

Dental Care Barriers and Oral Hygiene Challenges for Parents of Children with Autism Spectrum Disorder

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Citation of this Article: Dr. Reem AlMadani, Dr. Sunil Babu Kotha, Madawi M. Al Otaibi, Dr. Mohammed S. Aldossary, “Dental Care Barriers and Oral Hygiene Challenges for Parents of Children with Autism Spectrum Disorder”, IJDSIR- April - 2020, Vol. – 3, Issue -2, P. No. 311 – 322.

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Autistic children as a result of the intellectual deficiency which interferes with their normal functions, require more care and supervision in all their activities in life, including those related to their oral health. The oral health of autistic children may be neglected because of their special needs, lack of cooperation or communication, difficulties during teeth brushing, or limited access to oral health care.

Aims:To report oral hygiene challenges for parents and factors impacting on oral health of their autistic children, and to investigate the barriers to dental care services for their children.

Methods:Cross-sectional survey using 50-items questionnaires were completed by 142 parents of autistic children enrolled in two societies of autism in Riyadh. The questionnaire addressed information of socio-demographic, at-home oral hygiene practice and

challenges, previous dental visits, and barriers to dental care. Descriptive, Chi-square, Pearson’s correlation, and multiple logistic regression analysis were performed with significance level of $P < 0.05$.

Results: The mean age of children was 7.8 years old (SD: 2.9), with male to female ratio of 3.9:1.

Parents reported their children brushing once (35.2%), or twice a day (12%). 35.9% brushed on an irregular basis, and 16.9% not brushing at all. Supervision while brushing was a challenge for 49.2% of parents. 27.1% of the children had gingival bleeding during brushing. History of dental trauma was reported by 31%.

31% of the children had no previous dental visit, 32.7% had undergone dental treatment under general anesthesia. Most barriers to dental care were: Cost (75.4%), finding a dentist treating their autistic child (74.6%), and behavior of their child (45.1%). 62% of parents never received preventive dental education. Noise

at dental clinics was the most trigger of their autistic child (43%).

Child's age, socioeconomic status, and severity of autism were not significant predictors of the challenges at-home or in dental clinics ($P>0.05$).

Conclusions: Parents of children with autism experience difficulties and barriers to dental care in both at-home and dental clinics. Children in this study showed improper oral hygiene practices and insufficient dental visits necessitating the urgent need for effective preventive programs for this population.

Introduction

Autism spectrum disorder (ASD) is a complex neuro-developmental condition that cause significant social, communication and behavioral challenges. (Gandhi and Klein, 2014). The behavioral abnormalities that characterize ASD include a developmental impairment of reciprocal social interaction, a restricted repertoire of activities and interests and impairments in verbal and nonverbal communication skills (Gupta, 2014).

Most autistic children have problems with their day to day activities such as eating, drinking, sleeping, bathing and tooth brushing (Gandhi and Klein, 2014). Maintaining good oral hygiene in children with ASD is a difficult task for children and their parents because of hypersensitivity to various stimulus and lack of manual dexterity (Murshid, 2014). There is an evidence that children with ASD, had poor oral hygiene, elevated plaque levels, and greater prevalence of periodontitis, compared to healthy children (Jaber, 2011; Vajawat and Deepika, 2012).

Furthermore, they have more untreated oral diseases and have problems in accessing oral health services and finding a dentist because these children present a special challenge to the dental health care team and difficult to treat (Lai et al., 2012; Richa et al., 2014). Many parents do not take their ASD children to the dentist because of the

highly uncooperative behavior of their autistic children and the cost of dental treatment under general anesthesia when needed (Loo et al., 2008; Jaber, 2011).

Children with ASD as a result of the intellectual deficiency which interferes with their normal functions, require more care and supervision in all their activities in life, including those related to their oral health (Richa et al., 2014). However, the oral health of autistic children may be neglected because of their special needs, lack of cooperation or communication, difficulties during teeth brushing, or limited access to oral health care (Gupta, 2014).

Cooperation of autistic children is another issue, which plays an important role in determining whether the parents would take them to dentist or not. However, dental care in public healthcare setups has been seen to be satisfactory when it comes to the provision of dental treatment to children with autism (Fahlvik-Planefeldt and Herrstrom, 2001). Furthermore, several techniques can be utilized by the dental practitioners when treating autistic patients in order to control their behavior. One of these methods includes positive reinforcement, tell, show and do. It was noticed from the findings that almost fifty percent of the patients were examined (Lowe and Lindemann, 1985).

