between center (p = 0.0185) and department (p = 0.0010).

A good definition of ASD was provided in 65.4 % (70 / 107), with a significant difference according to professional

	Communication disorders					Social interactions					Repetitive behavior				
	No		Yes		p-value	No		Yes		p-value	No		Yes		p-value
Centers	n	%	n	%	0.0176	n	%	n	%	0.0214	n	%	n	%	0.0185
CHU – SO	21	47.7	24	32.9		26	44.8	19	32.2		28	43.1	17	32.7	
CHU campus	7	15.9	23	31.5		12	20.7	18	30.5		17	26.2	13	25.0	
Department					0.0008					0.0008					0.0010
Pediatrics	27	61.4	30	41.1		37	63.8	20	33.9		38	58.5	19	36.5	
Neurology	3	6.8	17	23.3		6	10.3	14	23.7		9	13.9	11	21.2	
Socioprofessionnal category					<0.0001					<0.0001					0.0003
Pediatricians	3	6.8	15	20.5		9	15.5	9	15.3		10	15.3	8	15.4	
Psychiatrists	0	0.0	2	2.7		0	0.0	2	3.4		0	0.0	2	3.9	
Neurologists	0	0.0	8	11.0		2	3.5	6	10.2		4	6.2	4	7.7	
General Practitioners	21	47.7	13	17.8		22	37.9	12	20.3		25	38.4	9	17.3	
Speech Therapists	1	2.3	13	17.8		1	1.7	13	22.0		1	1.5	13	25.0	
Psychologists	1	2.3	7	9.6		2	3.5	6	10.2		2	3.1	6	11.5	

Table 2. Knowledge of communication disorders, social interactions, and repetitive behavior.

category ($p < 0.0001$): speech therapists (27.0 %), pediatricians (16.2 %), psychologists (16.2 %) and neurologists (13.5 %). As for the pathological nature of autism, developmental disorders (45.8 %), psychiatric disorders (43.9 %), and genetic disorders (26.2 %) were mentioned. The autistic triad was fully described by 26.8 %. Speech therapists (37.5 %) were significantly better than neurologists (16.7 %) and psychologists (12.5 %) ($p < 0.0001$). Similarly, for knowledge of the age of signs (39.0 %), speech therapists (28.2 %) were followed by pediatricians (20.5 %) and general practitioners (18.0 %) ($p < 0.0001$). Two-thirds (64.6 %) did not know the early warning signs. Speech therapists had better knowledge of the warning signs of ASD (38.7 %) than pediatricians (16.1 %) ($p < 0.0001$), as did the most senior carers (≥ 5 years, $p = 0,0128$). For those surveyed, the diagnosis of autism was known for 24.8 %. It required a multidisciplinary team (43.6 %) and was based on the presence of the autistic triad (42.7 %) or screening tests (26.5 %). Only 22.0 % of staff were familiar with autism screening tools. Speech therapists (66.7 %) were more aware of a screening tool than pediatricians, psychiatrists, and general practitioners (0.0 %) ($p < 0.0001$). Of the 18 respondents who were aware of screening tools, 13 (72.2 %) cited the CARS. The sources of information on autism were the courses received during basic training (59.8 %) and the mass media (42.1 %).

Attitudes of practices A third of the carers (62.4 %) said that they had already seen children with autism. The average number of children with autism seen was 24.5 ± 7.2 (0 to 200 children). Speech therapists (38.7 %) saw more children with ASD than pediatricians (19.4 %), neurologists (12.9 %), and psychiatrists (3.2 %). Nurses do not. The attitude most adopted when faced with an autistic child who disrupts the waiting room was to settle in and consult (43.6 %), or to consult the child as a matter of priority (41.0 %). Screening for ASD was carried out by 26 respondents (22.2 %), primarily at the CHU SO (46.2 %), the CHU Campus (26.9 %), and the CNAO (26.9 %). Of the 26, speech therapists (46.2 %) screened significantly more than psychologists (11.5 %) ($p = 0.0001$). When faced with a case of autism, the most commonly adopted practical course of action was re-education and therapeutic management (69.2 %) and other assessments (61.5 %). The procedure for announcing the diagnosis to the parents took place during an announcement consultation (38.5 %) or directly explaining the disability to the parents (30.8 %).

