



SELF-PERCEIVED ORAL HEALTH STATUS AND ORAL HEALTH-RELATED ATTITUDE AMONG SPECIAL NEEDS SCHOOL CHILDREN AND YOUNG ADULTS IN NORTH-WESTERN NIGERIA

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ABSTRACT

To evaluate the self-perceived oral health status and oral health-related attitude among special needs school children and young adults in north-western Nigeria. This was a cross-sectional questionnaire survey among special needs school children and young adults in north-western Nigeria. The participants' socio-demographics, self-perceived oral health status, and oral health-related attitude were determined via descriptive statistics. IBM SPSS version 23.0 was used for data analyses. Statistical significance was set at a P-value ≤ 0.05 . Two hundred and thirty-six special needs students participated in the study. The self-perceived oral health status of the study participants was generally good. Analysis of their oral health attitude shows more than half of the participants (n=133; 56.4%) agreed that it was important to visit the dentist whether one had pain or not. A majority (n=188; 79.7%) agreed that the care of the teeth and gum is as important as other parts of the body. However, over half of the participants (n=127; 53.8%) believed that teeth and gum problem is less important than other health problems. The oral health attitude level of the study population was fair with a mean attitude score of 3.93 ± 1.77 . The result was statistically significant ($p=0.000$). The self-perceived oral health status of the study participants was generally good, and their oral health attitude level was fair. However, areas of poor self-perception and negative attitudes were observed. Therefore, we recommend oral health programmes that aim to improve these observed areas.

Keywords: Attitude, children, oral health, self-perception, special needs, young adults.

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INTRODUCTION

Oral health is multidimensional, it involves among others, the ability to talk, savour, feel, masticate, swallow, and a host of emotional and facial actions in the absence of aches, soreness, tenderness, and ailments of the maxillofacial region [1]. This implies that oral health plays a significant role in an individual's well-being and quality of life [2]. Oral diseases are usually accompanied by serious challenges [3, 4] that could affect the ability to eat, sleep and communicate, [3 - 6] this could impact productivity at work or school [4]. Fortunately, the majority of oral diseases can be prevented [7 - 10] by proper and fitting healthcare actions and lifestyle [7].

Self-perception of oral health status evaluates the importance placed on oral health and an individual's attitude to dental care for healthy oral health status [11]. Several studies have reported a relationship between self-perceived/reported oral health, attitude, and health status [12, 13, 14]. Sharda and Shetty [13], reported that proper attitude in conjunction with good oral hygiene practice was associated with better oral health. Similarly, Igbinsosa and Okeigbemen [14] observed a direct relationship between good oral health attitudes and good oral hygiene status. The bedrock of most oral health education programmes is often based on the knowledge-attitude-practice (KAP) model of oral health

[15]. In line with this model, correct oral health knowledge gives rise to healthy attitudes which in turn leads to adequate and healthy oral health practices, which in turn gives rise to good oral health status [13, 15]. Thus, the self-perception and attitude regarding the oral health of a given population are crucial when planning appropriate oral health education programmes.

Disabilities may present in different forms and levels of severity. Some of these disabilities as represented by the study population include intellectual, visual, hearing, and physical disabilities. These special needs students, like every other student, need to have the right attitude and perception of oral health care, as this can help improve their oral health behaviour and, consequently, their oral health status. Unfortunately, this is not always the case due to the inherent challenges of some disabilities having a direct or indirect influence on their attitude, self-esteem/perception, and behaviours in general. For example, those with Autism usually have difficulty with day-to-day interactions with people. They may display attitudes considered abnormal by others [16] like not responding to their name, not being interested in those around them, and having challenges with controlling their emotions [16]. Similarly, those with intellectual disabilities have been reported to be three to five times more likely to exhibit negative attitudinal and mental health-related issues than those without intellectual disabilities [17]. Those with Down

syndrome, present with a variable magnitude of mental health problems, leading to limitations in socialization and community skills [18,19,20], which may affect their self-esteem/perception. Hearing-impaired children have been reported to be less socially mature, have less positive self-perception, and have a higher incidence of emotional and attitudinal problems than their hearing peers [21].

Considering the inherent difficulties faced by special needs individuals and the extra burden an oral disease may place on them, there is a need to prioritize oral health education and promotion programs for these vulnerable groups. For such programs to be optimal and most effective, their current self-perceived oral health status and oral health-related attitude need to be assessed.