The aims of this study were to

- 1- Investigate the views and experiences of parents of children with Autism regarding oral healthcare.
- 2- Explore oral hygiene challenges for parents and factors impacting on oral health of their autistic children.
- 3- Investigate the barriers to dental care services for their children.

Materials and Methods

Cross-sectional survey using 50-items questionnaires were completed by 142 parents of autistic children enrolled in two societies of autism in Riyadh. The questionnaire addressed information of socio-demographic, at-home oral

hygiene practice and challenges, previous dental visits, and barriers to dental care. Descriptive, Chi-square, Pearson's correlation, and multiple logistic regression analysis were performed with significance level of $P < 0.05$.

Study Design: Cross-sectional survey.

Setting: Two societies in Riyadh, Saudi Arabia: Charitable Society of Autism Families, and Saudi Society of Autism.

Participants: Parents of autistic children attending these two societies.

Methods (Procedures)

- Ethical Approval – Informed written consents.
- Self-administered questionnaire and systematic interviews (to be validated):
 - **Invited parents:** Socio-demographic, educational level, and age for both the parent and the child. Additionally, the child medical history.
- Personal in-depth interview with the caregiver: using structured form with open-ended and close-ended questions addressing the following areas:
 - Oral hygiene practice routine: frequency, duration, using of manual or powered toothbrush, supervision and assisting in teeth brushing.
 - Challenges during oral hygiene practice (teeth brushing) at home: behavioral, communication, cooperation.
 - Dental visits: Ease of access to dental care, difficulty finding a dentist willing to provide care, dental treatment done and cooperation, and any oral health care information received.
 - Other specific challenges/ barriers.

Data Analysis

- Descriptive statistics: count and frequency distributions.

- Chi-square test to compare categorical variables (between different factors), Pearson's correlation and multiple logistic regression analyses for the association between variables
- The significance level: $p < 0.05$

Results

The mean age of children was 7.8 years old (SD: 2.9), with male to female ratio of 3.9:1. Parents reported their children brushing once (35.2%), or twice a day (12%). 35.9% brushed on an irregular basis, and 16.9% not brushing at all. Supervision while brushing was a challenge for 49.2% of parents. 27.1% of the children had gingival bleeding during brushing. History of dental trauma was reported by 31%.

31% of the children had no previous dental visit, 32.7% had undergone dental treatment under general anesthesia. Most barriers to dental care were: Cost (75.4%), finding a dentist treating their autistic child (74.6%), and behavior of their child (45.1%). 62% of parents never received preventive dental education. Noise at dental clinics was the most trigger of their autistic child (43%). Child's age, socioeconomic status, and severity of autism were not significant predictors of the challenges at-home or in dental clinics ($P > 0.05$).

