

The Oral Health of Autistic Children and its Impact on the Mental Health of Parents of Karachi, Pakistan

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ABSTRACT

Background: Autism spectrum disorder is a mental health disorder which affects the oral health of autistic children. The parents of autistic children have to come across various problems associated with mental health.

Objective: This study is conducted to assess the oral health of autistic children and its impact on the mental health of parents.

Methodology: A cross-sectional study was conducted among 150 parents of autistic children. Out of which 75 were mothers and 75 were fathers. Hence, (DASS 21) was used to assess depression, anxiety and stress of parents. SPSS version-23 was used to analyze the data by applying independent t-test and Pearson product-moment correlation coefficient. ($P \leq 0.05$) was considered significant.

Results: The findings of the study revealed that autistic children have poor oral health status. Oral symptoms such as caries ($p < 0.001$), bad breath ($p < 0.001$), gingivitis ($p < 0.001$), and breathing from mouth ($p < 0.001$), biting of objects ($p < 0.05$) and unfavorable experience of dentist ($p < 0.001$) was highly significant among autistic children. Hence no significant difference was observed in dietary pattern of autistic children. Depression, anxiety and stress were observed among the parents of autistic children.

Conclusion: Dental Carries, bad breath and gingivitis was commonly seen among the autistic children due to poor oral hygiene. In this situation when children are unable to understand parents. It becomes a challenging situation for parents leading to depression, stress and anxiety.

Keywords: Autism spectrum disorder, Mental health, Oral health

INTRODUCTION

According to American Psychiatric Association Autism Spectrum Disorder is defined as “neurodevelopment disorder which has various complications associated with social interaction and communication along with restrictive and repetitive patterns in behaviors, interests, and activities as a result of which daily life functioning is affected. The terminology ‘spectrum’ is used to define its heterogeneity and severity of symptoms of an autistic individual (1). Hence for Autistic children it is usually difficult to convey their message to their surroundings and they are sensitive to specific shades of color, noise, odor, temperature and touch (2). With time the prevalence of ASD has been at rise although the cause is still unknown. According to most of the researchers genetic, environmental and developmental are the main etiological factors of ASD (3). The oral health of autistic Children is usually affected due to which dentists have to come across number of challenges while dealing such children (4). The literature have shown that autistic children have not maintained their oral hygiene along with poor periodontal status, they are more prone to caries, dental traumatic injuries and self-extraction of teeth was also observed as compared to other children (5,6,7). Excessive bruxism, thrusting of tongue and biting of lips is also observed among autistic children (8). Mental health of parents is an essential component when an individual has to deal disable family member especially if it is a child (9). It is one of the biggest challenges for the parents to raise an autistic child. Parents of such children report with various levels of stress(10). Studies conducted in Europe, America

and Middle East have reported contradictory findings regarding the challenges of autistic children (11, 12, 13). However, the risks of oral health problems of autistic children and its impact on the mental health of the parents of Pakistani children are still unexplored and inadequate.

MATERIAL AND SUBJECTS

A cross-sectional study was conducted among the autistic children from September-December 2021 of Karachi, Pakistan. Permission was taken from the school to conduct the study and inform consent was taken from the parents of children. The study included total 150parentsautistic children both boys and girls belonging to age group (2-16) years. Thequestionnaire which was designed and filled by parents consisted of two components.The first component consisted of demographic characteristics of children such as age, gender.The second component of questionnaire consist the details of frequency of tooth brushing, does the child depend on parents for tooth brushing, frequency of sugar intake and other food items, previous dental experience and dental habits such as nail/lip/plastic biting, tongue thrusting, drooling and halitosis.Likert scale was used to record the responses.The examination of the students was done by experienced dentists.Depression, anxiety, and stress of the parents were measured by a validated scale(DASS-21) (19).Data analysis was done using Statistical Package forSocial Sciences (SPSS) version-23. The significant value is < 0.05 . Descriptive statistics were calculated forSocio-demographic characteristics. Independent sample t-test was applied

along with Pearson product-moment correlation which was used to assess the association between different variables.

RESULTS

Total 150 parents were enrolled in the study, out of which 75 were mothers and 75 were fathers of autistic children. The responses of the questionnaire filled by parents were given in Table 2. Mostly autistic children were boys 94 (62%) and girls were 56 (37%). Hence, prevalent symptoms associated with oral health were caries ($p < 0.001$), halitosis ($p < 0.001$), gingivitis ($p < 0.001$), and breathing from mouth ($p < 0.001$), biting of objects ($p < 0.05$) and unfavorable experience of dentist ($p < 0.001$). Further the autistic children were unable to brush the independently ($p < 0.001$). Different levels of depression, anxiety and stress was also observed among the parents as shown in table 3.

Table 1: Descriptive statistics of Socio-demographic characteristics (n=150)

| Variable | n | % |
|--------------------------|--------------|-------|
| Age (Mean±SD) | 5.5±3.5years | - |
| Gender | | |
| Boys | 94 | (62%) |
| Girls | 56 | (37%) |
| Severity level of autism | | |
| Mild | 65 | 43% |
| Moderate | 60 | 40% |
| Severe | 25 | 16.6% |
| History of Education | | |
| Going to normal school | 24 | 16% |
| Special children school | 89 | 59% |
| Not pursuing education | 37 | 24% |