There is a dearth of oral health-related KAP studies in Nigeria among special needs individuals and to the authors' knowledge, there is none in the north-western region. Thus, this study aims to evaluate the self-perceived oral health status and oral health-related attitude among special needs school children and young adults in north-western Nigeria.

MATERIALS AND METHODS

Study area

The study was conducted amongst Abdulrasheed Adisa Raji Special School students, in Sokoto, Nigeria.

Study design

This was a cross-sectional questionnaire-based survey

Ethical clearance

Ethical clearance was obtained from Usmanu Danfodiyo University Teaching Hospital Ethics Board. Also, approval to use the school was gotten from the Sokoto State Ministry of Basic and Secondary Education

Sampling collection

Using Yamane's (1967) formula [22], a sample size of 212 was calculated from a population of 448. It adjusted to 236 following compensations for 10% non-respondent. The respondents were grouped into the 4 established special needs groups of the school namely; physical, visual, hearing, and intellectual disability groups. Where participants had more than one disability, the school's arrangement of grouping such persons by their most severe/pronounced disability was adopted. All the students of the school who were willing to participate in the study and presented signed parental/guardian informed consent certificates were included. Those who did not meet the above criteria and those who were very ill, uncooperative, and absent during the survey period were excluded.

To ascertain the needed sample size for each disability group, a stratified random sampling proportional-to-size formula was employed as shown below

$$\frac{\text{Population of each disability group}}{\text{Total study population}} \times \text{sample size} =$$

Sample size for each disability group. A systematic random sampling was subsequently used to select each study participant.

Data collection procedure

A modification of the assessment form of the World Health Organization (WHO) [23], (i.e., Oral Health Questionnaire for Children 2013) was done to fit the study objective and the participants' peculiarities. Questions not related to self-perceived oral health status and oral health-related attitudes were not included in the study questionnaire, while some relevant questions to the study but not contained in the Oral Health Questionnaire for Children 2013 were added to the study questionnaire. To ensure clarity, comprehensiveness, and acceptability of the final output, the questionnaire was pre-texted on twenty (20) special needs students (5 per each group) by the trained special needs teachers/instructors of the school. Each respondent participated in an interviewer-administered structured closed-ended questionnaire, divided into sociodemographic, self-perceived oral health status, and oral health-related attitude sections. The questionnaire was administered by the same trained teachers/instructors of each disability group who had administered the pre-text questionnaire.

Analysis

IBM SPSS for Windows, Armonk, New York, USA (Version 23.0) software was used. The participants' socio-demographics, self-perceived oral health status, and oral health-related attitude were determined via descriptive statistics. Their self-perceived oral health status and oral health-related attitude were also analyzed by disability types using bivariate analysis. Also, their oral health attitude was scored and graded. For each question, the correct option was assigned 1 point while the incorrect option/ unsure option was assigned 0 points. Based on the attitude score of each participant, a grade was assigned out of the three feasible grades namely, poor, fair, and good. The breakdown is as follows: Oral Health Attitude (range= 0-8): 0-3= poor, 4-5= fair, 6-8= good. Bivariate analysis was utilized in determining the relationship between oral health attitude grade and disability type. Statistical significance was set at a P-value ≤ 0.05 .

RESULTS

A total of 236 special needs students aged 6-28 years participated in the study. Figure 1 shows the majority of

the participants were in the 13-19 years old age group (n=147; 62.3%). Male students accounted for the majority of the participants (n= 167; 70.8%), with female students accounting for 29.2%(n=69). Students

with hearing disabilities had the most representatives (n=124; 52.5%) among the special needs group. Figure 2