Re-education and therapeutic management were more common in speech therapists (61.1 %) than in psychiatrists (0.0 %). Twenty-three (88.5 % of the 26) worked with other specialties on a multidisciplinary basis. One hundred and one carers (86.3 %) had no knowledge of a specialized center in Togo.

DISCUSSION ASD is a neurodevelopmental disorder with serious implications in childhood. The absence of relevant epidemiological studies and data, limited knowledge among healthcare providers, poor community awareness, and a shortage of specialist care services are some of the issues confronting autism in Africa [7, 11]. The findings of this study confirm insufficient knowledge about ASDy carried out in 5 Togolese health facilities.

The participation rate of healthcare professionals in this study was 84.2 %. This rate is lower than that reported by Esegbe (95.4 %) in Nigeria [3] and Mbassi (100.0 %) in Cameroon [5]. These authors invited the respondents to answer the questions immediately at an ad hoc meeting, and the forms were collected in situ. This also avoided an information bias, as the participants did not have the time to find out about the subject and bring themselves up to date before answering the questionnaire.

Nine out of ten (91.5 %) healthcare professionals said they had already heard of the term autism. Rahbar, in their study among a population of general practitioners in Pakistan, noted that 44.6 % of the doctors had only heard of autism [12]. Our survey involved several professional categories with a greater chance of being exposed to the term (pediatricians, speech therapists, neurologists, psychiatrists). Even where healthcare providers display a high level of awareness, they still exhibit misconceptions about autism [13]. A good definition of autism was given for 42.7 % of participants, with a significant variation in favor of speech therapists ($p < 0.0001$). Speech therapists encountered more cases of autism in their daily practice (38.7 %). Opinions on the pathological nature of autism varied. Almost half of those surveyed (45.8 %) thought that autism is a developmental disorder, in line with the results in Lahore, Pakistan (51,0 %) [14].

Conversely, a rate of 16 % was reported in Douala, linked to the low representation of psychiatrists and speech therapists [5]. Studies indicative of poor knowledge of autism among healthcare providers have been reported from other parts of the world [3, 4]. Thus, 73.2% of the

staff questioned did not know about the autistic triad, and 64.6 % had inaccurate knowledge about early warning signs. An equivalent gap (77.8%) was recorded by Mbassi [5] on the autistic triad and early warning signs. Rhoades [15] explored the importance of physicians' knowledge of autism spectrum disorders (ASD) and found that physician's knowledge or lack of knowledge about autism greatly influenced the average age of diagnosis of ASD, which is important to the ultimate prognosis and whether the physician provides further information necessary to caregivers about autism or not. However, speech therapists had a better knowledge of the autistic triad and the warning signs ($p < 0.0001$). Participants with more than five years of experience and tertiary-level education ($p < 0.0001$) were associated with better responses [3]. Studies attest to a better knowledge of ASD in psychiatry and pediatrics, the workplace, and the number of years of experience [55,56]. Nonetheless, a better knowledge of autism has been associated with specialization in psychiatry and pediatrics, place of work, and age of practice [8-10, 16].

Similarly, the age of onset of these warning signs reported by the participants was often incorrect (61.0 %). Also, for Mbassi in Cameroon [5], between 60 % and 85 % of staff were unaware of the age of diagnosis and the early signs of autism. On the other hand, Eseigbe in Nigeria [3] reported that a third (31.1 %) of participants were unaware of this age. The mean age of onset was 2.3 ± 1.2 years in Lomé. These results are better than those of Rhoades (4 years and ten months) [15]. The age group 2 to 8 years was the most frequently cited as the age at which the first warning signs of autism appeared. However, warning signs can be detected as early as the first few months of life. Indeed, parents are often the first to suspect a problem in their child [17, 18], all the more so as they have a reference in their environment (a child in the neighborhood or a previous child in the family with normal development). These warning signs are often, quite rightly, reported to the healthcare staff we meet in our vaccination departments, during routine check-ups, or in the event of morbidity.

