

Knowledge, Attitude and Behavior Towards Oral Health Care Among Parents / Caregivers of Children with Disabilities in Qatar

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Abstract

Background: Parents/ caregivers oral health knowledge, attitude and behaviors can either facilitate or hinder their child's oral health care or oral health promoting behaviors. The perspective of parents/caregivers has a significant bearing on the oral health, particularly for the disabled children.

Objective: To assess the knowledge, attitude and behavior towards oral health care among of parents/ caregivers of children with disabilities and to evaluate the association between education level and oral health knowledge, attitude and behaviors.

Methods: This cross-sectional, questionnaire based, descriptive study was carried out among parents/ caregivers of children with disabilities, who attended 8 Special Needs schools in Doha, Qatar. Data was analyzed using Spearman's test and Kruskal-Wallis test.

Results: Majority of the parents/caregivers knew that oral health affects general health and recognized that inadequate tooth brushing caused tooth decay. The mean knowledge, attitude and behavior scores were 7.81, 3.61 and 2.91 respectively. Highly significant correlation was found between parents'/ caregivers' knowledge and attitude ($p < .001$) as well as parents'/caregivers' knowledge and behavior ($p < .004$). Knowledge, attitude and behavior scores were significantly associated with education level.

Conclusion: Parents/caregivers of children with disabilities possess good oral health knowledge, very positive attitude and favorable behavior towards their child's oral health. Education plays an essential role in shaping their knowledge, behavior and attitude with regard to their child's oral health care and should be taken into consideration while designing Oral Health Promotion programs.

Introduction

Good oral health is an integral component of overall wellbeing and implies that teeth, gums and oral mucosal tissues are intact and free of disease. Children with disabilities often have multiple health care needs in conjunction with significant physical and cognitive limitations, which hinder their ability to perform daily activities. Hence, as a group, children with disabilities are more likely to have dental diseases than are typically developing children [1, 2].

Maintaining optimal oral health in children with disabilities is very challenging. They are often at high risk for developing oral diseases

like dental caries and periodontal diseases. The reasons may be due to frequent use of medicine high in sugar, reduced clearance of foods from the oral cavity, impaired salivary function, preference for carbohydrate-rich foods, a liquid or puréed diet, oral aversions and side effects of medications resulting in gingival hyperplasia or xerostomia [3]. Their self-care competencies are often compromised which leads to increased reliance on parents/ caregivers to assist their daily activities including oral health care. Their oral health needs have also increased in the recent years because children with disabilities are much more likely to survive into adulthood than they were in previous decades [4]. Hence prevention of oral diseases should receive high priority among these children.

With the birth of a child, every parent adopts a new responsibility in their life. Parents of the children with disabilities face additional series of unexpected challenges during their life span. Their children are directly reliant on them for most of their daily activities, depending on the type and level of disability. Hence parents play a pivotal role in preventing oral diseases and promoting the oral health of this vulnerable group.

Parents/ caregivers oral health knowledge, attitude and behaviors can either facilitate or hinder their child's oral health care or oral health promoting behaviors. Most of their dental diseases can be prevented by concerted efforts of parents and caregivers, particularly with regards to daily oral hygiene and regular dental visits for the children with disabilities. Many published studies reveal that parents/ caregivers do not have the requisite knowledge or values to recognize the importance of oral hygiene and do not themselves practice appropriate oral hygiene measures or choose a proper diet [5, 6].

In the case of children with disabilities, parents' knowledge, attitude and behavior towards their child's oral health care is a fundamental component that establishes optimal oral health status for the child. It is also an important indicator for the adoption of preventive measures. There is dearth of research data regarding the oral health status of children with disabilities in Qatar and to our knowledge there are no previous studies evaluating the knowledge, attitude and behavior towards oral health care among parents/caregivers of children with disabilities in Qatar. Hence, the objectives of this study were to assess the knowledge, attitude and behavior towards oral health care among of parents/caregivers of children with disabilities and to evaluate the association between education level and oral health knowledge, attitude and behaviors. The evidence acquired through this study will help identify and bridge the gaps in knowledge, thereby reshape the attitudes and behaviors of parents/caregivers of children with disabilities.