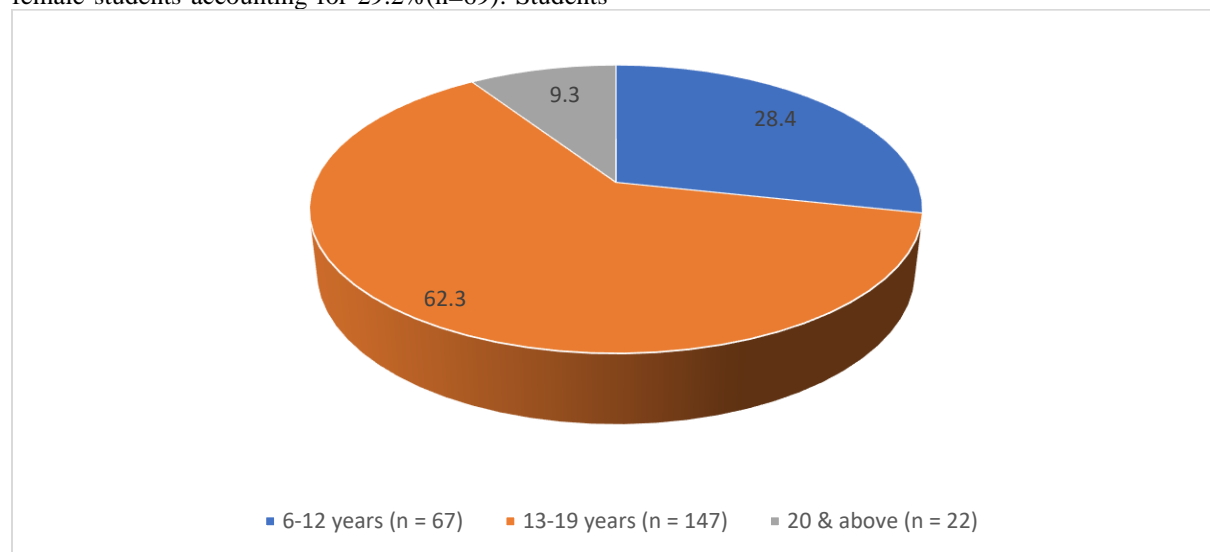


Figure 1: Distribution of study participants by age group

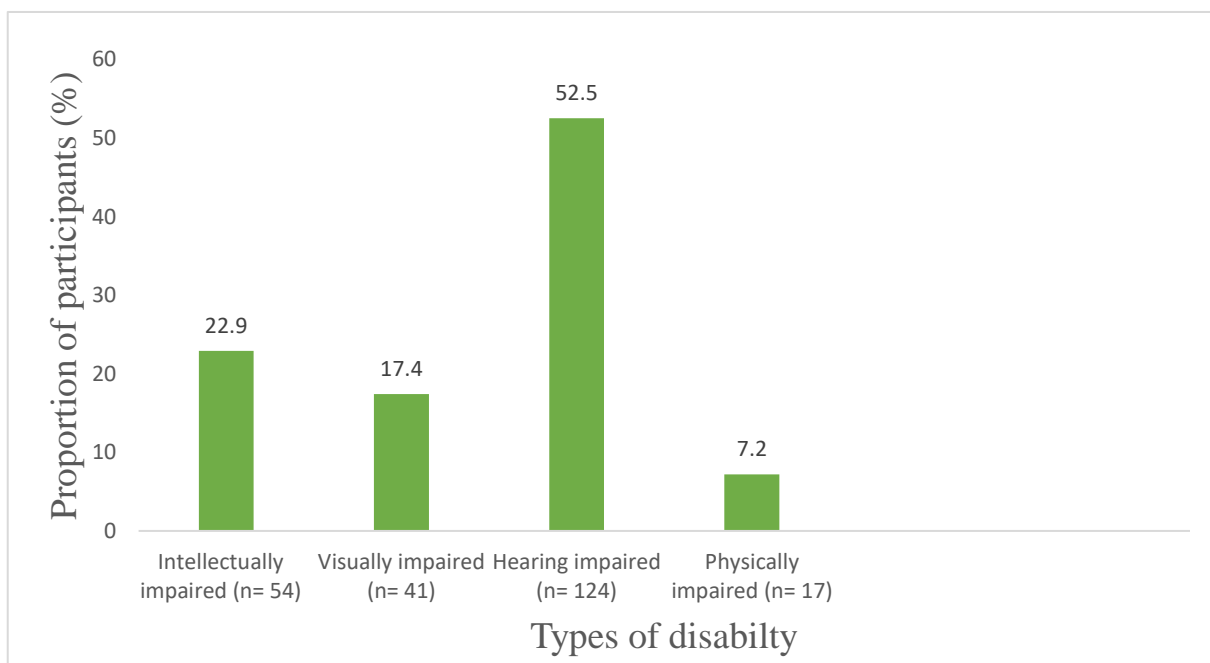


Figure 2: Distribution of study participants by disability types

The self-perceived oral health status of the study participants was generally good with more than 80% of participants choosing between the good to excellent options in response to questions on the health of their

teeth and gum, 63.6% (n=150) were satisfied with the appearance of their teeth, 79.7% (n=188) didn't believe other children made fun of their teeth. Table 1 shows finding details.

