Original Article

Awareness Of Oral Hygiene Among Parents Of Autistic Children In The Kingdom Of Saudi Arabia

1. Yasmine Tarek Ahmed, 2. Shaista Haleem, 3. Sharifah Ahmed Alrusayyis, 4. Bedoor Nasser Almuhaidib, 5. Wjoud Abdalrahman Albawardi

[1]Assistant Professor, Restorative Department, College of Dentistry, Riyadh Elm University Riyadh- Kingdom Saudi Arabia. E-mail: yasmin.tarek@riyadh.edu.sa

[2]BDS, MSc Aesthetic and Restorative Dentistry Lecturer, College of Applied Medical Sciences, Riyadh Elm University, Riyadh- Kingdom Saudi Arabia. E-mail: shaista.haleem@riyadh.edu.sa

[3]Intern, Dental Assistant College of Applied Medical Sciences, Riyadh Elm University, Riyadh- Kingdom Saudi Arabia. E-mail: sharifah.a.alrusayyis@student.riyadh.edu.sa

[4]Intern, Dental Assistant College of Applied Medical Sciences, Riyadh Elm University, Riyadh- Kingdom Saudi Arabia. E-mail: bedoor.a.almuhaidib2019@student.riyadh.edu.sa

Intern, Dental Assistant[5]
College of Applied Medical Sciences, Riyadh Elm University, Riyadh- Kingdom Saudi Arabia. E-mail: wojoud.s.albawardi@student.riyadh.edu.sa

Corresponding Author;
Dr. Shaista Haleem
BDS, MSc Aesthetic and Restorative Dentistry
Lecturer,
College of Applied Medical Sciences, Riyadh Elm University
Riyadh- Kingdom Saudi Arabia.
E-mail: shaista.haleem@riyadh.edu.sa
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Abstract

Introduction: Recent surveys of parents of children with ASD have expanded our knowledge about barriers to home oral care and dental visits; however, the underlying reasons for such barriers are incompletely understood. **Materials and methods:** Cross sectional study: a close ended questionnaire was developed in two parts: Part one: demographic data, part two included: oral care at home, oral care at the dentist and access to oral care. **Results:** Concerning helping children while brushing their teeth, it was done by mothers (65.4%), themselves (21.2%) and more than one person (9.6%). When inquired about the frequency of brushing practiced by their children, 32.7% reported their child brushing twice a day, 26.9% brushed once daily and 5.8% never brushed. **Conclusion:** Overall awareness of parents with ASD children regarding oral health is low. This justifies the necessity for parents to receive education about routine dental checkups, the causes of caries, and other oral health-related topics.

Keywords: Autism Spectrum Disorder, autistic children, awareness, dental health

Introduction

Autism spectrum disorder (ASD) is a terminology used to explain a constellation of early-appearing social communication discrepancies and monotonous sensory–motor activities accompanying with a strong genetic element in addition to other causes. The outlook for several people with autism spectrum disorder currently is optimistic as compared to 50 years ago; more individuals with ASD are able to speak, read, and live in the community instead of residing in institutions, and a few will be mostly free from symptoms of ASD by adulthood [1].

One area of need rests in dental care where the complexities associated with ASD likely will present challenges to not just oral health care over a life time, but also the access to adequate routine care for these children and their families. Clinical features such as sensorimotor deficits, impaired executive function, attention problems, anxiety and related affective regulation, difficulties in comprehension, and general language impairment could hinder their oral health care. These clinical features can make oral hygiene routines and associated behavior management for children with ASD a difficult set of tasks for caregivers, dentists, and hygienists [2].

With the increase in occurrence of ASD, dental health care workers are ever more likely to come across patients with this diagnosis in their clinical practice. Decision-making regarding dental treatments may be complicated by parental apprehensions concerning restorative materials or the denial to use fluoride-consisting toothpaste because of child's hypersensitivities or their own fears for its toxicity. Parents may also have preferences regarding behavior management strategies, choice of dental staff or even the operatory, because they are most familiar with their child's idiosyncrasies [3].

Individuals with special needs, particularly those with mental and behavioral impairments, are affected regarding their oral health, with caries and periodontal disease being the most prevalent disorders. Studies have been conducted to verify the oral health status of these individuals. The current data regarding the occurrence of such conditions in individuals with ASD, however, seem to be controversial, hampering the development of preventive and therapeutic actions. Although some published literature has reported that individuals with ASD have lower caries experience or are even caries-free, others suggest a high prevalence of caries, leading authors to consider autism as a risk factor for dental caries. Same trend can also be observed for periodontal disease [4].

It has been reported that the most commonly perceived oral problems in children with ASD are gum diseases, bruxism, self-inflicted injury, dry mouth, nonnutritive chewing, and tongue thrusting. In addition, it has been stated that such individuals also had malocclusions such as high-arched palate and anterior open bite. Furthermore, in investigations assessing caries prevalence in these children, different findings have been attained. It has also been revealed that providing oral care at home and in dental environments along with required dental treatments to individuals with ASD had been difficult [5].

