

FAMILY AWARENESS OF THE METHODS OF ORAL AND DENTAL HEALTHCARE FOR 5-16 -YEAR-OLD CHILDREN WITH DISABILITIES

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ABSTRACT

Introduction: Over half of disabled children (53%) suffer from oral and dental health problems (Alwadi et al., 2022) due to poor attention from healthcare providers. **Aims:** Determine the level of family awareness of oral and dental healthcare methods for 5-16-year-old disabled children in Saudi Arabia. **Methods:** To achieve the study objective, the descriptive method by the social survey method was used. The required ethical approvals of centers and associations caring for people with disabilities in the region were obtained. These centers cooperated in publishing the study tool through social media applications; the questionnaire link was distributed to a sample of (312) parents of children aged 5-16 years with disabilities in Najran region, south of the Kingdom of Saudi Arabia, in October and November of 2022. **Results:** There was a weak level of family awareness of the methods of oral and dental healthcare for children aged 5-16 years with disabilities. Also, statistically significant differences at $\alpha = 0.05$ were found in the level of family awareness of the methods of oral and dental healthcare for children aged 5-16 years with nature of the relationship with the child disability in favor of mothers and the academic qualification in favor of the university academic qualification. Nevertheless, the respondents' answers did not differ by their child's type of disability. **Conclusion:** The study recommended developing a comprehensive national strategic plan supervised by the Ministry of Health and the Ministry of Social Development to reduce the risk of oral and dental diseases.

Keywords: Awareness, Children with Disabilities, Family, Oral and Dental Health, Saudi Arabia

INTRODUCTION

The individual needs to pay attention to the health of his mouth and teeth. Oral and dental health is a vital part of an individual's overall health. Therefore, developed societies have been educating their members, especially children, including children with disabilities and their families, of the importance of this, and providing all services that help them protect the mouth and teeth from many common diseases and treat them at an early date. That people with disabilities need special care comes from the perspective of restrictions on these people in performing basic self-care routines or main activities of daily

living, which causes them to lack awareness of maintaining oral and dental health (American Academy of Pediatric Dentistry, 2021). This requires specialized health service programs, raising awareness among these people and educating their parents about special knowledge, practices, and proper behaviors towards oral and dental healthcare and prevention of diseases that affect them, and avoiding advanced and complex dental treatments in the future (Ramanandvignesh and Gurvanit, 2022). People with disabilities suffer from poor oral and dental health compared to normal people. They suffer a lot from issues such as severe gum, gingivitis, tooth decay, etc. (Alwadi et al., 2022). Some people with

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disabilities appear to need more complicated oral and dental healthcare than others (Owens and Jones, 2017). Also, the category of children with disabilities as a result of their congenital developmental disorders leads to poor oral and dental health. Open bites and dysphagia often occur, especially in those with rheumatoid arthritis. In addition, they lack equality with other normal children in the right to treatment and medication (Calis et al., 2008). The increase in calculus or tartar leads to an increase in forming the bacterial plate "plaque". This leads them to poor oral and dental hygiene, and thus exposes them to oral and dental diseases and lesions (Nirmala et al., 2018). Children with disabilities, as a result of some characteristics such as lack of focus and poor attention, and some of them suffer from behavioral problems such as distraction, hyperactivity, anger, and violence, are more vulnerable to trauma and frequent dental injuries (Sinha et al., 2018). They also suffer from poor gum condition, gingivitis, tooth decay and deep caries, malocclusion of teeth, and decaying and missing teeth. This is due to their wrong practices and behaviors, such as the consumption of sweets and sugars in abundance, the lack of frequency of brushing and toothpaste, and the increased consumption of sweets and sugar between meals (Purohit and Singh, 2012). As a result, there is a greater need to focus on the oral and dental health of children with disabilities.

Parents' preoccupation with the disabled's oral and dental health and the ways to rehabilitate them and take special care of them in terms of teaching them about oral and dental hygiene lead to many negative results and complications. Neglecting oral and dental health has a detrimental influence on one's self-esteem, feeling of quality of life, overall health, mental health, and social standing (Gardens et al., 2014). This category of children with disabilities is often marginalized from their families in following up on their medical