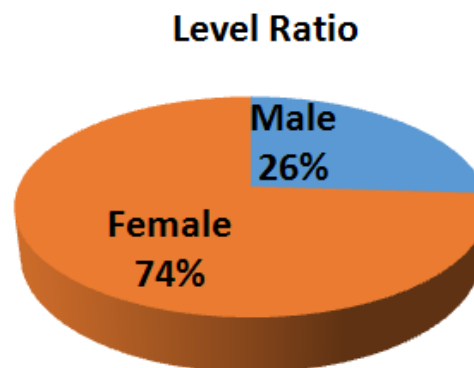


Fig. 1: Gender Ratio

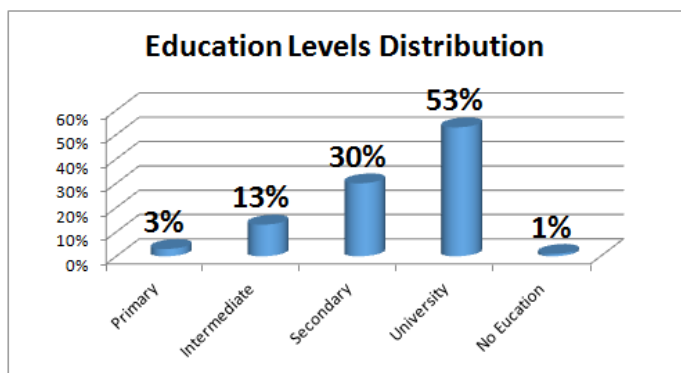


Fig. 2: Education Level Distribution of study Participants

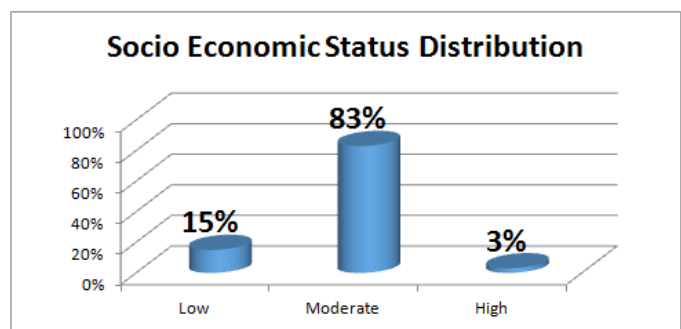


Fig. 3: Socio Economic Status Distribution of study Participants

Table 1

Parents:	
Mother	108 (76.1%)
Father	34 (23.9%)
Parents' Age	Range: 22 to 57 [Mean: 38.0, SD: 6.8]
Parents' Education level:	
Primary	4 (2.8%)
Intermediate	17 (12%)
High school	40 (28.2%)
University	81 (57%)
Social Class: [Income]	
Low	18 (12.7%)
Moderate	118 (83.1%)
High	6 (4.2%)
Siblings:	Range 0-9
No	8 (5.6%)
Yes	134 (94.4%) Mean Number=

	2.8 SD=1.9
Schools:	
No	35 (24.6%) [of them n=14 older than 6 years] = 11.6%
Private	(14/121), school aged
Government (Public)	BUT not going to school
	66 (46.5%)
	41 (28.9%)
Insurance:	
No	107 (75.4%)
Yes	35 (24.6%)

Table 2

Autistic Children	M:F ratio = 3.9:1
Male	113 (79.6%)
Female	29 (20.4%)
Age	Range: 2.5 to 16 [Mean: 7.8, SD=2.9]
Severity of Autism:	
Mild	50 (35.2%)
Moderate	80 (56.3%)
Severe	12 (8.5%)
Autism diagnosed at age of:	Range: 1 to 6 [Mean: 3.2, SD=1.1]
Medications:	
None	66 (59.5%)
RISPERDAL® (Risperidone/	29 (26.1%)
Risidone)	5 (4.5%)
Depakene (Valproic Acid)	5 (4.5%)
CONCERTA® (methylphenidate HCl)	4 (3.6%)
Strattera (Atomoxetine HCl)	
Other Diagnoses	
None	30 (21.1%)
ADHD	94 (66.2%)
Mental retardation	26 (18.3%)

Other	6 (4.2%)
Communication with the child:	95 (66.9%)
Speech	68 (47.9%)
Looking/signs	39 (27.5%)
Hearing/Listening	32 (22.5%)
Touching	
Medical Problems:	
None	34 (26.1%)
Speech	93 (65.5%)
Allergy	17 (12%)
Epilepsy	8 (5.6%)
Dry mouth	6 (4.2%)
Asthma	5 (3.5%)
Vomiting	4 (2.8%)
Cardiac	3 (2.1%)
Blood disease	3 (2.1%)
Things that bother the child [Triggers]:	18 (12.7%)
None	103 (72.5%)
Noise	28 (19.7%)
Touch	17 (12%)
Light	
Self-Injury/hurt:	
No	116 (81.7%)
Yes	26 (18.3%)
Injury/hurt to others:	
No	119 (83.8%)
Yes	23 (16.2%)

Table 3

Brushing Frequency:	
Not at all	24 (16.9%)
Less than Once a day	51 (35.9%)
Once per day	50 (35.2%)
Two or more per day	17 (12%)