Current surveys of parents of children with ASD have increased the knowledge regarding barriers to home oral care and dental visits; nevertheless, the primary reasons for such obstacles are partly understood. Qualitative research permits the prospect to elicit new evidence and discover topics in better detail. This approach has been used formerly to better comprehend obstacles to other aspects of care for children with ASD such as issues influencing delays in autism diagnosis [6]. Nurturing a child with ASD creates stressful

situations which in most cases are connected with adaptation to child's routine, interfering with education and health care systems, synchronization of multidisciplinary caregivers, and restricted availability of resources. Consequently, a scheduled dental visit may signify a major test for all parties included; children with autism, parents and care providers [7].

While numerous notable studies have been undertaken from a medical perspective, only a small number of researchers have assessed the studies linked to oral health and dental requirements of children with ASD [8-10]. Only a small number of published research evaluated the parents' dental knowledge and oral hygiene practices of children with ASD [11-13]. The majority of published studies either addressed parents of healthy children or parents of children with different medical disorders [14-15]. Pediatric dentists face a special behavioral difficulty while treating children with autism spectrum disorders, in part because of their children's innate communication impairment and their heightened sensitivity to numerous stimuli [16]. Pediatric dentists might anticipate facing the issue of caring for an increasing number of children with ASD given the documented growth in the prevalence of ASD over the previous 20 years. It is crucial to increase parents' dental education and put more of an emphasis on preventive programs made specifically for parents of children with ASD [17-18]. This can be accomplished by looking into the dental knowledge of parents of children with ASD. Prior research on the subject found no statistically significant differences between the prevalence of fillings and caries rates among autistic people and those of non-autistic people. Some people noted a lower prevalence of caries [19]. Furthermore, earlier research revealed that children with ASD had varying degrees of gingivitis and visible plaque. This could be a side effect of the medication used to treat the children's illness, or it could be a result of their lack of the manual dexterity required for good oral hygiene practices. Due to their anti-cholinergic qualities, many drugs used to treat children with ASD may have negative oro-facial side effects, such as xerostomia, sialorrhea, dysphagia, sialadenitis, dysgeusia, stomatitis, gingivitis, gingival enlargement, glossitis, bruxism, edema, and tongue discoloration.

The mental well-being of parents of a child with identified ASD is considerably impacted by the behavioral problems of their child. Summary of the current literature discloses heightened stress, additional psychological distress and depressive signs, dropped living standards and increased rates of physical and mental health difficulties in guardians of autistic children.

Hence, through the means of our investigation, we aimed to investigate the awareness of oral hygiene practice among parents of children with ASD in Riyadh Saudi Arabia, and identify the challenges faced by the parents during oral hygiene practice.

Materials and methods

Type of study:

Cross sectional study: a close ended questionnaire was developed in two parts: Part one: demographic data, part two included: oral care at home, oral care at the dentist and access to oral care.

Questionnaire was distributed among parents of ASD children via online survey.

Exclusion criteria:

1. Parents of ASD children less than 6 years old or older than 15 years)

2- Non-Saudi parents.

Ethical clearance and registration

The following investigation was thoroughly examined by Riyadh Elm University's Institutional Review Board (IRB), which determined that it complied with its ethical standards. As such, it was approved with the IRB approval number "FUGRP/2021/268/656/630".

Statistical analysis

Descriptive statistics of frequency distribution and percentages were calculated for the categorical variables. The questionnaire items were presented in tables and graphs. Statistical software IBM-SPSS version 25 (Armonk, NY: USA) analyzed the data.

Results

The findings are presented in tables and graphs below, where table 1 shows the parent and child related demographics. It can be observed that among the study participants, 28.8% were males, 88.5% Saudis, 80.8% from central region, 30.8& each from 36-40 and 41-45 years of age group, 94.2% were married, 46.2% had received college level education, 48.1% had an annual income of 10000-19000, 48.1% had 1-3 children in the family and 67.3% reported the age of the child with ASD being 6-9 years.

Figure 1 show the parents' source of dental knowledge, which revealed that 32.7% had received knowledge from dentists, followed by multiple sources (28.8%) and social media (17.3%). Figure 2 discloses the reasons for tooth decay, where consumption of sugary food was reported to be the most common cause (34.7%). As far as the ASD child's first dental visit was concerned, 32.7% only took their child to the dentist in case of pain, and 30.8% did it at the age of 3-6 years (figure 3). Regarding the ASD child's brushing ability, 57.7% reported to have said 'yes' (figure 4). Concerning helping children while brushing their teeth, it was done by mothers (65.4%), themselves (21.2%) and more than one person (9.6%) (Figure 5). When inquired about the frequency of brushing practiced by their children, 32.7% reported their child brushing twice a day, 26.9% brushed once daily and 5.8% never brushed (Figure 6). Moreover, question related methods and tools used during brushing exhibited that only 7.7% used power brush and 1.9% practiced water rinsing (figure 7). Finally, when inquired about the satisfaction in providing good oral hygiene to the children, 40.4% were satisfied, whereas 7.7% were not satisfied (Figure 8). Table 2 shows the responses to questionnaire items similar to what we have presented in the figure.