treatment and assessing their oral and dental conditions (Alwadi et al., 2022). The result of refusal of disabled children to treat oral and dental problems as a result of fear of the dentist and medical equipment may increase among children with severe disabilities categories, which makes parents reluctant to take their children for treatment (Milano, 2017). Hence, whatever the type of disability the child suffers from, disabled children's oral and dental health should be taken care of by their families. Disabled children have the right to the prevention and treatment of their oral and dental diseases, just like other normal peers (Scambler, 2012). The role of the family also comes in choosing healthy foods for the child, avoiding eating foods harmful to the health of the mouth and teeth, and working to visit the doctor periodically or when needed to help the child treat or prevent the risk of cavities and gum disease. In addition, it requires the family more patience and endurance to teach and train the child to use the toothbrush and paste to clean his teeth in the morning and evening and after eating foods, drinks, and medicines (Gurav et al., 2021). Often, dental care and treatment for children with disabilities are not different from that of ordinary children. However, some cases require special care and management. If the family, doctor, and patient cooperate, it achieves a great deal of success in enjoying good oral and dental health for children with disabilities. One of the most appropriate methods for oral and dental care in children with disabilities is the periodic visit to the dentist twice a year. Home care also includes removing the bacterial plate (plaque) daily because it is the main cause of both gum disease and tooth decay. This is done by brushing the teeth and using dental floss to clean between the teeth. It is also done by taking fluoride orally or applying it topically to the teeth to prevent cavities, using a piece of gauze moistened with water to clean the teeth, or using an electric toothbrush (Ningrum et al., 2012). In addition, they should use brushes and paste, use dental floss to clean between

the teeth, and take fluorine orally or apply it topically to the teeth to prevent caries helps to improve their oral health (Li Jeng et al., 2009). This allows the disabled to converse, chew, touch, taste, smile, swallow, and express smile, smell, taste, touch, chew, swallow, and express a variety of emotions with confidence and without pain or suffering by employing facial expressions. Thus, dental healthcare achieves happiness for children with disabilities and their proper integration into their community (Glick et al., 2016).

Clinical investigations of disabled children's oral and dental healthcare show that they have larger dental requirements than their normal peers. Ningrum et al. (2012) analyzed previous studies that concerned oral and dental health among children with disabilities in Asia, specifically Indonesia. The results showed that children with mental disabilities and autism spectrum disorders have major problems in oral and dental health such as tooth decay, gingivitis, and the delay in the emergence of permanent teeth and eruption compared to normal children. It also showed that children aged 12 years and under are more likely to suffer from these problems. In addition, children living in poor and middle environments were more vulnerable to these problems. The study emphasized the importance of an integrated and fair healthcare system to raise the level of oral and dental health among children with disabilities. Pouradeli et al. (2019) synthesized previous studies on oral and dental problems among hearing-impaired children. It was shown that hearing-impaired children had noticeable oral and dental health issues, such as the frequent spread of bacterial plaque leading to gum disease and tooth decay among the hearing-impaired category. This emphasizes the awareness and education of oral health in promoting the dental health children with hearing impairment. Mandic et al. (2016) indicated that children with disabilities in Serbia often demonstrated lower levels of oral and dental hygiene compared to other

non-disabled children, a greater prevalence of caries, malocclusion, and a delayed eruption time of permanent teeth. Given the poor oral and dental health of this group of children, it is critical to provide preventative dental programs for disabled children and increase public knowledge about these matters. Gardens et al. (2014) showed a low level of awareness in families and children with mental disabilities in India about ways and methods of care and care for oral and dental health and preventing diseases and pests that affect them. Scambler (2012) showed that children with mental problems and those with learning difficulties in the United Kingdom have clear suffering in the care of oral and dental health. They came as a result of some wrong practices such as nail biting, which leads to malocclusion of the jaws, and these disabilities are accompanied by speech disorders, and excessive salivation out of the mouth, and the abnormal shapes of the teeth and others. Li Jeng et al. (2009) also showed that children with mental retardation, cerebral palsy, epilepsy, and autistic disorders in Taiwan lack general oral and dental health. In addition, the health services provided to them need more care and attention, as well as the family's participation in this aspect by raising awareness about it.

From the aforementioned, the justification for conducting this study comes from the obligation of those in charge of caring for disabled children, including the family, to assume responsibility with all honesty and sincerity. They should be patient to assist these children to reach good oral health and spare them tooth decay or premature extraction and gum infections. This, in turn, improves their health and brings them happiness. Raising awareness of the family about the importance of oral and dental health among children with disabilities should always remain a cornerstone in programs for the rehabilitation and integration of persons with disabilities in their societies. Also, it is necessary to educate children with

disabilities and their families about the importance of maintaining good health of the mouth and teeth and the prevention of the risks of dental and oral lesions to enjoy appropriate mental and physical health. As a result, the current study attempted to determine the level of family knowledge of oral and dental healthcare procedures for disabled children aged 5-16 years in Saudi Arabia.

