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Parental Perception of Oral Health Status for Sudanese Children with Autistic Spectrum Disorder in Khartoum State

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ABSTRACT

Autistic spectrum disorder is long life neuro-developmental disorder. Providing proper and efficient oral health care to children with autism is considered challenging for both parents and dental care providers.To assess parental perception of oral health for their children with Autistic Spectrum Disorder in Khartoum state. This is a descriptive cross sectional study including 45 autistic children (mean age 8.2 years) attending 8 autistic centres in Khartoum state. Data regarding the perception of the parents were collected by a self-administered questionnaires and the caries status for autistic children was assessed by (DMFT/dmft). Most of the parents thought that their children either had good or fair oral health, and it is statistically significant with parent's education level (*p* value=0.03) and child's history of visiting dental clinic (*P*-value=0.01). The mean DMFT/SiC (0.83/1.9) and dmft /SiC (2.40/6.1). Autistic children parent do not ever take their children to dental clinics thought that their oral health is either Good or Fair.

Key words: Parents, Autism, Sudanese, Dental Clinic, Oral Health.

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INTRODUCTION

Oral health care for individuals with developmental disabilities is exaggerated due to their dependence on parents or caregivers for maintaining oral hygiene (Shah et al, 2009).

Providing both primary and comprehensive preventive and therapeutic oral health care to individuals with Special health care needs (SHCN) is an integral part of paediatric dentistry (AAoPD, 2012).Therefore, dentist has a critical role in providing proper dental education to parents of individuals with disabilities (Altun et al, 2010).

The first definition of Autism was introduced by an American Child Psychiatrist, Dr. Leo Kanner in 1943, as a pervasive developmental disorder (Kanner, 1943). Recently the National Institute of Mental Health defined autism "as a group of developmental brain disorders, collectively called autism spectrum disorder (ASD). The term spectrum refers to the wide range of symptoms, skills, and levels of impairment, or disability, that children with ASD can have, some children are mildly impaired by their symptoms, but others are severely disabled" (NIMH, 2008).

The Diagnostic and Statistical Manual of Mental Disorders Revision 5 (DSM-5) listed newly classification of ASD based on disorders defined behaviourally without molecular or biological test which are: Autistic Disorder, Asperger Disorder, Pervasive Developmental Disorder

not Otherwise Specified (PDD-NOS) and Childhood Disintegrative Disorder (CDD) (Ozonoff, 2012).

The global prevalence of ASD was estimated to be 62/10000, without socioeconomic, geographical location and ethnic or cultural variations (Elsabbagh et al, 2012).

Although autism is a global disorder, relatively little is known about its presentation and occurrence in many developing countries. This may be due to insufficient parental and professional awareness of ASD, in addition to invalidity of early intervention services (Vijaya Prasad, 2010).

Parents of autistic children play an important role in the oral health care of their children, as their perspective has an important bearing on health care decisions (Kenney et al, 2008 and Talekar et al, 2005). Moreover an awareness of parent perceptions regarding their children's oral health status, dental problems and the use of preventive dental care is important for paediatric healthcare providers (Kenney et al, 2008). Therefore, the aim of this study was to assess parental perception regarding the oral health of their autistic children in Khartoum state.

MATERIAL AND METHODS

The study population comprised of all parents of children with Autistic Spectrum Disorder (ASD) attending the educational and rehabilitation institutes in Khartoum State. The total number of special needs centres were 53 as obtained from the directorate of special needs in Ministry of Education- Khartoum State.

All of the headmasters of centres were called by phone to identify the current available numbers of autistic individual. Only 10 out of 53 centres were found to be offering care for ASD children; however, two of these 10 centres refused to inform the researcher about the numbers of autistic individuals and even more to collect the data and contact the parents. Since the total number of children with ASD attending educational and rehabilitation centres in Khartoum state was small, it was decided to include all of them in this study.