Brushing by:	[Among children brushing; n=118]
Self	25 (21.2%)
Mother	76 (64.4%)
Family member	17 (14.4%)
Allow brushing supervision?	[Among children brushing; n=118]
Yes	60 (50.8%)
Sometimes	46 (39%)
No	12 (10.2%)
Fluoride in tooth paste?	[Among children brushing; n=118]
Yes	55 (46.6%)
No	23 (16.2%)
I don't know	40 (28.2%)
Type of toothbrush:	[Among children brushing; n=118]
Manual	104 (88.1%)
Electronic	14 (11.9%)
Gingival bleeding while brushing?	[Among children brushing; n=118]
No	86 (72.9%)
Sometimes	25 (21.2%)
Yes	7 (5.9%)
Parent's opinion about child's oral health:	18 (12.7%)
Bad	84 (59.2%)
Moderate	40 (28.2)
Good	
Mouth wash?	
No	126 (88.7%)
Sometimes	16 (11.3%)
Yes	0 (0%)
Dental floss?	
No	136 (95.8%)

Sometimes	4 (2.8%)
Yes	2 (1.4%)
Chewing gum?	
No	83 (58.5%)
Yes, sugar type	54 (38%)
Yes, sugar-free type	5 (3.5%)
Bruxism?	
No	112 (78.9%)
Yes, awake	17 (12%)
Yes, sleep	13 (9.2%)
Bad oral habits:	
None	35 (24.6%)
Nails bite	35 (24.6%)
Using teeth for cutting & opening	22 (15.5%)
Finger sucking	19 (13.4%)
Tongue thrust	12 (8.5%)
Lip bite	11 (7.7%)
History of Dental Trauma?	
No	98 (69%)
Yes	44 (31%)
Favorite Food:	
Sweets	67 (47.2%)
Carbohydrates	63 (44.4%)
Juices	61 (43%)
Vegetables & fruits	33 (23.2%)

Table 4

Had been to a dentist?	
Yes	98 (69%)
Never	44 (31%)
Regular dental visits?	[Of the 98 children had been to a dentist]
Yes	28 (28.6%)
No	70 (71.4%)

Last dental visit:	[Of the 98 children had been to a dentist]
< 6 months	26 (26.5%)
6-12 months	20 (20.4%)
> 1 year	52 (53.1%)
Same dentist of siblings?	[Of the 98 children had been to a dentist]
No	69 (70.4%)
Yes	29 (29.6%)
Sector Type:	[Of the 98 children had been to a dentist]
Private	71 (72.4%)
Public	27 (27.6%)
Dentist specialty:	[Of the 98 children had been to a dentist]
Pedodontist	55 (56.1%)
General dental practitioner	30 (30.6%)
I don't know	13 (13.3%)
Previous Bad Dental experience?	[Of the 98 children had been to a dentist]
Yes	42 (42.9%)
No	56 (57.1%)
Difficulty finding dental care?	
Yes	97 (68.3%)
No	45 (31.7%)
Cost of treatment affect seeking dental care?	
Yes	107 (75.4%)
No	35 (24.6%)
Child's behavior affect seeking	

dental care?	64 (45.1%)
Yes	78 (54.9%)
No	
Difficulty finding a dentist who accepts autistic children?	
Yes	106 (74.6%)
No	36 (25.4%)
Dental treatment done:	[Of the 98 children had been to a dentist]
Restorations	
Extractions	
Examination only	40 (40.8%)
Prophylaxis/polishing	34 (34.7%)
Topical fluoride application	29 (29.6%)
	25 (25.5%)
	14 (14.3%)
Dental treatment under:	[Of the 98 children had been to a dentist]
No LA	
LA	
Nitrous oxide	23 (23.5%)
GA	40 (40.8%)
	14 (14.3%)
	32 (32.7%)
Received education about the health of your baby's teeth?	
Yes	54 (38%)
No	88 (62%)
Things that bother your child when he goes to a dentist:	
Noise	61 (43%)
Instruments shape	27 (19%)
Touching	23 (16.2%)
Dentist's attitude	19 (13.4%)
Light	16 (11.3%)
Taste	15 (10.6%)
Smell	9 (6.3%)

	Does your child allow you to help him brush?	Do you have difficulty getting dental appointments?
Age	-.006	.039
Occupation	.116	-.135
Education	.022	.023
Standard of living	-.011	-.009
Autism Intensity	.215	.046