Table 2: Responses of parents and their association with p value

| Questions | Never | rarely | sometimes | often | always | p value |
|---|-------------|-----------|-----------|-----------|-----------|---------|
| 1-How frequently does the child brushes his/her teeth? | 237(94.8%) | 40(16%) | 3(1.2%) | 2(8%) | 8(3.2%) | 0.001* |
| 2-Does the child brush the teeth independently or with the help of his/her parents? | 238 (95.2%) | 52(20%) | 2(0.8%) | 8(3.2%) | 6(2.4%) | 0.001* |
| 3-Does the child breathe through mouth? | 241(96.4%) | 29(11.6%) | 2(0.8%) | 3(1.2%) | 1(0.4%) | 0.001* |
| 4-Does the gums of the child bleed on brushing? | 43(17.2%) | 3(1.2%) | 64(25.6%) | 65(26%) | 49(19.6%) | 0.288 |
| 5-How frequently does the child take sugar? | 55(22%) | 54(21.6%) | 57(22.8%) | 56(22.4%) | 59(15.6%) | 0.092 |
| 6- Does the child have any carious tooth present in oral cavity? | 36(14.4%) | 62(24.8%) | 57(22.8%) | 56(22.4%) | 59(15.6%) | 0.001* |
| 6-Does the child have any previous dental treatment? | 23(9.2%) | 41(16.4%) | 53(21.1%) | 83(33.2%) | 49(19.6%) | 0.001* |
| 7-Does the child have any dental habits such as Nail/lip/plastic biting, tongue thrusting, drooling | 3(1.2%) | 62(24.8%) | 57(22.8%) | 56(22.4%) | 59(15.6%) | 0.001* |
| 8- Does the child suffer from halitosis | 29(11.6%) | 49(19.6%) | 64(25.6%) | 3(1.2%) | 2(0.8%) | 0.001* |

Table 2: (DASS-21) scale use to assess depression, anxiety and stress level of parents

| DASS-21 Scoring range | Depression (%) | Anxiety (%) | Stress (%) |
|-----------------------|----------------|-------------|------------|
| Normal | 38.6% | 50.8% | 50.8% |
| Mild | 18.8% | 14.5% | 24.4% |
| Moderate | 22.1% | 12.9% | 14.5% |
| Severe | 8.9% | 6.6% | 0% |
| Extremely severe | 6.6% | 4.4% | 2.2% |
| Mean score (±SD) | 6.10±3.80 | 4.0±3.30 | 5.8±4.10 |

DISCUSSION

Autism spectrum disorder (ASD) is one of the emerging disabilities which are commonly seen among every other children of today's world (14). It is still unknown that the number of autistic children has been increased due to rise in awareness among the masses regarding this disease or there is actual increase in number of autistic children. The literature reveals that oral health of autistic children is very poor (15). Oral examination of autistic child has become one of the difficult tasks due to uncooperative behavior and lack of communicational skills of such children. The literature have shown that autistic children have to experience more hurdles at home, school and hospitals as compared to normal healthy children (16). The results of study revealed that there are more boys as compared to autistic girls. Similar results were revealed in other studies conducted in other parts of the world (1, 4, 6). In this study, autistic children had poor oral hygiene leading to number of oral health issues which is mainly associated with behavior

disorders. Dental caries could be one of the possible causes (16). Literature has shown that like all other children autistic children also take more sweet and sticky food (17). Various studies have been conducted globally to determine the aspects of autism. In this study oral health assessment was done of autistic children. The results of the study revealed that autistic children have significantly higher chances of carious tooth, halitosis, gingivitis and breathing through mouth. Similar results were seen in a study conducted by Qiao Y et al. in China in 2020 (20). Halitosis is also known as Oral malodour, which is defined as a bad smell from the breath. According to literature approximately 855 of patients suffers from halitosis which is mainly due to poor oral health conditions (21). Oral hygiene is badly neglected when an autistic child is unable to brush the teeth independently. Due to lack of proper brushing plaque is accumulated at inter dental spaces leading to halitosis ultimately to gingivitis and periodontitis (20). Similar results were seen in a study conducted by Schertel et al. in which halitosis was observed among autistic children (21). The results of the study did not show any significant difference in dietary pattern and intake of sugar. In 2014, a study was conducted in Egypt by El Khatib et al. which also showed no significant difference in sugar intake (22).

In this study parents have also been included as they filled the questionnaire regarding the oral health of their children along with their own mental health status. Parents are the ones who look after the child and play a role of caretaker. The stress of parents have been

doubled when a child is diagnosed with autism. The results of the study revealed that high levels of depression, anxiety and stress was developed among the parents. In 2020, similar results were revealed in a study conducted by Selvakumar et al. in India. Hence, gradual development of a child builds an emotional stress among the parents. This could be due to lack of support from the surroundings and family. Parents move to next step only if they realize and accept the fact that a child is autistic. Usually in Asian countries parents have lack of awareness, fail to accept that the child is autistic due to which interventional management is delayed (19). However parents of autistic children are unable to modify the situation but this problem can be addressed by giving more attention to the mental health of parents by implementing proper interventional strategies which will not only reduce the stress but also improve the quality of life. A detailed assessment of mental health should be provided to the parents of autistic children by screening the mental distress. Mental health education should be provided with proper coping strategies. There is a dire need to address psychological distress for healthy lifestyle. Hence small sample size and single center study are the main limitations of the study. Oral cavity is an essential component which should not be neglected at any stage of life. To address oral health issues a specific oral management should be followed along with other associated factors.

CONCLUSION

Autistic children are more prone to oral health issues due to lack of proper brushing. No significant difference was observed in the dietary pattern of autistic children. Counseling of parents was emphasized regarding the oral health of their children. The lack of capability of a child to understand the basic things of life becomes one of the most important factors for the development of depression, anxiety and stress among the parents. Hence in this situation the confidence of parents should be built to overcome the challenges.

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