Table 1: Parent and child related demographic variables

Variables		n	%
Parental Gender	Male	15	28.8%
	Female	37	71.2%
Nationality	Saudi	46	88.5%
	Non-Saudi	6	11.5%

Region	Central	42	80.8%
	South	6	11.5%
	North	0	0.0%
	East	1	1.9%
	West	3	5.8%
Age	21-25	2	3.8%
	26-30	3	5.8%
	31-35	6	11.5%
	36-40	16	30.8%
	41 -45	16	30.8%
	>46	9	17.3%
Marital_Status	Married	49	94.2%
	Divorced	3	5.8%
Educational level	Prehigh school	6	11.5%
	High school	15	28.8%
	College	24	46.2%
	Postgraduate	7	13.5%
Household Income Per year	<10000	18	34.6%
	10000-19000	25	48.1%
	20,000- 29,000	4	7.7%
	30,000 - 39,000	3	5.8%
	≥40,000	2	3.8%
Number of Children in the family	1-3	25	48.1%
	4-6	23	44.2%
	>6	4	7.7%
Age of child with ASD	6-9	35	67.3%
	10-12	7	13.5%
	13-15	10	19.2%

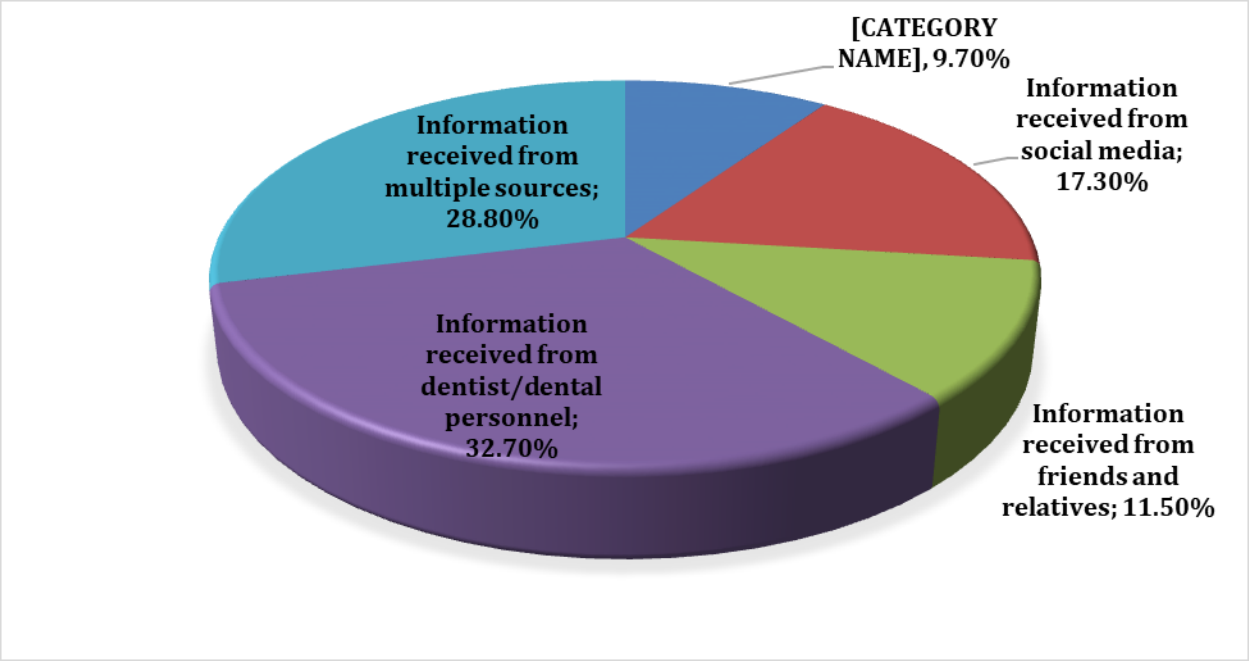

Figure 1: Parents' sources of dental knowledge

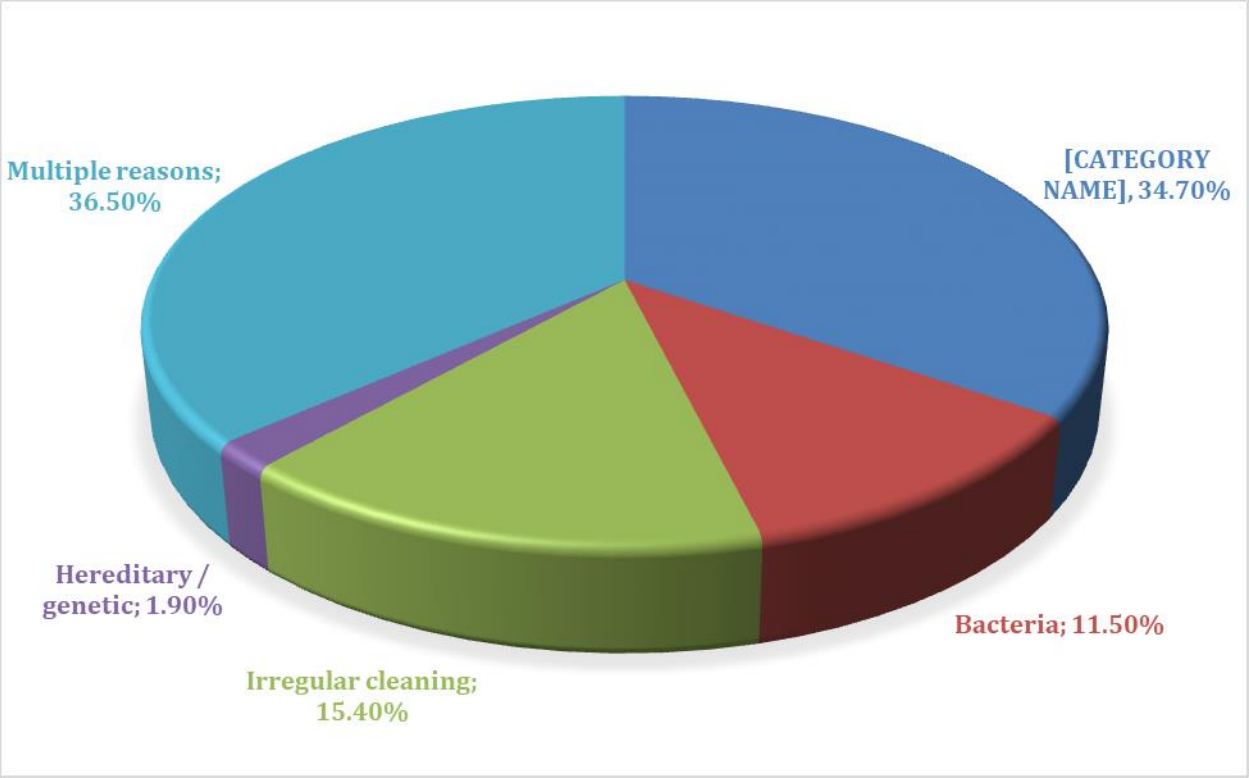

Figure 2: Reason for teeth decay

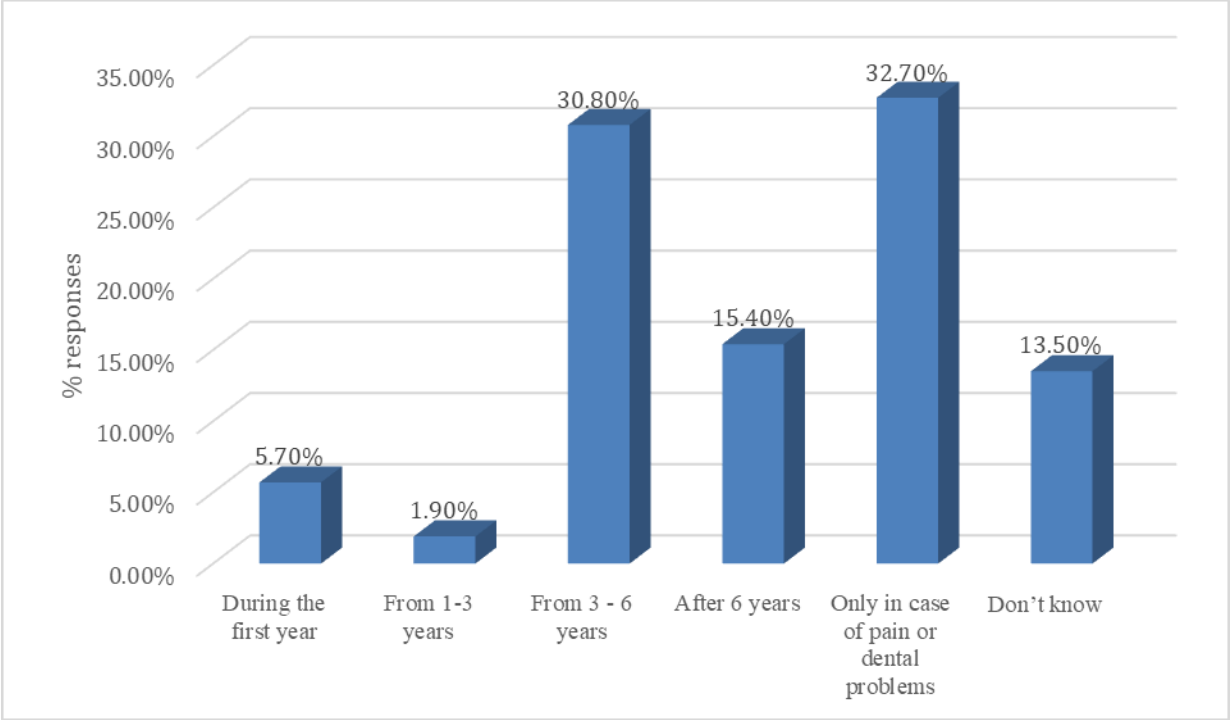

Figure 3: Time for first dental visit of the child?