Statement of the problem

The problem of this study emerged from the suffering of disabled children from oral and dental health problems; they show poor oral and dental health, and the percentage of oral and dental lesions and diseases increases in these children. They also suffer from high levels of dental pain, either because of their disability or because of the medications they take, or because their family has little interest in these problems compared to the educational, social, and family problems related to their upbringing, finding their place in society and considering oral and dental healthcare as a secondary matter. The study's purpose is to identify the level of family awareness of the methods of oral and dental healthcare for children aged 5-16 years with disabilities. It provides survey indicators about the level of family awareness of the methods and methods of oral and dental healthcare for children with disabilities in the Kingdom of Saudi Arabia and its relationship to demographic variables, such as the nature of the relationship with the disabled child, the type of disability, and the educational level of the parents. These indicators contribute to providing valuable evidence indicating the need for the Ministry of Health and the Ministry of Social Development to work on creating effective plans and policies in the future to spread family awareness of the importance of methods and methods of oral and dental healthcare for children with disabilities in the Kingdom of Saudi Arabia. It also contributes to improving oral and dental care for disabled children and protecting

them from the risks of oral and dental diseases. This enables them to enjoy healthy teeth that help them eat their food with comfort and enjoyment, and live with high-quality standards. Therefore, the study attempted to answer the following questions:

What is the degree of family awareness of the techniques of oral and dental healthcare for disabled children aged 5 to 16 years?

Does family awareness of oral and dental healthcare methods for the disabled children aged 5-16 years differ by the nature of the relationship with the child?

Does family awareness of oral and dental healthcare methods for the disabled children aged 5-16 years differ by the type of child's disability?

Does family awareness of oral and dental healthcare methods for the disabled children aged 5-16 years differ by the educational qualification level?

Objectives of the study

The purpose of this study was to determine the amount of family knowledge of the procedures of oral and dental healthcare for children aged 5-16 years with disabilities to work on enhancing them. In addition, the study sought to identify whether the responses of the study sample on the level of family awareness of oral and dental healthcare methods for disabled children aged 5-16 years differ based on the relationship with the child, the type of disability of the child, and the educational qualification level. This is so to see their views and know the impact of those variables to develop an improvement plan to raise the level of family awareness of oral and dental healthcare methods for children aged 5-16 years with disabilities.

Significance of the study

This study is significant in that it contributes descriptive and exploratory information on the reality of the family's degree of knowledge of the techniques of

oral and dental healthcare for children with various impairments. This survey will provide indicators regarding the role of the family in the oral and dental health of children with disabilities in the Kingdom of Saudi Arabia, as well as its relationship to demographic variables such as the relationship with the disabled child, type of disability, and parents' educational level. Also, these findings will provide important evidence indicating the need for both the Ministry of Health and the Ministry of Social Development to work together in the future to develop effective plans and policies to raise family awareness of the importance of oral and dental healthcare methods for disabled children in Saudi Arabia. In addition, the results will help in developing plans to improve oral and dental care for disabled children and protect them from the risks of oral and dental diseases. These plans will also enable them to enjoy healthy teeth so that they can eat their food comfortably and with pleasure and live life at a high-quality level.

METHODS

A descriptive approach employing the social survey method was used. Before distributing the questionnaire, the required ethical approvals of centers and associations caring for people with disabilities in the region were obtained. These centers cooperated in publishing the study tool through social media applications; the questionnaire link was distributed to a sample of 312 parents of children aged 5-16 years with disabilities in

Najran region, south of the Kingdom of Saudi Arabia, in October and November of 2022. The ethical approval for the application of the study tool was obtained from the Scientific Research Ethical Committee -Deanship of Scientific Research at Najran University on October 20, 2022 with the code [Reference No: 444-45-18860-DS].

Population and sample of the study

In October 2022, a purposeful sample including (312) parents of disabled children aged 5 to 16 years old in Najran in the southern part of Saudi Arabia was chosen. This selection was made due to the difficulty of enumerating the study population, in addition to reaching the current participants after they agreed to apply the study tool. The reports by the College of Dentistry at Najran University indicated problems in family awareness in Najran region regarding the most preventive and treatment methods for oral and dental healthcare for people with disabilities, especially children. They also emphasized a high level of oral and dental needs in children with disabilities (Najran University, 2022). In addition, there is an urgent need to educate and educate people with disabilities and members of society about oral and dental health and care for them. The study sample was dispersed based on the following demographic variables: the relationship with the child, disability type, and education level. Table 1 illustrates the distribution of the study sample.

