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Assessment of Knowledge of Autism Spectrum Disorders among Medical Students at the Muhimbili University of Health and Allied Sciences: A Semiquantitative Study

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Abstract

Introduction

Knowledge and awareness of Autism is imperative in the diagnosis of Autism. Globally, there is an increase of incidence reported, the situation is Africa is unclear and maybe due to knowledge and awareness gap. The primary care provider in many of our settings is a physician. These obtain their training mainly in the medical school, thus assessing knowledge of medical students would draw attention on the knowledge ga on Autism.

Methodology

A cross-sectional, semi-quantitative study among final year medical students at Muhimbili University of health and Allied Sciences. Structured questionnaires were provided to the students who agreed to participate. Autism was divided into 4 domains, and knowledge of each domain was assessed. These domains are 1) communication and speech, 2) social interaction, 3) obsessive and repetitive behaviors and 4) comorbidities.

Results

A total of 136 out of 178 final year medical students participated in this study. The responses were converted to categorical values, where 19 was the maximum score. The mean score for overall Autism knowledge was 14.48 ± 4.30. The knowledge deficiency in domain 4 (comorbidity) was highest, followed by domain 3 (obsessive behaviour), domain2 (social interaction) and domain 1 (communication).

Conclusion and Recommendation

In general, there was a good level of knowledge, and that speech and communication was the most important criteria. This appreciable knowledge level is commendable; however, more effort is needed to improve attitudes and practices.

Keywords: *Autism, Knowledge, Medical Students, Tanzania.*

Introduction

Autism spectrum disorder is a pervasive neurodevelopmental disorder that impairs a child's ability to communicate and interact with others. It consists of Autism, Asperger's syndrome, pervasive developmental disorders not otherwise specified (PDD-NOS) and childhood disintegrative disorder. ASD affect three main areas, these are social interaction, communication, behaviours and interests.

The incidence of ASD is about 1:60 children in the USA. It is not known in many other countries. According to the CDC, 1 in 54 children have been identified with ASD in 2020. Also, ASD is about 4 times more common among boys (1 in 42) than among girls (1 in 189), raising current public concerns about an autism "epidemic" citing increased recognition due to increase in diagnosis, awareness and broadening of diagnostic criteria (1,2).

In Tanzania very few studies related to autism have been conducted. Some foreign universities in collaboration with the local universities have conducted a handful of studies on ASD which have very scarce information (3,4,5). Medical students are a good source of dissemination of knowledge as they are the first point of contact and able to recognise and refer. Therefore, assessing their knowledge is important for improving training and incorporating in curricula (6,7,8).

This study therefore aims to assess the knowledge attitudes and misconceptions on autism among final year medical students in MUHAS. The results will help to identify the deficiencies in knowledge on ASD among the Tanzanian medical students and thus help inform policy makers to incorporate sufficient amount of information in our medical programme.

Methods

Study design

This cross-sectional study was conducted among the final medical year students at the Muhimbili University of Health and Allied sciences located at Ilala district in Dar-es-Salaam , Tanzania.

Study setting and population

Medical School; all the final year students who agreed to participate were included in the study.

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Study tools

Questionnaires in English language were used for data collection. The Knowledge about Childhood Autism among Health Workers questionnaire (KCAHW) adapted from Bakare et al (8) was used and incorporated to assess the knowledge on Autism. The questionnaires were given to final year medical students, filled independently, and collected at convenient time. The four main features of Autism were presented as domains.

Domain 1: ASD is associated with Speech and Communication difficulties: score 0-8

Domain 2: ASD is associated with Social Interaction deficiencies: score 0-1

Domain 3: ASD is characterized with Obsessive compulsory Disorders and repetitive behaviours: score 0-4

Domain 4: ASD is associated with co-morbidities such as Attention Deficit/ Seizures etc: Score 0-6.

These weighted scores were obtained from previous studies in Africa and depended on their presence for the diagnosis of ASD, using the DSMR IV criteria.

Sample Size

This was a survey of all final year students. All the existing 178 students were approached for the survey.

Analysis Plan

Data in the various domains were categorize in a numerical scale and analysed. This is therefore a semi-quantitative study. Data entry, processing, coding, cleaning, wase done and fed into MS EXCEL and then the csv transferred to SPSS version 20 software.

for statistical tests. Proportions, simple frequencies, and percentages were used to interpret the results.

Ethical Consideration

Permission to conduct the study was obtained from Muhimbili University of Health and Allied sciences (MUHAS) as part of the Elective studies compulsory in Semester 7-10. Consent was obtained from students and responses were independent, confidential. There was no ethical issue of concern.