Methods

A cross-sectional study was conducted to collect self-administered questionnaires from parents/caregivers who cared for children with disabilities studying in Special Needs schools in Qatar. This research was conducted in full accordance with the World Medical Association Declaration of Helsinki. Necessary permissions were acquired from the Principals of the respective schools and the parents/ caregivers of the respective schools. Participation of parents/ caregivers in the survey was voluntary and anonymous.

Disabled children from diverse backgrounds and ethnicities receive education at Special Needs schools in Qatar, which are uniquely designed, staffed and resourced to provide appropriate special education for children with disabilities. List of the Special Needs schools was obtained from the Ministry of Education. It was established that around 300 children with different levels of physical and intellectual disabilities were enrolled in these schools.

2 out of the 10 schools refused to cooperate for the study. Self-administered structured questionnaires were distributed to all the parents/caregivers of the children in the participating schools. A covering letter was delivered to the parents/caregivers inviting them to participate in the survey. The purpose of the study and contents of the questionnaire were explained and signed informed consents

were obtained from those willing to participate in the survey.

The questionnaire was anonymized to obtain honest feedback. Study was voluntary and full confidentiality of the collected data was provided to the participants. The questionnaire was divided into 2 sections. The first part of the questionnaire collected demographic information about the parent/ caregiver (age, gender, education level). The second part enquired about the knowledge, attitude and behavior of parents/caregivers towards the oral health care of the children with disabilities.

The questionnaire was constructed in English and translated into Arabic language by a panel of experts. The Arabic questionnaire was again back translated into English by an expert who was well versed in both Arabic and English. It was later reviewed by some teachers at Special Needs school and a few parents for assessment of face validity. The questionnaire was pretested on 10 parents/ caregivers to assess the clarity and appropriateness. Any ambiguity related to the questions was discussed and cleared. The questionnaire comprised of 10 questions in the knowledge category, 4 in attitude category and 5 in behavior category respectively.

The questionnaires were delivered to the parents/caregivers through the school nurses of the respective Special Needs Schools. The school nurse distributed the questionnaires to every child to take home and convey it to their parents/caregivers and the response were collected for 10 days duration of the study. Reminder message to return the filled in questionnaires were sent to parents/ caregivers after 5 days, by the school nurses. Respondents who signed the informed consent form constituted the study population. Parents/ caregivers who did not return the consent form or gave incomplete responses to the questionnaire were excluded from the study.

Statistical Analysis: The data was analyzed using Statistical Package for Social Sciences version 25. Descriptive analysis of data included frequency distributions in numbers, percentages and means of parents' /caregiver's knowledge, attitudes and behaviors. Spearman's test was used to assess the correlation between knowledge, attitude and behavior. The effect of education on each of the domains of knowledge, attitude and behavior were evaluated using Kruskal-Wallis test. Confidence interval was set to 95% and p value at 0.05 to analyze the level of significance.

Results

Out of 219 questionnaires dispatched, 100 parents/ caregivers responded to the survey, providing an overall response rate of 45%. However only 94 were included in the final analysis after eliminating the responses based on the exclusion criteria. The final study population comprised of 25 (26.5%) males and 69 (73.5%) females, with a mean age of 40 years, ranging from 21 to 60 years. 41% of the children in these special needs schools suffered from physical disabilities and 59% were mentally/ intellectually challenged. Our results indicate that the primary oral care providers for majority of the children with disabilities were their mothers (83%). Regarding the highest level of education attained nearly one-third reported to have University education and above, 48% had attained school level and 18% reported to have no formal education (Table 1). Table 2 summarizes the Summarizes the oral hygiene practices for the children with disabilities. 42% of the parents/caregivers cleaned their child's teeth once daily, while 46%

cleaned twice a day. Manual tooth brush was the most frequently used tooth cleaning aid. With regards to their knowledge and behavior towards the use of fluoridated toothpaste, it was found that 63% reportedly used fluoridated tooth paste to clean their disabled child's teeth. Nearly one third did not or were unaware of fluoridated tooth pastes. 47 among them also knew that nonuse of fluoride tooth paste can cause tooth decay.

Table 1: Demographic characteristics of the study population.