Table 1. The Study Sample based on Variables

Variable	Group	Freq.	%
Nature of the relationship with the child	Mother	187	59.9
	Father	125	40.1
Type of the child's disability	Hearing disability	44	14.1
	Learning disabilities	60	19.2
	Motor disability	53	17.0
	Mental disability	33	10.6

Variable	Group	Freq.	%
	Visual disability	43	13.8
	Autism spectrum disorders	79	25.3
Educational qualification	High school or below	140	44.9
	University	172	55.1
Total		312	100.0

Instrument of the study

To prepare the study tool, the study problem and its components were identified. Then, previous studies related to the current study's topic, such as Gardens et al. (2014) and Ningrum et al. (2021) were referred to and analyzed, and family methods in providing oral and dental healthcare for children with disabilities were extracted. They included choosing the right healthy food, visiting the dentist periodically, and when needed, using fluoride and adhesive fillings, and home care. The tool was made up of two sections. The first section is concerned with the sample's demographic data in terms of the relationship with the child (father, mother), disability type (learning, autism, mental, motor, visual, hearing), and the educational level of the respondent from the parents (secondary and below, university). The second section has 19 questions that assess family knowledge of oral and dental healthcare practices for disabled children aged 5 to 16 years. The study tool (the questionnaire) was developed for data collection based on theoretical literature and prior studies that dealt with A five-point Likert scale was used to analyze the replies to the second part of the tool (very strongly agree, highly agree, moderately agree, little agree, and very little agree), and the scores (5, 4, 3, 2, 1) were supplied to compute the respondents' scores. For the degree of the research tool items and the overall score for the categorization of means, the following grading was used: (1.00 - 1.80) very low, (>1.80 - 2.60) low, (> 2.60 - 3.40) medium, (>3.40-4.20) high, (> 4.20-5.00) very high.

Validity and reliability

The face validity of the study tool's content was validated by presenting it in its original edition to (10) experts in special education and dentistry from faculty members at different Saudi educational institutions. They assessed the tool's adequacy for achieving the study's objectives. The tool's validity for what it was designed to measure was reported by the experts. As a result, the tool was authorized in its final form, edition which had 19 components. The tool's reliability was validated by computing the reliability coefficient using the test-retest technique. It is one of the most popular methods used by researchers to measure the correlation coefficient in scientific research and to verify the tool's reliability and its results in the future (Nofal et al., 2022). The tool was used on an exploratory sample drawn from outside the research population, which included (30) parents of disabled children enrolled in special education centers in Najran region. Two weeks later, the tool was reapplied to the same sample in similar conditions. Following that, the Pearson correlation coefficient was computed between the two applications, and the tool's reliability coefficient was 0.85, a high coefficient acceptable for the instrument's and outcomes' reliability.

Statistical processing

In this study, the mean and standard deviation were used to answer the first question about determining the level of family awareness of the methods of oral and dental healthcare for children with

disabilities at ages 5-16 years. The t-test was also used for independent samples to answer the second and fourth questions to show the differences in the level of family awareness of the methods of oral and dental healthcare for children with disabilities at ages 5-16 years on the variables of the nature of the relationship with the child (father, mother), and the respondent's level of education (secondary or less, university) separately. Al-Mahmoudi (2019) argues that the t-test for independent samples is appropriate when comparing means drawn from independent samples when the variable used to form the groups may already exist. However, a cutoff point can be provided on a continuous variable to create clusters dynamically during analysis. To answer the third question, a one-way analysis of variance was used. This is a parametric test used to compare the means or reach a decision regarding the presence or absence of differences between the mean performance of the groups subjected to different treatments. This is done to find the factors that make one of the means different

from other means (Al-Mahmoudi, 2019). In this study, this analysis was used to show the differences in the level of family awareness of the methods of caring for oral and dental health among children with disabilities in the ages 5-16 years, according to the variable type of disability and its different categories (auditory, learning difficulties, motor, intellectual, visual, autism spectrum disorders).

RESULT

The researchers presented according to research questions:

The degree of family awareness of the techniques of oral and dental healthcare for disabled children aged 5 to 16 years

The means and standard deviations of the level of family knowledge of the procedures of oral and dental healthcare for children with disabilities aged 5-16 years old were extracted to answer this question. The results are shown in Table 2.