Table: Pearson's Correlations among variables

Regression

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.939	.690		2.811	.006
Age	-.005	.012	-.037	-.393	.695
Education	-.006	.106	-.005	-.053	.958
StandardofLiving	-.044	.236	-.018	-.185	.854
Autism Intensity	.225	.137	.154	1.637	.104

a. Dependent Variable: DoesYourChildAllowsYouToHelpHimBrush

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.354	.332		4.073	.000
Age	.005	.006	.085	.908	.366
Education	.005	.051	.010	.108	.915
StandardofLiving	-.006	.114	-.005	-.055	.956
Autism Intensity	-.148	.066	-.208	-2.233	.027

a. Dependent Variable: DoYouHaveDifficultyGettingdentalAppointments

Item	Child Gender	Autism Intensity
Gender	0.986	0.552
Age	0.607	0.123
Occupation	0.842	0.526
Education	0.479	0.641
Standard of Living	0.180	0.712
Does Your child have brothers and sisters	0.750	0.179
Number of children	0.062	0.669
Where is the child studying	0.397	0.132
Does your child have medical insurance?	0.326	0.564
Child Age	0.337	0.133
What age Autism was diagnosed	0.351	0.000
What medicine you used for autism child?	0.449	0.732
Additional condition or syndrome	0.067	0.103
How to communicate with the child	0.510	0.266
Any health problems	0.822	0.483
Things that bother your child	0.733	0.012
Does your child hurt himself	0.869	0.193
Does your child hurt others?	0.595	0.932
How often your child brush his teeth	0.545	0.167
Does your child brush his teeth with the help of someone?	0.132	0.948
Does your child allows you to help him brush?	0.080	0.253
Does your child have a habit	0.351	0.392

of grinding his teeth?		
Does your child have bad habits?	0.899	0.124
What is your child's favorite eating	0.583	0.810
Does your child toothpaste contain fluoride?	0.550	0.077
What do you think of your child's teeth and gums	0.739	0.036
Does your child's gum bleed while brushing his teeth	0.972	0.363
Does your child eat frankincense	0.884	0.857
What type of brush your child use?	0.759	0.534
Does your child use a mouth rinse	0.913	0.784
Does your child use dental floss	0.494	0.540
Are there previous injuries to mouth and teeth	0.462	0.021
Does your child go to dentist regularly	0.710	0.963
When was your child's last visit to the dentist	0.722	0.767
Do all your children go to the same dentist	0.285	0.280
Do you have difficulty in getting dental appointments	0.096	0.077
Where is your child's teeth treated	0.561	0.026
Does cost of treatment affect your care	.023	0.739
Do you consider your child's actions	0.310	0.190

Dentist that accepts your child for autism treatment	0.467	0.285
What type of dentist your child visiting	0.046	0.098
Does your child have bad experience	0.719	0.776
What treatment have you done	0.625	0.855
How your child was treated	0.348	0.094
Have you received medical advice and education	0.350	0.978
What are the most important problems	-	-
What are the things that bother your child	0.978	0.202

Discussion

In Saudi, children with developmental disorder are unable to have a good oral care routine at home as compared to children who are mentally and socially healthy. Our study have shown similar results to the studies conducted present in the literature. The only difference that was found in the results was the use of fluoride in the autistic children(Barry, O’Sullivan and Toumba, 2013).

In 2012, a study conducted by Lauren in USA discovered that children with autism consumed toothpaste with less fluoride and also didn’t consume fluoridated water. Although their parents supported the use of both. The difference between the studies conducted in the USA and Saudi is that the parents of both the autistic and healthy children agreed to the use of fluoride toothpaste but didn’t support the consumption of fluoridated water(Brown, Brown and Woodburn, 2014).

Parents have faced much difficulty in helping out their children brushing their teeth specifically in physically assisting as compared to the healthy children’s parents. The main and obvious reason behind this is the lack of social interaction and communication of the children

suffering from autism. This becomes a proper challenge for the caretakers or parents of these children. Other reasons might include the divided attention of the parents towards their child’s other needs and problems(Samadi and McConkey, 2009).

Once the children get used to not flossing and brushing their teeth, it becomes more difficult to change this habit(Vasilopoulou and Nisbet, 2016).

The core reason behind not brushing and flossing is that the autistic children are over sensitive towards the senses including sounds, smells and tastes due to which they even dislike the taste of paste. This was discovered statistically as only 15.4% of the healthy children had this issue while 83.3% of the autistic children are having this issue(Chan and Lam, 2018).