		Number	Percentage
Age	21-30	9	9.5
	31-40	41	43.6
	41-50	36	38.4
	51-60	8	8.5
Gender	Male	25	26.5
	Female	69	73.5
Primary oral care provider	Mother	78	83
	Nanny	4	4
	Others	12	13
Highest Level of Education attained	University and above	32	34
	School	45	48
	No formal education	17	18

Table 2: Oral Hygiene practices of the children with disabilities

		Number	Percentage
Frequency of cleaning the teeth	Once daily	39	42
	Twice daily	43	46
	More than twice	6	6
	Not cleaned everyday	6	6
Method of cleaning	Manual toothbrush	91	97
	Powered toothbrush	3	3
	Teeth cleaned with cloth	0	0
	Teeth are not cleaned	0	0
Use of fluoride toothpaste for the child	Yes	59	63
	No	9	9
	Don't know	26	28

Oral health knowledge of the parents/caregivers is described in (Table 3). Majority of the them (86) knew that oral health affects general health and 84 recognized that inadequate tooth brushing caused tooth decay. 70 parents/ caregivers were aware that sweet and acidic foods lead to tooth decay and the same proportion acknowledged that lack of regular dental check-ups can cause tooth decay. 73 parents/caregivers were aware that not rinsing the mouth after eating sweets causes tooth decay. Knowledge about availability of modified tooth cleaning aids for oral care of people with disabilities was reported by 72 among them. However, we noticed ambiguity for responses to causes of tooth decay due to non-utilization of fluoride tooth paste together with side effects of medications. More than half of the parents/caregivers knew that dental plaque and tendency towards holding food inside the mouth for long resulted in tooth decay.

Evaluation of parents'/caregivers' attitudes towards the disabled children's oral health care showed that more than 80 of them had positive attitude concerning the necessity to clean the child's teeth more than once daily, replacement of tooth brush once in 3 months or when the bristles fray as well as towards prevention and treatment of tooth decay and gum diseases as illustrated in Table 4.

Table 3: Parents/caregivers oral health knowledge

Sl No.	Question	Yes	No	Don't know
1.	Does Inadequate tooth brushing cause tooth decay	84	5	5
2	Nonuse of fluoride tooth paste causes tooth decay	47	23	24
3	Sweet and Acidic food cause tooth decay	70	9	15
4	Medicines especially syrups cause tooth decay	37	30	27
5	Dental plaque causes tooth decay	63	12	19
6	Lack of regular dental checkups causes tooth decay	70	11	13
7	Lack of mouth rinsing after eating sweets causes tooth decay	73	7	14
8	Holding food in mouth for long time causes tooth decay	68	15	11
9	Does oral health effect general health	86	2	6
10	Can problems in milk teeth affect permanent teeth	64	15	15
11	Are modified tooth cleaning aids available for people with disabilities?	72	16	6

Table 4: Parents/caregivers attitude towards disabled child's oral health

SI No.	Question	Positive attitude	Negative attitude
1.	Do you think it is possible to prevent the child's tooth decay and gum diseases?	82	12
2.	Do you think it is possible to treat the child's tooth decay and gum diseases?	87	7
3.	Do you think it is essential to clean the teeth more than one time in a day?	82	12
4.	Do you think it is necessary to change the tooth brush every 3 months or when the bristles fray?	88	6

Greater variations were observed for responses to questions assessing the parents'/caregivers' behaviors towards the disabled children's oral health. Table 5 depicts that 72 of them displayed favorable behavior of having taken the child to a dentist earlier. Our evidence also shows that merely 36 parents/caregivers undertake regular dental check-ups for the children once in 6 months, and surprisingly half of them did not examine the child's teeth even when he/she had a toothache.

Table 5: Parents/caregivers behavior towards disabled child's oral health

SI No.	Question	Favorable behavior	Unfavorable behavior
1.	Do you examine the child's teeth regularly?	60	34
2.	Do you examine the child's teeth only when he/she has tooth ache?	47	47
3.	Have you taken the child to a dentist before?	72	22
4.	Do you take the child for regular dental check-up once in 6 months?	36	58
5.	Do you use fluoridated toothpaste to clean the child's teeth?	59	35

For further analysis of our data, every correct response for the parent's/ caregiver's knowledge, ideal attitude and behavior was given a score of 1 and the mean scores for each of the domains were computed. The mean knowledge, attitude and behavior scores were 7.81, 3.61 and 2.91 respectively. Results of correlation tests shown in Table 6 reflect a highly significant correlation between parents'/ caregivers' knowledge and attitude ($p < .001$) as well as parents'/caregivers' knowledge and behavior ($p < .004$). However, there was no significant correlation between their attitude and behavior.