Table 2. Descriptive Statistics of Family's Awareness of Oral and Dental Healthcare

No	Dimension-statement	Means	Standard deviations	Rank	Level
1	I ensure proper nutrition for the disabled child by focusing on eating healthy foods such as fruits and vegetables	2.59	.540	1	Medium
15	If my disabled child does not accept the toothbrush and toothpaste, I use a gauze piece moistened with water to clean the teeth	2.51	.550	2	Medium
18	With my disabled child, I use preventive dental fillings to avoid the accumulation of food waste and germs and reduce cavities	2.36	.660	3	Low
3	I encourage my disabled child to chew food well	2.33	.760	4	Low
2	I make sure that my disabled child avoids eating unhealthy foods such as sweets, candies, sweetened milk, and juices rich in sugar	2.31	.680	5	Low
16	I keep in touch with my disabled child regularly to protect his mouth and teeth and ensure that they are free from cavities, ulcers and dental lesions	2.31	.600	6	Low

No	Dimension-statement	Means	Standard deviations	Rank	Level
11	I make sure that my disabled child uses a toothbrush to brush his teeth after eating foods and medicines	2.28	.630	7	Low
17	I remove plaque daily for my disabled child because it is the main cause of both gum disease and tooth decay.	2.26	.740	8	Low
12	I adjust the toothbrush to suit the type of disability my child has, which enables him to hold it easily.	2.21	.720	9	Low
14	If my disabled child can't use a regular or electric toothbrush to brush his teeth, I can help him	2.18	.710	10	Low
10	I make sure that my disabled child uses a toothbrush to brush his teeth in the evening before bed	2.15	.660	11	Low
19	I cooperate with the doctor and a nutritionist to determine the healthy foods that are appropriate for the oral and dental health of my disabled child	2.13	.640	12	Low
4	I make sure to visit the dentist immediately when problems and dental lesions appear in my disabled child and treat them	2.08	.760	13	Low
8	I make sure to teach my disabled child the correct way to brush his teeth and be self-reliant	2.05	.710	14	Low
9	I make sure that my disabled child uses a toothbrush to brush his teeth in the morning when he wakes up	2.03	.690	15	Low
6	I use dental floss to clean between the teeth of my disabled child	2.00	.750	16	Low
13	When my disabled child fails to use a regular toothbrush, I make sure to provide an electric toothbrush for him to use himself	1.97	.760	17	Low
5	I make sure to visit the dentist at least once or twice a year to prevent the teeth of my disabled child	1.95	.670	18	Low
7	I use fluorine orally or apply it topically to the teeth of my disabled child to prevent caries	1.64	.690	19	Very low
	Total	2.18	.280		Low

Table 2 reveals that the overall degree of the family's level of knowledge of the techniques of oral and dental healthcare for disabled children aged 5 to 16 years was low ($M=2.18$, $SD=0.28$). It was found that the families of children with disabilities have an average level of awareness in

ensuring proper nutrition for their disabled children by focusing on eating healthy foods such as fruits and vegetables. They also make sure that their disabled children use a toothbrush and toothpaste. If the child does not accept it, they resort to a piece of gauze soaked in water to clean and preserve

the teeth. Weak practices were found among the families of children with disabilities in terms of caring for oral and dental healthcare methods for their disabled children. The most prominent of these were the lack of using dental floss to clean between the teeth of their disabled child or electric toothbrushes, the lack of keenness to visit the dentist periodically during the year, and the weak use of fluorine by mouth or applying it topically on the disabled child's teeth to prevent cavities.

The nature of the relationship with the disabled child on family awareness of oral and dental healthcare methods

The means and standard deviations of the study sample's responses on the level of family knowledge of oral and dental healthcare procedures for disabled children aged 5-16 years were extracted according to the relationship variable with the child to answer this question. The t-test was also

used for independent samples to indicate the significance of the statistical differences between the means after the criteria for using the t-test were met to indicate the mean differences. The size of each sample in one category exceeds 30 individuals. The difference between the size of the two research samples was close, 187 fathers and 125 mothers. Likewise, the sample was homogeneous in terms of its affiliation to one nature, which is the parents of children with disabilities in Najran region in the Kingdom of Saudi Arabia; they are similar in their cultural and social characteristics, and the extent of the moderation of the frequency distribution for each of the two research samples. Besides, the data were free of outliers or randomness. Finally, the data curve was moderate and bell-shaped. This result was confirmed by the results of the Kolmogorov-Smirnov Test for Normality. The findings are shown in Table 3.