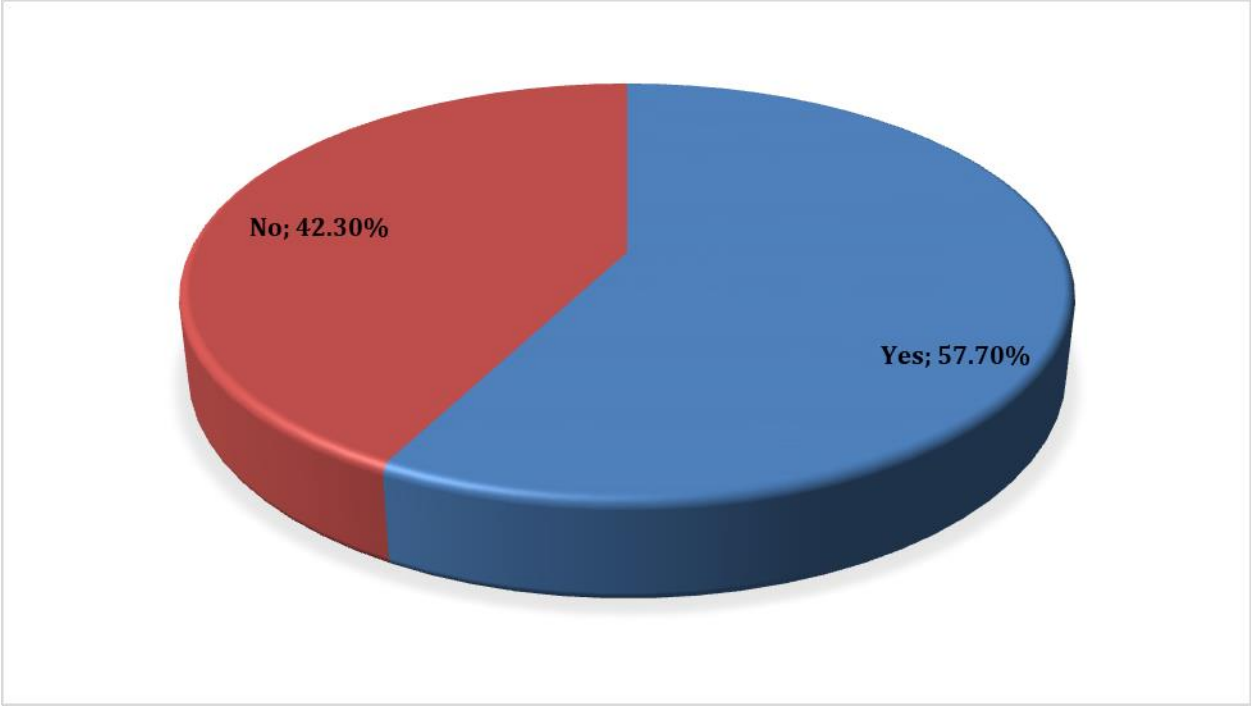

Figure 4: ASD child's ability to brush his/her teeth by his/her-self?

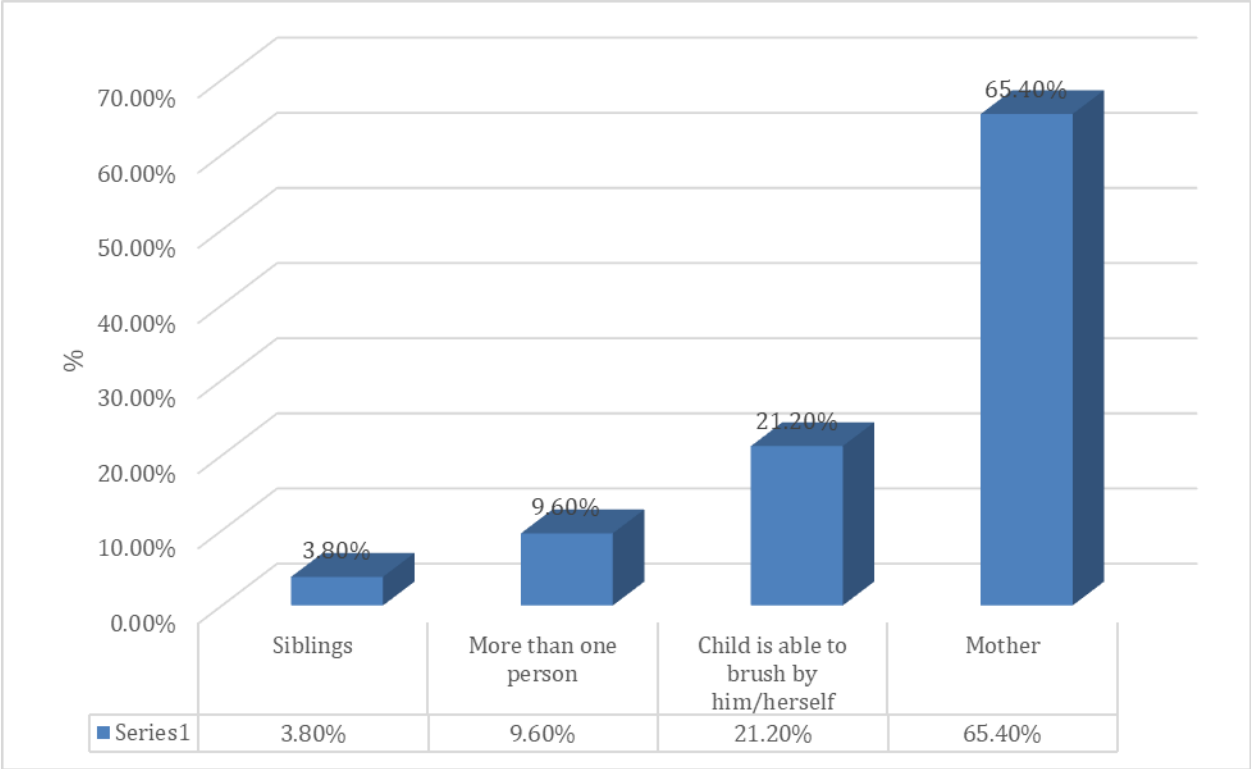

Figure 5: Children's help during tooth brushing?