Results

Out of 178 students, 136 responded, thus the response rate was 78%. There were 91(66.9%) males and 45 (33.1%) females. The age categories are indicated in table 1, most of them were between 20-25 yrs age.

Table 1: Socio-demographic variables

Sociodemographic variables	(N)%
Age of the respondents (years)	
20-25	87 (64)
26 and above	49 (36)
Gender	
Male	91(66.9)
Female	45(33.1)
Marital status	
Single	120(88.2)
Married	14(10.3)
Cohabiting	2(1.5)
Education level	
High school	102(75)
Bachelors	23(16.9)
Other	11(8.1)
Having children	
Has children	16(11.8)
Doesn't have children	120(88.2)

The knowledge of childhood autism among health workers questionnaire was divided into 4 domains. The maximum possible score was 19 and the minimum was 0. The respondents had a mean score (summation of the domains) of 14.48± 4.30. The maximum possible scores in domains 1,2,3 and 4 were 8,1,4 and 6 respectively.

The mean score in domain 1 which tested knowledge of impairments in social interaction was 6.57±1.54 with some respondents scoring a maximum of 8 and others scoring a minimum of 3. 36% of the respondents had a perfect score of 8, 27% of them had a score of 7 followed by 15.4% who had a score of 6 and 21.3% had a score between (0-5). Domain 2 which assessed knowledge on communication impairments had a single question and a total

mean score of 0.82±0.38. 81.6% of respondents got the question correct and 18.4% missed it. Domain 3 tested knowledge on repetitive patterns of behavior had a mean score of 2.72±1.14, the maximum achievable score of 4, the minimum scores the respondents got was 0 and the maximum was 4 and lastly domain 4 dealing with autism and related comorbidities had a mean of 4.38±1.23. 19.9% of respondents got a perfect score of 6, 30.9% got a score of 5 followed by 26.5% with a score of 4 and 22.8% got between (0-3). Knowledge deficiency was found to be highest in domain 4 followed by domain 3 followed by domain 1 and lastly domain 2.

Table 2: Knowledge level in each domain

	N	Minimum	Maximum	Mean	Std. Deviation
Domain 1	136	0.00	8.00	6.57	1.54
Domain 2	136	.00	1.00	.81	.39
Domain 3	136	.00	4.00	2.72	1.14
Domain 4	136	.00	6.00	4.39	1.24

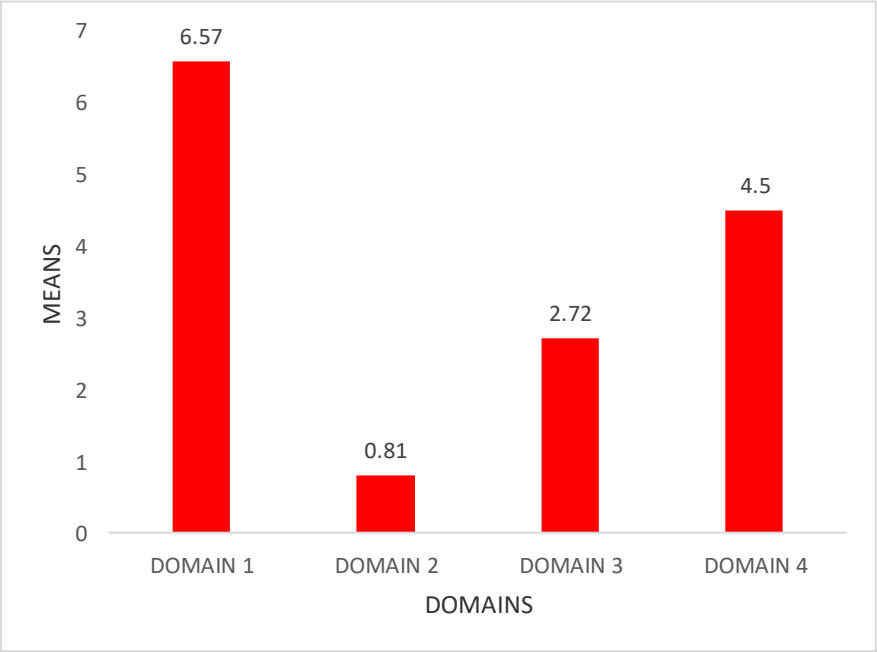

Figure 1. The four domains of (1- impairment of speech and communication, 2- social interaction 3-repetitive actions and obsessive compulsory disorder , 4- co-morbidities)