The data was collected between August and December (2013) based on two parts: First part was self-administered questionnaire adopted and modified from Abbasnezhad-Ghadi master thesis (Abbasnezhad-Ghadi, 2010), and was translated into Arabic because it is the main language of all Sudanese people. However, to ensure the identification of two copies questions it was translated back into English. The questionnaire was designed into twenty one close ended questions include two to four choice. These questions were collected into six sections; parent's background; parental perception regarding general and oral health of their children; oral hygiene habits; child's dental history and child's access to dental care. Questionnaires were sent to autistic parents with the assistance of the headmasters of autistic centres. The returned non-completed questionnaires were refilled by direct calling of the parents through telephone. The second section of the research was intra oral examination for autistic children to detect visible dental caries (DMF/dmf).

The data was processed and analyzed using computer software programs SPSS (Statistical Package for Social Sciences) version 16. Specific frequencies and percentages were obtained for all questions.

The Chi-square test was applied for testing the statistical significance of different associations between variables, and a level of probability if $p < 0.05$ was accepted as significant.

RESULTS

A total of 45 autistic children (34 boys and 11 girls) participated in this study in a ratio of 3:1 respectively, and their age ranged from 2 to16 years old (mean = 8.2 years) which categorized into three main age groups (Figure 1).

The response rate among eligible respondents in the present study was 69.2% (45 out of 65). The majority of participated parents of autistic children were mothers (73.3%) and (26.7%) were fathers and most of their education level (71.1%) either university or above (Table 1).

A good general health of autistic children was quoted by 77.8% of respondent's parents, most of those parents' level of education were university or above 68.6%. No statistical significance was found between Parents' perception of child's general health and level of education (*p*value=0.42) (Table 2)**.** While 64.4% of parents described their autistic children as having phobias (e.g. Sounds, new situations and touch, especially on the face), 80% of them claimed that their autistic children motivated by positive reinforcement.

Parents' perception of child's oral health

All autistic parents reported that oral health of their children was an important part of overall general health. 46.7% of the respondents' parents had recorded that, the oral health of their children was fair. Good oral health of autistic children had been recorded by 40% of the parents**.** A statistically significant association (*p* value=0.03) was found between the parents' education level and perception of child's oral health (Table 3).

Oral hygiene performance among autistic children

The majority of autistic children (80 %) brush their teeth under supervision. Concerning the frequency of brushing 68.9 % of them brush their teeth once a day and few of