Table 6: Correlation between knowledge, attitude and behavior of parents/caregivers towards their disabled children's oral health

Variables	Correlation Coefficient	Significance
Knowledge and Attitude	.41	$p < .001$
Knowledge and Behavior	.29	$p < .004$
Attitude and Behavior	.098	.348

Spearman's Correlation

Table 7 indicates that when the parents'/caregivers' knowledge, attitude and behavior scores were compared with their education level, those with university education had significantly higher mean oral health knowledge ($p < .001$) and behavior scores ($p = .034$).

Table 7: Comparison of Parent’s/caregivers education level and knowledge, attitude and behavior towards oral health of children with disabilities

	Group	n	Mean ± SD	Significance
Knowledge	University and above	32	8.75±1.7	p<.001
	School	45	7.78±2.4	
	No education	17	6.12±2.8	
Mean knowledge score			7.81±2.4	
Attitude	University and above	32	3.72± .52	.526
	School	45	3.64± .83	
	No education	17	3.29±1.31	
Mean attitude score			3.61±.858	
Behavior	University and above	32	3.22± .87	.034
	School	45	2.93±1.15	
	No education	17	2.29±1.26	
Mean behavior score			2.91±1.12	

Kruskal-Wallis test

Discussion

Individuals with disabilities in Qatar make up less than 0.50% of the total population. Qatari Law safeguards the rights of people with disabilities and mandates for them special provisions in various spheres of life including education, medical and social care, transportation and employment amongst many others [7]. Qatar has for long adopted several initiatives to prohibit discrimination against persons with disabilities.

Doha Declaration, released during the Doha International Conference on Disability and Development, 7-8th December 2019, sets out an action-oriented approach, which may form a core reference point Internationally for policy development about human rights and sustainable development in the context of disability. Under the theme: “Leaving No One Behind”, 1,500 policy-makers and practitioners declared 11 landmark recommendations, one amongst which is, “Acknowledge the role of families in the wellbeing of persons with disabilities and empower family members, emphasizing UNCRPD commitment on providing persons with disabilities and their family members the necessary protection and support to enable families to contribute towards the full and equal enjoyment of the rights of persons with disabilities” [8].

Parents/caregivers are important decision makers for the oral health of the children, more so ever when the children suffer from disabilities. Hence this analytical research was specifically conducted to assess the knowledge, attitude and behaviors of parents/caregivers, which are cardinal components that can either facilitate or hinder the disabled child’s oral health.

Most of the common dental diseases are preventable. The real challenge in promoting the oral health of the children with disabilities is supporting the parents/ caregivers with information

about the cause of dental diseases before the problem arises and educating them about prevention, thereby decreasing the long-term treatment needs for the disabled children. We should also identify common barriers they may encounter like difficulty in maintaining daily oral hygiene routine, uncooperative child behavior or stress, and empower them with strategies to overcome these challenges. Disseminating such knowledge will play an essential role in reshaping the attitudes and behaviors of parents/caregivers towards prevention and timely treatment.

Our results demonstrate that most of the parents/caregivers of children with disabilities in Qatar had good oral health knowledge, very positive attitude and favorable behavior regarding their child’s oral health. Majority of primary oral care providers for the disabled children in our study were their mothers. This fact coincides with previous research that showed mothers play an important role in maintaining oral hygiene of the children [9, 10].

91 parents/caregivers reported using manual toothbrushes to clean the disabled child’s teeth. Although the parents/caregivers were aware of the availability of modified tooth brushes, there was no reported use of modified tooth brushes or powered tooth brush. This finding is similar to that of Shah et al who noted that though the caregivers of disabled children had heard or seen the powered toothbrushes, none had used them [11].

Knowledge about use of fluoridated tooth paste to prevent dental caries in our study was similar to that reported by Shah et al in Saudi Arabia, but surprisingly none of the parents in an Indian study by Krishnan et al knew about role of fluoride in preventing caries [12].

Parents’/caregivers attitudes towards prevention and treatment of tooth decay and gum diseases in our study were more positive

than that reported by Krishnan et al [12]. Preceding effective Oral Health Programs conducted in Qatar for the community through observation of Oral Health Month annually and perennial dental camps, awareness programs, free dental screening services, mass media and social media campaigns might have contributed towards this result.