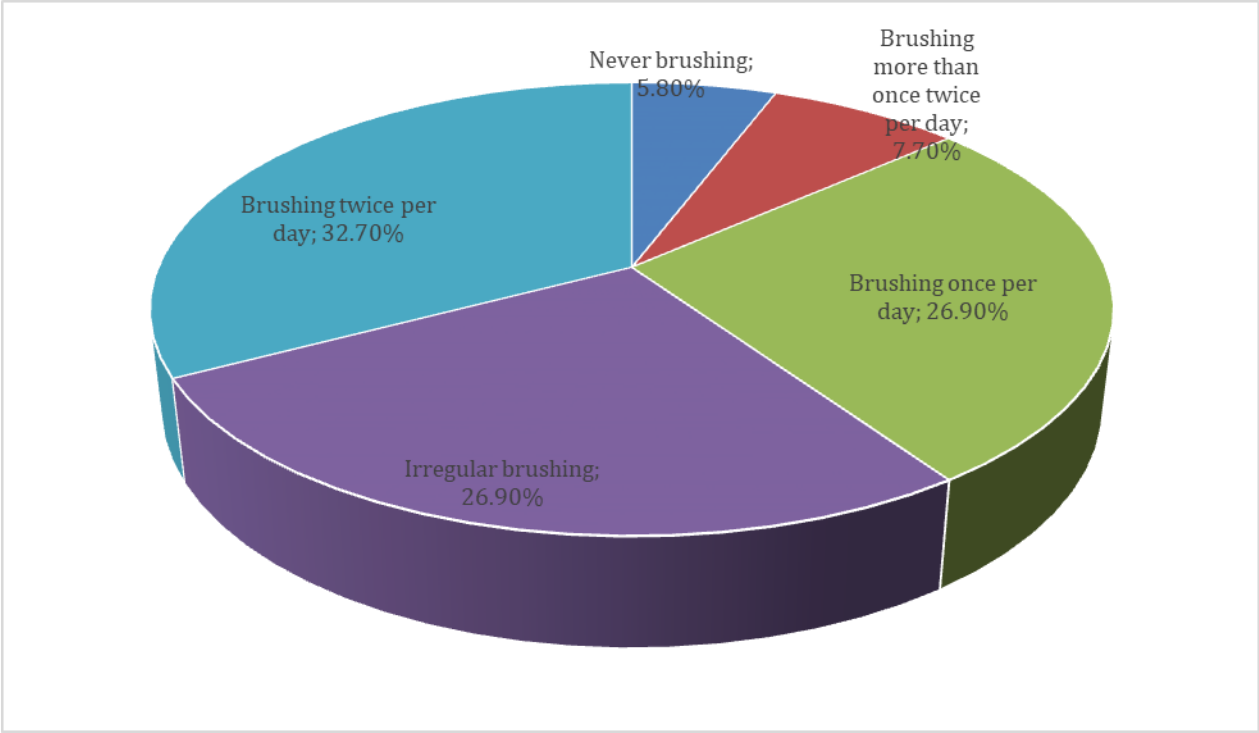

Figure 6: Frequencies of tooth brushing practiced by children?

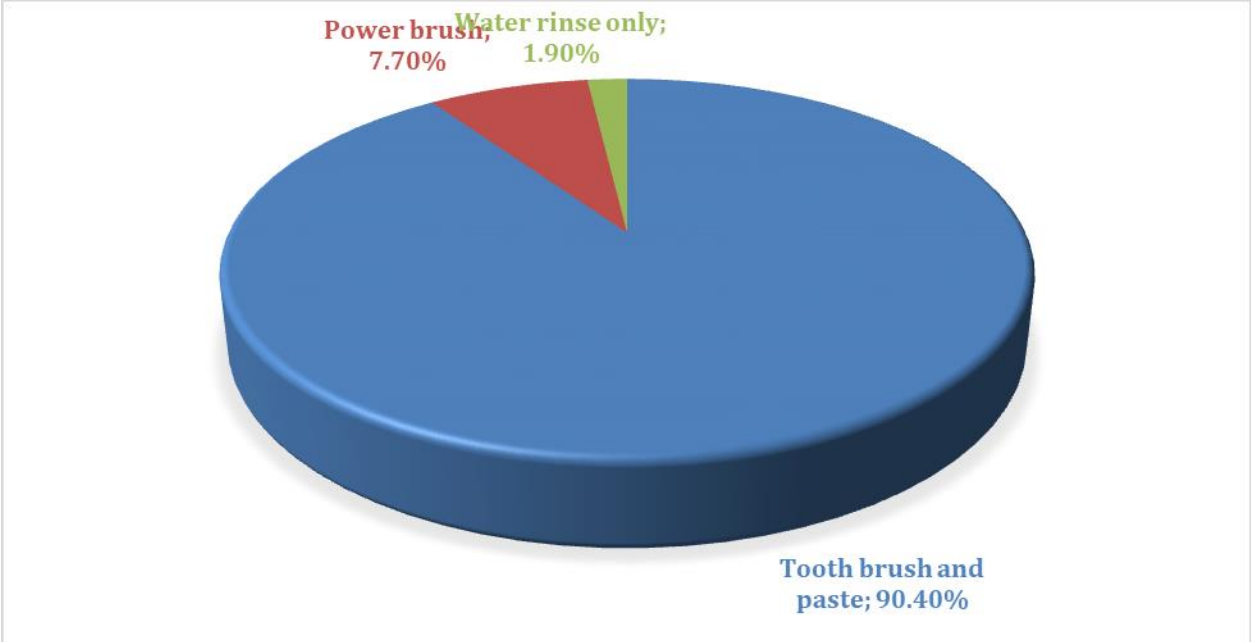

Figure 7: Methods and tools used during brushing?