Table 3. T-test (Independent Samples) for any Significances in the Level of Family Awareness of Oral and Dental Healthcare Methods for Children with Disabilities Aged 5-16 Years due to the Nature of the Relationship with the Child

nature of the relationship with the child	No.	Means	Standard deviations	T	df	Sig.
Mother	187	2.21	0.27	2.523	310	.012
Father	125	2.13	0.29			

Table 3 demonstrates that there were significant differences at 0.05 between the means of the study sample's responses about the family's awareness of the methods of oral and dental healthcare for disabled children aged 5-16 years with disabilities due to the relationship with the child (father, mother) for the benefit of the mother. The "t" value was 2.523, with a statistical significance of .012. This result suggests that moms of disabled children aged 5 to 16 years are more knowledgeable of the strategies for caring for their

children's oral and dental health than fathers.

The impact of the type of child's disability on family awareness of oral and dental healthcare methods

To tackle this question, the means and standard deviations of the participants' responses to the degree of family knowledge of oral healthcare procedures for disabled children aged 5-16 years were retrieved based on the child's disability type. The one-way analysis of

variance was also performed to demonstrate the statistical significance of the variations between those means based on the categories of the child's disability type. It is a parametric test used to compare the means or reach a decision regarding the existence or absence of differences between the mean performances of the groups subjected to different treatments. It aims to uncover the factors that make one of the averages

different from other means (Al-Mahmoudi, 2019). This test was used in this study to show the significance of the statistical differences between the arithmetic averages of the study sample's estimates about the level of family awareness of oral and dental healthcare methods for children aged 5-16 years with disabilities according to the various categories of the child's disability type. The results are displayed in Table 4.

Table 4. One-way Analysis of the Level of Family Awareness of Oral and Dental Healthcare Methods for Children Aged 5-16 Years with Disabilities due to Child's Disability

Type of disability	No.	Means	Standard deviations	Source	Sum of squares	df	Mean of squares	P	Sig.
Hearing	44	2.14	.340	Between groups	.784	5	.157		
Learning disabilities	60	2.19	.250	Within groups	24.228	306	.079	1.981	.081
Motor	53	2.08	.330	Total	25.012	311			
Mental	33	2.19	.330						
Visual	43	2.23	.180						
Autism spectrum disorders	79	2.22	.240						

Table 4 demonstrates no statistically significant differences at 0.05 between the sample's responses about the level of family awareness of methods of oral and dental healthcare for disabled children aged 5-16 years related to disability type. The "P" value was 1.981, with a statistical significance of .081. This result suggests that parents of disabled children aged 5 to 16 years are equally aware of the strategies for caring for their children's oral and dental health.

The impact of the educational qualification level on family awareness of oral and dental healthcare methods

The averages and standard deviations of the responses to the level of family knowledge of oral and dental healthcare techniques for disabled children aged 5-16 years were extracted according to qualification level. The t-test was also used

for independent samples to indicate the significance of the statistical differences between the means after the criteria for using the t-test were met to indicate the mean differences. The size of each sample in one category exceeds 30 individuals. The difference between the size of the two research samples was close, (140) high school or below and (172) university degree. Likewise, the sample was homogeneous in terms of its affiliation to one nature, which is the parents of children with disabilities in Najran region in the Kingdom of Saudi Arabia; they are similar in their cultural and social characteristics, and the extent of the moderation of the frequency distribution for each of the two research samples. In addition, the data were free of outliers or randomness. Finally, the data curve was moderate and bell-shaped. This was confirmed by the results of the Kolmogorov-Smirnov Test for Normality. The findings are shown in Table 5.

Table 5. T-test (Independent Samples) for the Level of Family Awareness of Oral and Dental Healthcare Methods for Children with Disabilities Aged 5-16 Years due to the Educational Qualification Level

Educational level	No.	Means	Standard deviations	t	df	Sig.
High school or below	140	2.05	0.26	7.595	310	.000
University	172	2.28	0.25			

Table 5 shows differences at 0.05 between the study sample's responses to family's awareness of oral and dental healthcare methods for disabled children aged 5-16 years with disabilities, attributed to educational qualification level in favor of the university. "t" scored 7.595 at .000. This result indicates that families with university education are more knowledgeable of the procedures of oral and dental healthcare for their disabled children aged 5 to 16 years old than parents with secondary education or less.

DISCUSSION

This part presents the main results of the study, their discussion and interpretation, and the recommendations that emerge from its results.