60 parents/caregivers admitted having taken their child to a dentist at least once in the past. However, when it came to regular visits once in every 6 months, only 36 responded in the affirmative. This statistic echoes the other reports wherein the parents take the child to a dentist only for symptomatic treatment of dental pain and do not undertake regular dental visits [11, 12]. This type of unfavorable behavior appears to be universal among the parents/caregivers, which reflects the low priority assigned to oral health. It may also stem from their apprehension of the child's behavior in the dental clinic, fear of child experiencing pain, high cost of dental care or lack of knowledge about the importance of regular dental check-ups, all of which might foster preventive care and dental treatment redundant for children.

In Qatar, dental treatment for children with disabilities is provided free of cost at all Primary Health Care Centers. 3 health centers have Special Needs Dentistry clinics managed by proficiently trained dentists and Pedodontists to care for children with disabilities. Increasing parents'/caregivers' awareness about these facilities can encourage them to adopt regular preventive oral health care for the children with disabilities. Continued Professional Development programs are also regularly conducted to provide training and improve the competencies of general dental practitioners to treat children with disabilities.

The parents/caregivers in our study had better education: 34% university level and 48% school level, which has reflected in significantly good mean knowledge score. Our evaluation also revealed that parents'/caregivers' knowledge and behavior were significantly associated with their level of education. It is conceivable that with better education, the individual acquires greater understanding of the etiology of the dental diseases and comprehension of the risk factors, translating into demonstration of proactive behavior for maintaining regular, optimal oral hygiene and seeking preventive care and timely treatment. People with higher levels of education have the knowledge to seek regular dental care and understand how it could benefit them. They probably would have learnt the oral health concepts from their university/ schools or through the media [13].

Parents'/caregivers' oral health knowledge was significantly associated with their behaviors as well as attitudes. Interestingly, our study did not show a significant association between the attitudes and behavior. This may be attributed to the fact that parents'/caregivers' attitudes are generally shaped by an intricate interplay of two major determinants- cultural/societal norms and their own learned experiences. Ethnicity, familial practices, religious beliefs and cross-cultural differences may also have resulted in lack of association between oral health attitude and behavior established in our study.

A similar study in India among parents of children with special

needs revealed poor oral health knowledge. This observation was ascribed to the education level of the parents as only 2.6% had graduate degree and nearly half (47.8%) were not educated [12].

In contrast to our study, research conducted in Taiwan by Liu et al, concluded that caregivers' attitude was the key factor, more important than knowledge which dominates the oral health behavior [14]. However, they also confirmed that oral health knowledge, attitude and behavior among caregivers was significantly associated with their education level [14].

This study furnishes the background data to gain comprehensive overview of the knowledge, attitude and behavior of parents/caregivers towards the oral health care of the children with disabilities in Qatar. Better understanding of parents'/caregivers' knowledge, attitude and behavior provides valuable insights on their decision-making process which culminate with major implications on the child's oral health.

Conclusion

Overall, parents/caregivers of children with disabilities in Qatar possess good oral health knowledge, very positive attitude and favorable behavior towards their child's oral health. Education plays an essential role in shaping their knowledge, behavior and attitude with regard to their child's oral health care and should be taken into consideration while designing Oral Health Promotion programs.

In our study, parents/caregivers had good oral health knowledge. Their attitude towards prevention of dental diseases and behavior towards regular dental care need to be improved and upgraded.

Discrete Oral Health Education programs and group targeted approaches, which are culturally appropriate, acceptable and matched to the learning aptitudes should be aimed at parents/caregivers with lower educational levels to bring about improvement in their oral health knowledge, attitude and behavior. Oral Hygiene training programs focusing on adequate plaque control, education about the importance of fluoride and regular dental visits should receive high priority to empower parents/caregivers to promote the child's as well as their own oral health. One limitation of our study is that the results are based on survey of disabled children in Special Needs schools and are not representative of home bound disabled children. Hence, the results cannot be extrapolated and generalized. Further studies on children with disabilities in Qatar are recommended.

It needs to be reiterated that synchronized efforts between parents, caregivers, dental professionals, school personnel, as well as policy makers are needed to affirm the commitment to improve oral health of disabled children in Qatar and across the world.

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