The self-assessment questionnaire was the last part of the questionnaire. About 76.5% of the students felt confident in identifying features of ASD and 23.5% disagreed or were uncertain if they could do the same.74.3% agreed that they were able to counsel parents having a child with ASD with25.7% being uncertain or disagreeing. 62.5%thought they could counsel parents on the available ASD services in the country. Almost all thought that they could benefit from further ASD training 127(93.4%)

Table 3: Self-Assessment Scores on Knowledge on Autism

Self-assessment of students	N (%)
Confident in identifying ASD features	
Agree	104(76.5)
Disagree/uncertain	32(23.5)
Able to counsel parents on ASD	
Agree	101(74.3)
Disagree/uncertain	35(25.7)
Able to counsel on ASD services	
Agree	85(62.5)
Disagree/uncertain	51(37.5)
Benefit from further training on ASD	
Agree	127(93.4)
Disagree/uncertain	9(6.6)
Participated in the evaluation of child with ASD	
Agree	83(61.0)
Disagree/uncertain	53(39.0)

Discussion

The primary aim of this study was to assess the level of knowledge on ASD among the final year medical students at MUHAS. The mean score of a total of 136 respondents was 14.48±4.30 out of a maximum possible of a total of 19. Most of the respondents in this study were in the (20-25) year old age group. Very few studies assessing knowledge on ASD have been conducted in Africa and hence there is an acute scarcity of data. Improving the awareness and knowledge is vital in dealing with the same. (4,5,6, 8)

Bakare et al. conducted a similar study in Nigeria in this study the KCAHW questionnaire was used as a tool to assess knowledge on autism in healthcare workers with specialists

included and their mean score was 12.35±4.40. (8) Another study conducted by Eseigbe et al was conducted in North Nigeria. 167 doctors participated in the study. The mean score of the study was 13.50 ±3.70. Compared to the Nigerian studies this study exhibited a higher total mean score of 14.48±4.30 (7). In our study the greater scores could be due to increased awareness and since all the respondents are final year medical students from the same stream and had been taught a special session on Autism during psychiatry department rotation.

However, knowledge gap was found in associated co-morbidities (domain 4. In this domain only 19.9% managed to achieve a perfect score of 6 with almost half of them 49.3% having a score between (0-4). Recent review indicate that children with co-morbidities are often missed and the primary focus is the co-morbidity such as seizure disorder or Attention Deficit Hyperactivity, and that knowledge on Autism is the first step in the process of providing appropriate care and social justice to children with Autism(10) . In comparison, the knowledge about poor speech and communication was excellent with over 85% These findings are similar to those found in the study done by Eseigbe et al which also recorded the highest knowledge gap in domain 4 with only 10.8% of the respondents having a perfect score. This similarity shows the decreased level of understanding on the comorbidities associated with autism.

In the self-assessment test 76.5% of the respondents felt that they were confident enough to clinically identify features of ASD when presented with a child having ASD. Also 74.3% of the students felt that they could counsel parents of the children having ASD. However, when counseling on the available ASD services in the country, these final year students were not confident enough. It is not surprising, because there is a huge gap in the care of children with Autism in Tanzania. (7). Majority felt additional training on the care and available resources was needed.

The focused group discussions revealed that most of the students did not know available autism services in the country except for the psychiatric department in Muhimbili. It also found that most did not know how the disorder is managed, with most believing that drugs were a common form of management. Most students were also not sure about the future prognosis of the disease as the child grows up with many thinking the child will have reduction in symptoms as he grows up. Most of the group members also thought that Autism

was not an issue of concern in Tanzania, since they thought that the country is plagued by other more challenging health issues. This dearth of knowledge on epidemiology of Autism in Tanzania is significant and needs to be addressed. It is known that early diagnosis and interventions have better outcomes in the behavioral treatment of these children with Autism. (10,11,12)

Limitations

This study was conducted at MUHAS which is the national hospital (tertiary level) hence the scores may not reflect knowledge among students in other universities.

Conclusion

An appreciable knowledge of autism was shown among medical students in this study in Tanzania at the Muhimbili University of health and Allied Sciences. However, there is still room for further improvement of knowledge gaps and dispel the misconceptions. Further large-scale studies among various cadres are needed to identify gaps in knowledge and care of children with Autism in Tanzania.

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Authors' contributions

ARS Initiated the concept, proposal, undertook the survey, analysed and prepared the manuscript. KPM Supervised all the processes, reviewed the draft, finalised the manuscript and submitted the same.

Abbreviations

ASD	Autism Spectrum Disorders
CDC	Centres of Disease Control
KCAHW	Knowledge of Childhood Autism Among Health Workers,
MUHAS	Muhimbili University of Health and Allied Sciences.
PDD-NOS	Pervasive Developmental Disorder-Not Otherwise Specified.
USA	United States of America

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