Gardens et al. (2014) see that the family represented by fathers and mothers often focus on solving academic and social problems of their disabled children and view oral health as a secondary matter. The current result agrees with that of Li Jeng et al.'s (2009) study, which confirmed that there is a weakness in families of children with disabilities in Taiwan regarding awareness of the general health of the mouth and teeth and how to provide appropriate healthcare in this area. Also, the result accords with that of Gardens et al. (2014) showed a low level of family awareness about the ways and methods of oral and dental healthcare for children with mental disabilities in India. It appears that children with disabilities in the age group 5-16 years suffer from poor oral and dental healthcare compared to their non-disabled peers. Lack of dental care, oral hygiene, and

factors related to disability may increase the importance of dentistry for children with disabilities and family awareness of the appropriate methods and methods for oral and dental health in this group. The results of this question also lead us to the importance of adopting good steps for families of children with disabilities to provide oral healthcare for children with disabilities. It is for the child to be reviewed periodically by visiting the dentist to secure primary dental care of all kinds, preventive and curative. Also, specialized dentists who can use special techniques, such as oral or intravenous Sedation preparation or general anesthesia should be reviewed. A team of specialists and consultants in pediatric dentistry who have all the capabilities and facilities for general anesthesia in specialized dental centers and hospitals should treat disabled children who have complex health conditions. It is very important for the family to provide all kinds of care and supervision for the disabled child and to encourage him to eat healthy and peaceful foods and avoid useless foods and foods that hurt his teeth.

The results showed statistically significant differences between the means of the study sample's responses about the family's awareness of the methods of oral and dental healthcare for children aged 5-16 years with disabilities due to the variable of the nature of the relationship with the child in favor of the mother. This result can be explained by the researchers' belief that mothers are more interactive and communicative with their disabled children compared to fathers because they are constantly at home given the scarcity of women going out to work outside the home

compared to men. They also bear the largest part in providing care and attention to their disabled children. Therefore, they are keen to provide the most important requirements that achieve oral and dental health and awareness of them to achieve happiness for their children (Alwadi et al., 2022). In addition, the mother is the most important person and the basis for caring for a disabled child and providing for his requirements and needs. She is the person most in contact with the disabled child and bears all his burdens in the family. Also, She is the person in the family who is most accepting of the disabled child, coexisting with him, dealing with him, and caring for him. Therefore, the mother has a major role in caring for her disabled child, raising his efficiency, ensuring his safety, and following up on his health, psychological and other conditions (Maghaz and Abdallah, 2021). Thus, mothers are more aware of the methods and methods of caring for oral and dental health in children aged 5-16 years with disabilities.

The results showed no statistically significant differences between the means of the study sample's responses about the family's awareness of the methods of oral and dental healthcare for children aged 5-16 years with disabilities due to the variable of the type of child's disability. This can be explained in light of all the different disabilities associated with health problems related to the mouth and teeth, such as gingivitis, the frequent spread of plaque, tooth decay, caries, etc. Ningrum et al. (2012) showed that children with mental disabilities and autism spectrum disorders have major problems in oral and dental health as a result of their poor ability to express their suffering from dental pain and identify what they suffer from those lesions and diseases. (Naidoo and Singh, 2018) noted that Autistic children exhibit poor dietary choices, particular behaviors, chewing hard objects, aversions, self-extraction, gum plucking, bruxism, and frequent regurgitation, which may need tooth removal. These activities may

increase their susceptibility to oral and dental health issues, which require the family's fatigue and suffering and reflect in their ability to raise awareness of the importance of oral and dental health for their children with autism disorders. Pouradeli et al. (2019) that children with hearing disabilities, due to the need to communicate with them using signs and lip-reading in communication, it is often difficult to understand their suffering from the dentist or caregivers and those responsible for them their families, which makes families overlook what they need help taking care of their mouth and teeth. As for the visually impaired, including the blind and the visually impaired, Mandic et al. (2016) showed that some of them may neglect the health of their mouth and teeth because they do not see the color and shape of the teeth, which leads to the formation of calculus and the spread of caries. Therefore, it is difficult to deal with them and direct them to take care of their dental health and conduct periodic examinations on them to detect dental lesions early and treat them. Scambler (2012) indicated that children with learning disabilities have some wrong practices such as nail biting, sometimes suffering from speech disorders, and forgetfulness, and especially practicing the daily routine of brushing their teeth. These practices may pose problems in the mouth and teeth, which the family neglects due to the difficulty of expressing or performing them.