Figure 1: distribution of autistic children gender according to age group

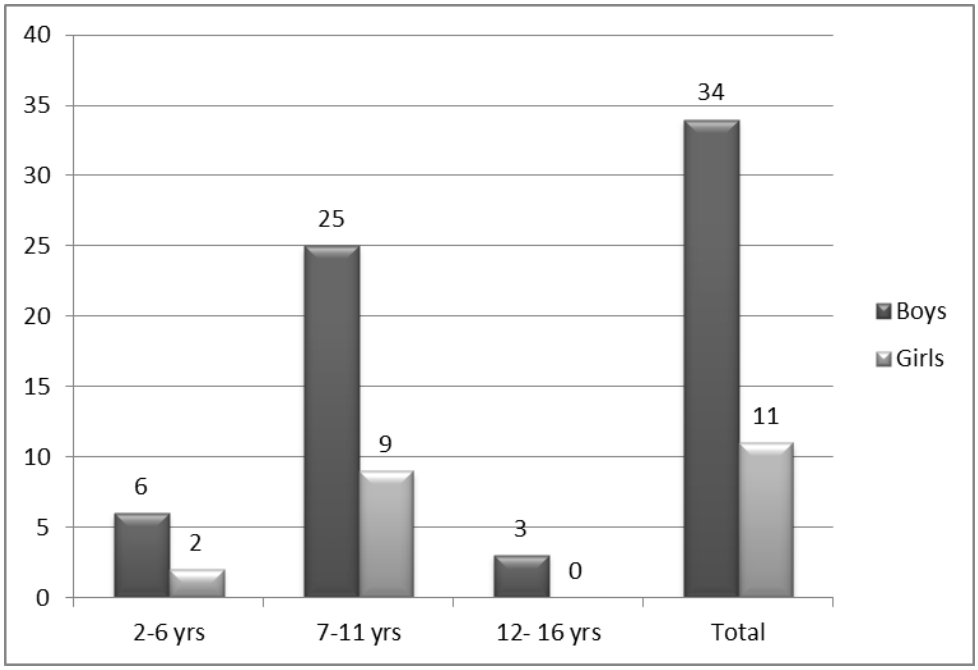

Table 1: Educational level of Parents of autistic children

	Level of education		
Relation to the child	**University level or above**	**High school level**	**Total**
Mother	23(51.1%)	10(22.2%)	33(73.3%)
Father	9(20%)	3(6.7%)	12(26.7%)
Total	32 (71.1%)	13 (28.9%)	45(100.0%)

Table 2: Association between parent's education level and perception of their autistic children general health

	Level of education		
Perception to general health	**University or above**	**High school**	**Total**
Good	24	11	35(77.8%)
Fair	7	2	9(20.0%)
Poor	1	0	1(2.2%)
Total	32	13	45(100%)

(*P* value=0.42)

them either twice or even other days. Manual toothbrush was commonly used, whereas very few used mouth wash (Table 4).

History of Visiting Dental Clinic by Autistic Children

While a large proportion of autistic children (66.7%) had no experience with dental clinic, few numbers of them had previous history of visiting dental clinic within less than 12 months (11.1%) or more (22.2%). Astatistically significant association **(***p* value= 0.01**)** was found between parental perception regarding the oral health of their children with the history of visiting a dental clinic (Table 5).

Concerning the group of autistic children who had an experience with dental clinic (15), most of them (73.3%) visited the dental clinic for the first time at the age of more than three years old; the reason for this visit was mainly for emergency dental care as mentioned by (46.7%) of the parents.

The current study showed that nearly 40% of

Table 3: Association between parent's education level and perception of their autistic children oral health

Parental perception of child's oral health	Level of education		Total (%)
	University level or above	High school level	
Good	10(22.2%)	8(17.8%)	18(40.0%)
Fair	16(35.6%)	5(11.1%)	21(46.7%)
Poor	6(13.3%)	0(0.0%)	6(13.3%)
Total	32(71.1%)	13(28.9%)	45(100%)

P value=0.03

Table 4: Oral hygiene performance among autistic children

Oral hygiene performance	Number of children (%)
Method of brushing	
Brush alone	9 (20.0%)
Brush under supervision	36 (80.0 %)
Frequency of brushing	
Two or more times a day	10 (22.2 %)
Once a day	31(68.9 %)
Less than that	4 (8.9 %)
Type of tooth brush	
Electric	5 (11.1 %)
Manual	4 0 (88.9 %)
Use of mouth wash	
Yes	2 (4.4 %)
No	43 (95.6 %)

Table 5: Association between parent's perception of child's oral health & history of visiting dental clinic

History of visiting dental clinic	Parent think about oral health of their autistic children			
	Good	Fair	Poor	Total
Never visited	15 (33.3%)	14 (31.1%)	1 (2.2%)	30 (66.7%)
Less than 12 month	0	4 (8.9%)	1 (2.2%)	5 (11.1%)
More than 12 month	3 (6.7%)	3 (6.7%)	4 (8.9%)	10 (22.2%)
Total children	18(40%)	21(46.7%)	6(13.3%)	45 (100%)

P value= 0.01

institutionalized autistic children were caries free. However, a SiC index was found high among them (Table 6). The majority of parents (70.6%) who their thought regarding oral health of their children were good, their autistic children were caries free. Also all parent who their thought were poor, their children's DMF/dmf were more than 3 (Table 7).