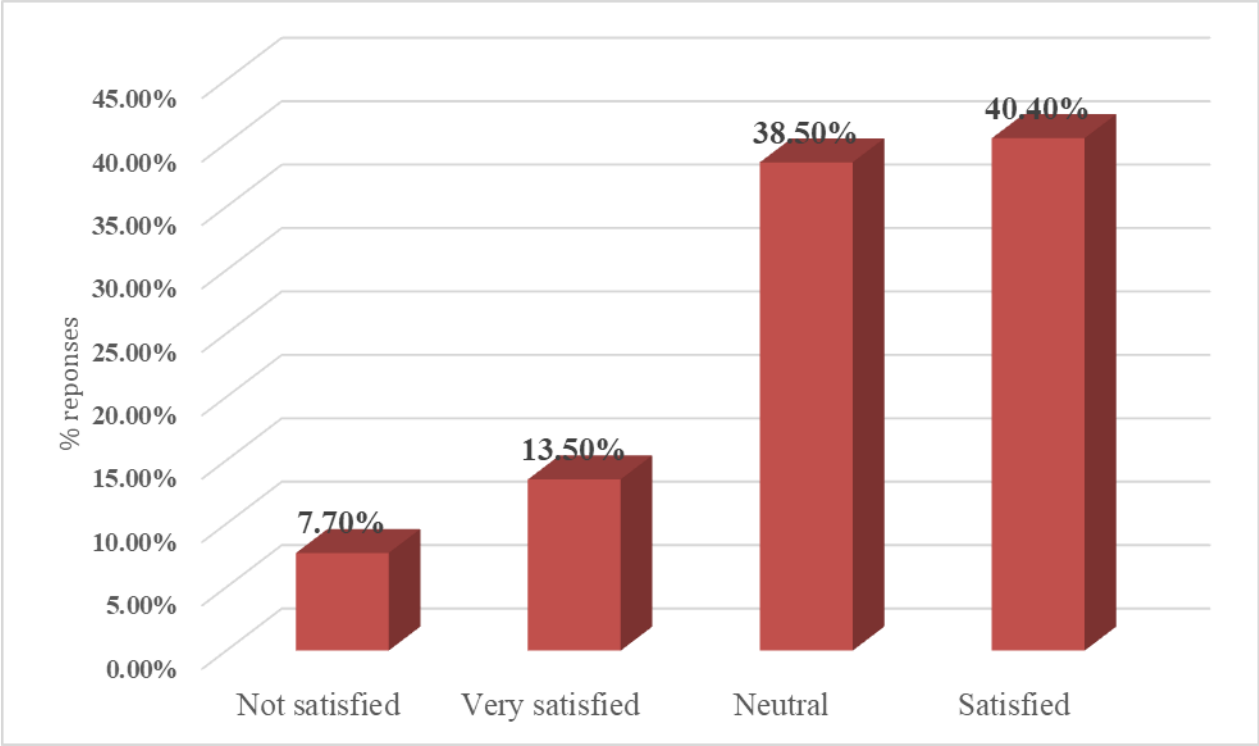

Figure 8: How satisfied are you with providing the oral hygiene care to your child?

Table 2: Responses to the questionnaire items

Variables	Responses	n	%
Source of dental knowledge	No information received	5	9.7%
	Information received from social media	9	17.3%
	Information received from friends and relatives	6	11.5%
	Information received from dentist/dental personnel	17	32.7%
	Information received from multiple sources	15	28.8%
	Total	52	100.0%
Reasons for tooth decay	Consumption of high amounts of sugary foods	18	34.7%
	Bacteria	6	11.5%
	Irregular cleaning	8	15.4%
	Hereditary / genetic	1	1.9%
	Multiple reasons	19	36.5%
	Total	52	100.0%
First dental visit of child	During the first year	3	5.8%
	From 1-3 years	1	1.9%
	From 3 - 6 years	16	30.8%

	After 6 years	8	15.4%
	Only in case of pain or dental problems	17	32.7%
	Don’t know	7	13.5%
	Total	52	100.0%
Brushing ability of ASD	Yes	30	57.7%
	No	22	42.3%
	Total	52	100.0%
Children help while brushing	Child is able to brush by him/herself	11	21.2%
	Mother	34	65.4%
	Siblings	2	3.8%
	More than one person	5	9.6%
	Total	52	100.0%
Frequency of brushing	Never brushing	3	5.8%
	Brushing once per day	14	26.9%
	Brushing twice per day	17	32.7%
	Brushing more than once twice per day	4	7.7%
	Irregular brushing	14	26.9%
	Total	52	100.0%
Methods and tools of brushing	Tooth brush and paste	47	90.4%
	Power brush	4	7.7%
	Water rinse only	1	1.9%
	Total	52	100.0%
Satisfaction	Very satisfied	7	13.5%
	Satisfied	21	40.4%
	Neutral	20	38.5%
	Not satisfied	4	7.7%
	Total	52	100.0%

Discussion

This study was conducted to determine the experience and awareness of parents with at least one of the children having ASD. Another similar research carried out in India by Magoo et al [20] reported that the awareness regarding oral health appeared to be insufficient in their study group. On the other hand, in those with awareness, it did not look to be integrated in their attitude and practices. It is imperative for the pediatric dentists to make valuable efforts to conduct consistent oral health education programs, with focus on preventive measures and routine dental checkups among parents of children with ASD at special schools or care centers. When compared these findings with our study, similar outcomes were observed as our study participants also lacked awareness as well as lack of intent in improving their children’s oral health.