Parents in this study have suggested some suitable methods to overcome these problems as they have stated that if they follow the same brushing routine as their children, their children will themselves start following the brushing routine. And after some time, they will themselves start to brush their teeth regularly under their observation. Besides this, many parents have told that using electrical toothbrush makes it easy or reduces the energy required by their children. Many parents have tried the method of dipping the brush in fluoride mouthwash which makes the taste for the children bearable(Rayan and Ahmad, 2016).

A notable difference was observed between children for which we divided them into groups, the fact seems quite obvious that the number of autistic children visiting dentists is much less than healthy children. In United Kingdom there was not much difference between the number of healthy and autistic children visiting the dentists on regular basis. In the city of Riyadh, Saudi Arabia the number of autistic children visiting the dentist was quite impressive as 65% of them visited on the

regular basis but very few of them get their treatments done properly due to their resisting behavior in the office(Sinha, Verma and Hershe, 2016).

Autistic children, according to the stats autistic children visit general dentists more (33.8%) than the pediatric dentists 22.5%. this has gradually increased the behavioral problems among the autistic children as the general dentitions are not trained at required level comparatively to deal with such children (Delli et al., 2013).

Although the pediatric dentists are so important when it comes to the managing of autistic children and healthy children too in general behavior, people are not much aware of their importance in the society. Another reason behind this matter can be that in the government system dealing with dentistry, the general dentists are to be visited by the people who will then refer them to the pediatric dentists. This must be the routine of the procedure but after when the general dentitions refer the patients to pediatric dentists, they might not take their children to them. The reason might be the experience that the parents had at the general practitioners(Mohamed Rohani et al., 2018).

Our study showed that the most visits autistic children made to the dentists was for extractions, the for fillings and then checkups. In the case of the healthy children, most visits were for fillings, then for extraction and lastly for the checkups. This shows that the irregular visits to dentists and the behavior that the autistic children have towards the treatments, the only option left to deal with affected tooth is the extraction. There was another finding that the autistic children, due to having more carious surfaces get their teeth crowned more than the healthy children, as crowning becomes more preferable. Furthermore doctors prefer to crown the teeth which last longer and is suitable for such non cooperative children(Ku, Stinson and MacDonald, 2019).

Out of 35% autistic children who have never visited the dentist for a long time, the most common reason behind the fact is the children are too stubborn when it comes to coping up with their behavior while treating them. Many parents have also stated that they find it difficult to find a suitable dentist who can deal with such behavior and autistic children. Moreover many said that their children have been very afraid of the treatments, as they have never visited before plus the general practitioners finding it difficult to deal with this behavior(Stein Duker et al., 2017).

Physically convincing them to set their brushing routine or visit the dental clinic is even more difficult as being comfortable with parents, it's easy for them to say NO to them. Many parents have mentioned that their child finds it difficult to sit and wait in for their turn in the clinic as they get more anxious and agitated. And so the children won't sit patiently or sit still in the waiting room as they are afraid to be the next one to get treated. This makes the parents uncomfortable too as they feel ashamed in front of the other parents(Lloyd, Osborne and Reed, 2019).

There was not any notable difference between the autistic children and their siblings in their visits to the dentists as in Saudi most of the residents have health insurance which includes dental treatment too. Furthermore in governmental hospitals and clinics the patients are treated free of cost by the Ministry of health dental clinics. Besides this, government has provided free treatment for all the autistic children and children with other difference special needs whether they have the nationality or not(McDaniels, 2016).

Conclusions

Parents of children with autism experience difficulties and barriers to dental care in both at-home and dental clinics. Children in this study showed improper oral hygiene practices and insufficient dental visits necessitating the

urgent need for effective preventive programs for this population.