Nevertheless, the diagnosis is delayed. This situation could also be a limitation for the early diagnosis of this disorder in our healthcare facilities. Studies from SSA indicate a poor level of awareness and knowledge of the disorder, even among healthcare workers, a lack of therapeutic

services such as speech and behavioral therapists, and a negative attitudinal disposition towards persons with autism [3–10, 19].

Only 22.0 % of staff were familiar with autism screening tools. The use of screening tools or other objective and sensitive assessment scales such as M-CHAT (Modified Checklist for Autism in Toddlers), CARS (Childhood Autism Rating Scale), ADOS, and ADI-R (Autism Diagnostic Interview-Revised) is unknown. The use of these tools was limited to a few professional categories, such as speech therapists (66.7 %) ($p < 0.0001$). The most commonly used tool was CARS (72.2 %). The usefulness of this screening tool was confirmed in the study by Chlebowski [20] in 2010 in the United States. A lack of staff training can explain this lack of familiarity with screening tools. This lack of training would be an obstacle to identifying cases of autism and, consequently, to determining the exact prevalence of this disorder in our country.

Pedagogical courses (59.8 %) in initial training represented the main source of information for our staff on autism. Our results are much higher than the Pakistani (45.5 %) [14] and Cameroonian (2.5 %) [5] data. The media (radio, television, newspapers, etc.) were the main source of information for staff in these studies, at (53.4 %) and (35.8 %) respectively. These results show that little or no attention is paid to the subject of ASD during the academic curriculum. This issue is also dealt with sparingly in our media. This can explain a significant gap in the identification and provision of health and social services for autism in Africa [3]. This could lead to a lack of awareness not only among medical and paramedical staff but also among parents of autistic children and to a neglect of the warning signs. Awareness campaigns on ASD are organized in Cameroon [5].

Attitudes and practices In this study, 62.4 % of professionals stated that they had met at least one child with autism in their daily practice, particularly speech therapists (38.7 %) who screened for ASD (46.2 %). Our results are higher than Eseigbe's (34.7 %) [3]. This figure could reflect the actual presence of autism cases in Togo. Of the healthcare professionals screening for ASD, 88.5 % work with other specialties, notably neurology, pediatrics, and psychiatry. Our results are superior to the Cameroonian study [5], in which 67.9 % of participants would refer a child with autism to either a pediatrician, a

Pediatric neurologist, or a child psychologist, and the Esegbe study in Nigeria [3], in which 67.2 % of participants referred their case to either a pediatrician or a psychiatrist. The majority of participants (86.3 %) had no idea of a specialized center capable of ensuring the management and follow-up of ASD in Togo. The absence of a specialized center for the care of autistic subjects in our country would explain these results. The need for a multidisciplinary team to diagnose ASD was mentioned by the carers surveyed (43.6 %) [21, 22]. The absence of an ASD diagnostic team could constitute an obstacle to diagnosis and be a source of misdirection of patients.

There is a great need to raise awareness and train our healthcare staff in disorders of children's social and communicative development. They should be taught the warning signs of development at risk of autism, the age of onset, and the autistic triad. This awareness would encourage them to take greater account of parents' concerns.

Limitations The study's main limitation is extrapolating the results to all healthcare staff in the city of Lomé. The survey covered the referral centers of the Greater Lomé health region but not outlying facilities in Lomé, the interior of the country, or private facilities. In addition, survey forms were not collected immediately in all cases, and the answers may not reflect the level of knowledge.

CONCLUSION The study's findings underscore the critical need for improved knowledge and awareness about childhood autism among health workers in Togo. The current lack of understanding can hinder early recognition and interventions, which are crucial for improving prognosis in children with autism. By enhancing the knowledge of autism among healthcare providers and addressing the challenges associated with its management, we can bridge the gap and ensure better outcomes. These findings emphasize the immediate need for comprehensive initial training on ASD, widespread awareness campaigns, and the establishment of specialized centers in Togo.

Conflict of Interests The authors declare that there is no conflict of interest regarding the publication of this paper.

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