In this regard, researchers believe that these causes, their abundance and diversity, and their association with the occurrence of diseases and pests of the mouth and teeth in children with disabilities, make families confused (Purohit and Singh, 2012). Sometimes the family finds it difficult to deal with the disabled child, especially those with multiple and severe disabilities, which negatively reflects on the family's role in awareness of the importance of providing healthcare associated with them in terms of oral and dental safety (Ningrum et al., 2012). In this case, patience and

responsibility from the family should be exercised toward providing good levels of care for children with disabilities regarding their oral health because it is a task that may be difficult and needs close monitoring and follow-up.

The results revealed differences in the participants' responses regarding the family's awareness of the methods of oral and dental healthcare for disabled children aged 5-16 years due to educational qualification level in favor of university degree holders. Perhaps, this result can be explained from the point of view of the researchers that education is a crucial variable in human understanding and awareness of the scientific and cognitive progress that revolves around them. Thus, an educated person with high university qualifications seeks new knowledge. Learners often tend towards cognitive awareness of the importance of health and ways to maintain it, and they resort to it when needed (Dardas and Ahmad, 2014). Al-Awamleh's (2015) study confirmed that the families of children with disabilities with university qualifications can read deeply about disability to understand it and learn how to deal with their disabled child. They also can overcome problems and provide them with appropriate services. In addition, the families of children with disabilities with high academic qualifications have sufficient knowledge about how to live with their disabled child and provide them with appropriate services. Therefore, they are aware of the new developments in oral and dental care for their disabled children, such as providing healthy food, visiting food specialists, using fluoride, and adhesive fillings to prevent decay and caries, and using electric toothbrushes. It is noticeable that education gives man flexibility in his thinking and behavior. Thus, increased understanding of the methods of oral and dental healthcare for disabled children. Those with academic qualifications but no university education or who are illiterate rely on traditional techniques of caring for children

with disabilities' oral and dental health, such as using a disabled child rinsing with water without using toothpaste or a wet cloth or depriving the child of eating candies and sweets.

CONCLUSIONS

The study identified the level of family awareness of oral and dental healthcare methods for 5-16-year-old disabled children in Saudi Arabia. Based on the results, there was a weak level of family awareness of the methods of oral and dental healthcare for children aged 5-16 years with disabilities. Also, statistically significant differences were found in the level of family awareness of the methods of oral and dental healthcare for children aged 5-16 years with nature of the relationship with the child disability in favor of mothers, and the academic qualification of in favor of the university academic qualification. Nevertheless, the respondents' answers did not differ by their child's type of disability. The study implicates the importance of raising the level of family awareness of oral and dental healthcare methods for 5-16-year-old disabled children in Saudi Arabia. This awareness can be though providing preventable programs of the disabled's families on the methods of taking care of their dental health.

The current study had limitations. One of the most important limitations of this study is the scarcity of previous studies on the topic of the current study within the researchers' knowledge. This is somewhat under study in the interpretation, justification and discussion of the results. The use of the descriptive method in the social survey method and the questionnaire tool was among the limitations that determined the responses of the study sample. The researchers encountered, to some extent, restrictions in interpreting the results, especially the reasons for differences or non-differences on demographic variables. It was better to use other types of research methods such as the

qualitative method and other tools such as interview and observation to understand the phenomenon in more depth.

In light of the results that have been reached, it is recommended to work on the development of a comprehensive national strategic plan supervised by the Ministry of Health and the Ministry of Social Development to reduce the risks of oral and dental diseases. As this work is an integral part of comprehensive oral and dental healthcare for children with disabilities ages 5-16 years. Therefore, it is important to direct that ministry to work on establishing a home dental unit that will supervise the training of families of children with disabilities and educate them about the most important and correct methods for maintaining oral and dental health and preventing disease risks among children aged 5-16 years with disabilities in the Kingdom of Saudi Arabia. The Ministry of Education should also conduct wide-ranging, geographical-wide programs for oral health education and awareness for children with disabilities and their families in collaboration with university dentistry colleges. In addition, a national project should be adopted through the development of medical programs broadcast on satellite channels and the official websites of the Ministry of Health, centers, and hospitals on the Internet to highlight the importance of oral and dental health and awareness of the proper methods used to prevent the risk of oral and dental diseases and pests that affect children with disabilities. Furthermore, there is a need to direct health research centers in universities and researchers towards conducting more future research. These studies investigate and explore effective interventions by families and caregivers to improve the oral health of people with disabilities. In light of the results of the significant weakness in the level of family awareness of the methods of oral and dental healthcare for children aged 5-16 years with disabilities, which constitutes a large burden of oral and dental diseases among children with disabilities,

future research can focus on further investigation and exploration to identify effective interventions from families and caregivers to improve oral health in children, adolescents, and adults with disabilities.

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