References

1. Gandhi, R. P. & Klein, U. (2014) Autism spectrum disorders: an update on oral health management. *Journal of Evidence Based Dental Practice*. 14115–126.
2. Gupta, M. (2014) Oral health status and dental management considerations in autism. *Int J Contemp Dent Med Rev*. 201411114.
3. Fahlvik-Planefeldt, C. and Herrstrom, P., 2001. Dental care of autistic children within the non-specialized Public Dental Service. *Swed Dent J*, 25(3), pp.113-118.
4. Lowe, O. and Lindemann, R., 1985. Assessment of the autistic patient's dental needs and ability to undergo dental examination. *ASDC journal of dentistry for children*, 52(1), pp.29-35.
5. Jaber, M. A. (2011) Dental caries experience, oral health status and treatment needs of dental patients with autism. *Journal of Applied Oral Science*. [Online] 19 (3), 212–217.
6. Lai, B. et al. (2012) Unmet dental needs and barriers to dental care among children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*. [Online] 42 (7), 1294–1303.
7. Loo, C. Y. et al. (2008) The Caries Experience and Behavior of Dental Patients With Autism Spectrum Disorder. *The Journal of the American Dental Association*. [Online] 139 (11), 1518–1524.
8. Murshid, E. Z. (2014) Diet, oral hygiene practices and dental health in autistic children in riyadh, saudi arabia. *Oral health and dental management*. 13 (1), 91–96.
9. Richa et al. (2014) Oral health status and parental perception of child oral health related quality-of-life of children with autism in Bangalore, India. *Journal of Indian Society of Pedodontics and Preventive Dentistry*. [Online] 32 (2), 135.
10. Vajawat, M. & Deepika, P. (2012) Comparative evaluation of oral hygiene practices and oral health status in autistic and normal individuals. *Journal of International Society of Preventive and Community Dentistry*. [Online] 2 (2), 58
11. Barry, S., O'Sullivan, E. and Toumba, K. (2013). Barriers to dental care for children with autism spectrum disorder. *European Archives of Paediatric Dentistry*, 15(2), pp.127-134.
12. Brown, J., Brown, J. and Woodburn, J. (2014). Dental services for children with autism spectrum disorder. *Learning Disability Practice*, 17(3), pp.20-25.
13. Chan, K. and Lam, C. (2018). Self-stigma among parents of children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 48, pp.44-52.
14. Delli, K., Reichart, P., Bornstein, M. and Livas, C. (2013). Management of children with autism spectrum disorder in the dental setting: Concerns, behavioural approaches and recommendations. *Medicina Oral Patología Oral y Cirugía Bucal*, pp.e862-e868.
15. Ku, B., Stinson, J. and MacDonald, M. (2019). Parental Behavior Comparisons Between Parents of Children with Autism Spectrum Disorder and Parents of Children Without Autism Spectrum Disorder: A Meta-analysis. *Journal of Child and Family Studies*, 28(6), pp.1445-1460.
16. Lloyd, S., Osborne, L. and Reed, P. (2019). Personal experiences disclosed by parents of children with Autism Spectrum Disorder: A YouTube analysis. *Research in Autism Spectrum Disorders*, 64, pp.13-22.
17. McDaniels, J. (2016). Family Advocates for Parents

- With Children With an Autism Spectrum Disorder. A Letter to the Editor on the Article “Parent Perceptions of Care Received by Children With an Autism Spectrum Disorder”. *Journal of Pediatric Nursing*, 31(5), p.470.
18. Mohamed Rohani, M., Baharozaman, N., Khalid, N. and Ab-Murat, N. (2018). Autism Spectrum Disorder: Patients’ Oral Health Behaviors and Barriers in Oral Care from Parents’ Perspectives. *Annals of Dentistry*, 25(2), pp.43-52.
19. Rayan, A. and Ahmad, M. (2016). Psychological Distress in Jordanian Parents of Children With Autism Spectrum Disorder: The Role of Trait Mindfulness. *Perspectives in Psychiatric Care*, 54(1), pp.11-18.
20. Samadi, S. and McConkey, R. (2009). Parents of children with autism spectrum disorder and children with intellectual disabilities and their stress and general health. *International Journal of Integrated Care*, 9(5).
21. Sinha, D., Verma, N. and Hershe, D. (2016). A Comparative Study of Parenting Styles, Parental Stress and Resilience among Parents of Children Having Autism Spectrum Disorder, Parents of Children Having Specific Learning Disorder and Parents of Children Not Diagnosed With Any Psychiatric Disorder. *Annals of International medical and Dental Research*, 2(4).
22. Stein Duker, L., Henwood, B., Bluthenthal, R., Juhlin, E., Polido, J. and Cermak, S. (2017). Parents’ perceptions of dental care challenges in male children with autism spectrum disorder: An initial qualitative exploration. *Research in Autism Spectrum Disorders*, 39, pp.63-72.
23. Vasilopoulou, E. and Nisbet, J. (2016). The quality of life of parents of children with autism spectrum disorder: A systematic review. *Research in Autism Spectrum Disorders*, 23, pp.36-49