Another study based in Indonesia by Nonong et al. [21] exhibited low level of knowledge among the parents of ASD children. Moreover, similar findings were revealed regarding the ASD children's brushing frequency, which was twice a day for majority of the children. Their study concluded that caries prevalence in autistic children was less in comparison with their normal counterparts and was independent of the parents' behavior, knowledge, practice and attitude. However, the prevalence of caries among ASD children was not measured in our study, which can be added later in order to improve the accuracy and determine correlation between attitudes and caries experience.

Another Saudi based study by Murshid et al [22] reported that most of the parents seemed to understand the importance of oral hygiene practices. A positive attitude in brushing the children's teeth was shown by the mothers participating in the study. The lack of circulation of dental information by professional dental personnel and dental institutions was clearly reflected in the parents' knowledge of the causes of dental caries and the time of first dental visits and regular checkups. It is noteworthy to mention that a child with ASD may not be able to overlook and accept changes in his or her expected environment; most of them may become particularly defensive and obsessive about the variation. These findings are similar to what we observed as mothers were involved the most in maintaining the oral health of ASD child.

Another similar finding was reported by Hajjahmadi et al., [23] revealed that the oral health knowledge, attitude, and performance of the parents of autistic children in Isfahan city were lower than expected, which calls for knowledge enhancement strategies in this respect. They also advocated that regardless of the growing rate of children with ASD, either due to increased occurrence of such disorders or better diagnosis, their oral and dental complications is not usually considered a high preference due to the high incidence of other medical problems of these patients. Therefore, regular educational programs are essential to give emphasis to the importance of oral hygiene and oral healthcare in these patients. Online education, books, brochures, and pamphlets can also help in this respect. Additional descriptive and interventional studies are also necessary in detecting the chief problems of such patients and find approaches to prevent or address them.

Parents of children with different disabilities from the same city, as well as parents of healthy children, reported similar findings of shortages in the dissemination of oral hygiene instructions [24-26]. In contrast, parents of children with Down syndrome (DS) and Cerebral Palsy (CP) reported receiving dental advice directly from dentists when they were young in earlier studies including parents of these children [27-29]. The variations in the conditions of the children could provide an explanation for this variance. Due to the ease with which CP and DS can be identified at or shortly after birth, parents are frequently educated about their children's problems and the value of early intervention in a variety of health-related matters before they leave the maternity and delivery department. Children with autism, on the other hand, appear completely normal at birth. Additionally, compared to CP or DS, autism is seen to be a more recent diagnosis, therefore parents of autistic children may be more concerned with the urgency of their children's medical, behavioral, and educational needs than their dental needs [30]. Mothers of children with Down syndrome reported experiencing similar reactions. Unfortunately, only two parents in this research believed that their kids should visit a dental office during the first year of life, and the majority opted to wait until they were between the ages of 3-6. Other research carried out in the same area revealed similar results of delaying first dental appointments [31]. The difficulty in controlling the conduct of children with ASD or the lack of specialized clinics to treat children with Autism could be two of the numerous causes of the delay in scheduling dental appointments. Most likely, parents were not aware that pediatric dentists are skilled in treating patients with a variety of medical issues and specific requirements. This attitude can be explained by the absence of straightforward pamphlets outlining the large range of behavioral management strategies

available in dentistry. It is crucial that the various dental care providers' work together to create and distribute pamphlets specifically tailored for kids with special needs. Given the nature of the illness (in which physical impairments or poor manual dexterity abilities are classified among the features of autism), it was expected that the majority of the children in the current study needed assistance with tooth brushing. Another anticipation was that many mothers would assist with tooth brushing. Numerous studies have recognized the importance of mothers and their excitement for the dental health of their impaired children [32-33]. It is also important to note that the majority of Saudi households have a practice of employing live-in help, typically nannies or maids, to assist with child care and home tasks. So, it makes likely that some of the participant children also received assistance from their guardians. It's vital to note that there weren't many fathers helping their children wash their teeth. This may be because mothers typically take care of the children and the household while most fathers in Saudi society are the major earners for their family.

As far as limitations go, there are two probable ones that can be identified by the authors in this study. Firstly, the relatively small sample size of this study might be a hindrance in terms of interpreting the results, but this limitation can be offset by the fact that there is a dearth of studies when it comes to the objectives that we sought out to get, hence ours is somewhat of a pioneering study in this regard. Consequently, due to the small sample pool, comparisons between demographic subgroups could not be achieved, which further warrants a need for more investigations to be done for the correlation between oral hygiene awareness and individuals suffering from autism in this geographical domain.

Conclusions

By the results of this study, it is quite obvious that the overall awareness of parents with ASD children regarding oral health is low. This warrants a need for parents to be educated regarding regular dental visits, causes of caries and related oral health information. As per our observations, the mothers are already involved, but fathers also do need to participate in the maintenance of oral health of their children with ASD.

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