DISCUSSION

The response rate (69.2%) was less favourable as compared to the 97% obtained in study conducted in Florida (Capozza and Bimstein, 2012). The gender distribution of autistic children in our study was 3:1 for male to female ratio, which was consistent with other studies (NIMH, 2008; Vishnu Rekha, 2012; Al-Salehi, 2009).

The general health of autistic children was thought as good by the majority of respondent parents (77.8%), and only 2.2% had poor thought of general health. This finding is comparable to the result of study in Toronto, where 82.8% of parents described general health of their children as excellent/very good and good (Abbasnezhad-Ghadi, 2010).

Parental perception of child's oral health was assessed using a three scales (poor, fair and good) in the current study in order to avoid ambiguity and make judgment for parents as simple as possible. It was found that 40 % and 46.7% of the respondents' parents considered the oral health of their autistic children as good and fair respectively. A statistical significant association was found between the parent's perceptions of the child's oral health to their level of education (*p* value =0.03) and to

Table 6: Caries status of autistic children

	Index	
Dentition	**Mean DMF/dmf**	**SiC**
Primary	2.4	6.1
Permanent	0.83	1.9

Table 7: Association between parental perception and the caries status of their autistic children

	Parental perception towards oral health			
	Good	**Fair**	**Poor**	
Caries status DMF/dmf	**(N)**	**(N)**	**(N)**	**Total (%)**
Caries free	12(70.6%)	5(25%)	0	**17 (39.5%)**
1-3	2(11.8%)	12 (60%)	0	**14 (32.6%)**
>	3 (17.6%)	3 (15%)	6(100%)	**12 (27.9%)**
Total	17(100%)	20 (100%)	6 (100%)	**43 (100%)**

their children history of visiting dental clinic (*p* value =0.01). However, the perception of parents regarding the oral health of their autistic children was varied among available literature. Some studies show an agreement with this study while others elicit opposite perception. For example, on national based survey in Toronto USA, the majority of parents thought that the oral health of their autistic children between excellent/very good and good condition (Abbasnezhad-Ghadi, 2010; Kopycka-Kedzierawski and Auinger, 2008). In contrast whereas, only 13.3% of the respondents parents considered the oral health of their autistic children as poor, about 46% to 6% of those in Florida thought their child's teeth in a poor to very poor condition respectively (Capozza and Bimstein, 2012).

Although the parent's education level in our study was university level or above, a surprising result was obtained where a higher percentage (66.7%) of autistic children had no previous history of visiting dental clinics, unlikely the parents in a study conducted in Toronto whose their level of education had an important impact on dental access and markedly increased utilization of dental care (Abbasnezhad-Ghadi, 2010). A possible explanation for this is that level of education of Sudanese parents had no relationship to their awareness regarding dental care importance to an autistic individual.

It was not unexpected that all of the eligible parents considered oral health of their autistic children as an important part of overall general health, which was nearly similar to parents' thought of autistic children in Toronto (Abbasnezhad-Ghadi, 2010).

In the present study parents of autistic children reported that oral care at home or at the dental office was challenging for ASD children.

The majority of autistic children and adolescent in our study brush their teeth once a day, which was similar to the finding by Chadha in India (Chadha, 2012). About 80% of children in this study perform their teeth brushing under supervision despite the older age. This is consistent with Stein *et al* study who stated "The need for physical assistance may be due to a number of reasons, including: motor coordination difficulties impacting the ability to manipulate the tooth brush; un-cooperative behavior; and sensory sensitivities often experienced by ASD children" (Stein et al, 2012).

CONCLUSION

The main conclusions of this study are:

i.) Parents' education level had no impact on dental access for their autistic children.

ii.) The majority of parents described general health of their autistic children as good.

iii.) More than two third of the parents were well aware of the oral health status of their autistic children

iv.) Most of the parents who their perception regarding oral health of their autistic children were either good or fair, their autistic children encountered no previous history of visiting dentists.

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