



Comparative evaluation of the dental caries status among autistic and non-autistic children

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Abstract

A community based cross-sectional study was conducted at the National Autism Society of Malaysia. The objective of the study was to report the physical health status of children with autism in Malaysia. Sixty-nine children participated in study. Each child underwent a routine medical and oral health examination. Significant variation in weight, and oral health status was observed in the participants. As per CDC weight chart, 17% of the study populations were observed to be obese, 4% were overweight and 9% were underweight. Participants were also screened for routine medical examination for lung, heart and abdomen abnormalities. All were reported normal except 25% of study group showed low blood pressure. An examination of the oral health status of the participants revealed that 35% had plaque; 7% had calculus and 25% showed caries.

Keywords: Autism; health; children; obesity; oral status.



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Introduction

The objective of this study is to assess medical and oral health status of children with autism in Malaysian population and to help them by giving feedback to their caregiver. Autism term was introduced by the Swiss psychiatrist Eugene Bleuler in 1911; however the first research publication was reported in 1943 by Leo Kanner. Autism is therefore not a new challenge for society and healthcare, but has been existence with in society for over a century. The term Autism spectrum disorders (ASDs) encompasses Asperger syndrome, autistic disorder, childhood disintegrative disorder, Rett's syndrome and pervasive developmental disorder, not otherwise specified (PDD-NOS). The latter is also commonly known as autism (Johnson et al., 2007; Leo, 1971). ASDs are a compilation of developmental disorders mainly characterized by the disability in interacting with others because of inefficiency in verbal or/and non-verbal forms of communication. Children with autism also have some issues with specific behavioral patterns. It is shown in previous studies that 1 in 88 children in the United States are affected with a form of ASDs (Quigley et al., 2000). Males are more susceptible to ASD when compared to females, (males have a 1 in 54 chance and females have a 1 in 80 chance). Studies in Asia, Europe and North America have identified individual with an ASD with an average prevalence of about 1% (CDC, 2013). Though research has been conducted in this area, the condition of autism is not fully understood and very little is known about the modifiable risk factors for autism spectrum disorders (Henshaw, 1998). Obesity and eating habits in autistic children is one of the topics which has received much attention of researchers. Studies reported that children with ASD are selective eaters. Three studies reported that these children have preferences for starchy foods and consume significantly more servings of juices etc. compared with a control group (Evans et al., 2012). Obesity is one of the parameter studied by researchers who have found a varying prevalence of obesity in children and adolescents (Curtin et al, 2005; Dreyer et al, 2008; Sugiyama et al, 1991; Takeuchi et al, 1994; Xiong et al, 2009). Because of unusual dietary patterns and decreased access to opportunities for physical activity children with ASD are likely to be overweight. Rosser and Frey reported that autistic children spent less time in moderate activity compared to normal children. The authors observed a trend toward increasing prevalence of overweight with increasing age for children with ASD (Rosser and Frey, 2003). Obesity may have some effect on blood pressure however only a few researches have collected data on this parameter in different age groups (Majda et al., 1999; Jeff et al. 2002). Since children with autism tend to consume more sugary and starchy foods this may have some effect on oral health status therefore, we have done oral health screening for plaque, caries and calculus in study group. The study investigates medical and oral health status of children with autism in Malaysian population.

Method

A community based cross-sectional study was conducted at three centers of the autism Society in Malaysia. They were located in Klang valley, Malaysia. The study group consisted of sixty-nine participants between the age group of five to seventeen years old. Autism centers were provided with informed concern before the children were participated in study. Parents gave individual written consent to provide permission for the examination. Children with a severe level of autism were excluded from this study. Most of their child came with their parents or teachers to complete the general health screening for medical and oral health status. Medical parameters included health screening of children with autism for blood pressure, weight, height, BMI and routine health examination for lung, heart and abdomen. A manual blood pressure set was used to record blood pressure readings. Automated weighing machines were used to measure weight and body mass index. Oral health screening was conducted for caries, plaque and calculus. The general health examination was performed by qualified health professionals followed by a recommendation letter for follow up at their nearby government hospital.

Results

The total number of participants in this study was sixty-nine with an age group between five to seventeen years old. Participants were from three different races as shown in Table 1.

Table 1. Profile of socio-demographic characteristics among the participants of the study (N=69)



CHARACTERISTICS	Mean(SD)	N(%)
Age(Years)		
5 to 17	8.65(2.916)	-
Gender		
Female	-	9(12.9)
Male	-	53(75.7)
Ethnicity		
Malay	-	32(46)
Chinese	-	25(36)
Indian	-	12(17)

Out of sixty-nine participants 45% were reported with normal blood pressure, whereas 25% showed low blood pressure and 30% were non-supportive (Did not allowed professionals to take their blood pressure reading). The weight status of autistic children is shown in Table 2. Subjects were grouped as obese, underweight, normal and overweight according to CDC guidelines for Body Mass Index for age and sex (Mei et al,2002; Freedman et al,1999; Must and Anderson,2003; Whitaker et al,1997; Ferraro et al, 2003).

Table 2: Weight status of study population.

Characteristics	Mean	SD	%
Weight	32.64	16.83	-
Height	124.67	27.01	-
BMI	18.3	3.74	-
Underweight	-	-	9
Obese	-	-	17
Healthy	-	-	54
Overweight	-	-	4

Routine medical check-up for lung, heart and abdomen examination were all reported normal. Results of the oral health screening are shown in Table 3.

Table 3: Oral health status of children with autism (N=69).



Variables	N	%
Plaque	22	32
Caries	14	20
Plaque & Calculus	8	12
Mild gingivitis	2	3
Missing teeth	8	12
Healthy	15	22

Discussion

Our findings on obesity are in agreement with prior research on obesity (Amir et al, 2012). Prevalence of obesity and overweight were found more in teenagers compared to younger children. Overall medical health was good though some of them showed low blood pressure. Further researches on variation in blood pressure in autistic children will be recommended. Younger children were found to have good oral health status compared to the teenagers. Oral health status of study population showed significant presence of plaque and caries comparative to calculus in this study. To improve the oral health status of subjects, training the trainer work plan is recommended. The study was conducted at pilot investigation in order to generate results to raise awareness in society about the current health status of the children with autism. In the future, more in depth research is needed to focus more on the teenager study population for obesity and oral health status as not much research have been done on them. The small sample size and the exclusion of unsupportive children population were two limitations of this study, which may affect the realistic health status of the total autistic children population in Malaysia. This study provides useful baseline information on the general health status of autistic children in Malaysia. It will be useful, if health authorities could pay more attention to early intervention, screening and health promotion activities for children with autism.

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Competing interest

None declared

Reference

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