Table 1: Self-Perceived Oral Health Status Among Study Subjects

Variable	Options	Frequency (n)	Percentage (%)
How would you describe the health of your teeth?	Excellent	4	1.7
	Very good	78	33.1
	Good	119	50.4
	Average	25	10.6
	Poor	5	2.1
	Very Poor	4	1.7
	Don't Know	1	0.4
	Excellent	4	1.7
How would you describe the health of your gum?	Very good	59	25.0
	Good	143	60.6
	Average	22	9.4
	Poor	6	2.5
	Very poor	2	0.8
I am not satisfied with the appearance of my teeth	Yes	80	33.9
	No	150	63.6
	I don't know	6	2.5
Other children make fun of my teeth	Yes	39	16.5
	No	188	79.7
	I don't know	9	3.8

Analysis of the self-perceived oral health status by disability type revealed that the different disability types had good perceptions of their oral health status, with a majority having good to excellent responses to all the variables examined, except that of the appearance of

teeth which a majority of the intellectually disabled participants (64.8%; n= 35) and more than half of the visually disabled participants (51.2%; n=21) believed to be unsatisfactory. Table 2

Table 2: Self-Perceived Oral Health Status by Disability Type

Variable	Intellectual disability (%)	Visual disability n (%)	Hearing disability n (%)	Physical disability n (%)	p-value
How would you describe the health of your teeth?					0.116
Excellent	0 (0.0)	0 (0.0)	2 (1.6)	2 (11.8)	
Very good	20 (37.0)	11 (26.8)	43 (34.7)	4 (23.8)	
Good	27 (50.0)	23 (56.1)	61 (49.2)	8 (47.1)	
Average	4 (7.4)	3 (7.3)	16 (12.9)	2 (11.8)	
Poor	1 (1.9)	2 (4.9)	1 (0.8)	1 (5.9)	
Very Poor	1 (1.9)	2 (4.9)	1 (0.8)	0 (0.0)	
Don't Know	1 (1.9)	0 (0.0)	0 (0.0)	0 (0.0)	
How would you describe the health of your gum?					0.020
Excellent	0 (0.0)	0 (0.0)	2 (1.6)	2 (11.8)	
Very good	18 (33.3)	8 (19.5)	29 (23.4)	4 (23.5)	
Good	30 (55.6)	25 (61.0)	80 (64.5)	8 (47.1)	
Average	4 (7.4)	4 (9.8)	12 (9.7)	2 (11.8)	
Poor	2 (3.7)	2 (4.9)	1 (0.8)	1 (5.9)	
Very Poor	0 (0.0)	2 (4.9)	0 (0.0)	0 (0.0)	
I am not satisfied with the appearance of my teeth					0.000
Yes	35 (64.8)	21 (51.2)	16 (12.9)	8 (47.1)	

No	18 (33.3)	19 (46.3)	104 (83.9)	9 (52.9)	0.00
I don't know	1 (1.9)	1 (2.4)	4 (3.2)	0 (0.0)	
Other children make fun of my teeth					
Yes	20 (37.0)	11 (26.8)	6 (4.8)	2 (11.8)	
No	33 (61.1)	26 (63.4)	114 (91.9)	15 (88.2)	
I don't know	1 (1.9)	4 (9.8)	4 (3.2)	0 (0.0)	

Evaluating the oral health attitude of the participants as shown in Table 3, more than half of the participants (n=133; 56.4%) agreed that it was important to visit the dentist whether one had pain or not. While a majority (n=188; 79.7%) agreed that the care of the teeth and gum is as important as other parts of the body. However, on the importance of teeth and gum problems compared to other health problems, over half of the participants (n=127; 53.8%) believed that teeth and gum problem is less important than other health problems. More than 50% correctly disagreed with the notion that milk teeth

are not important because they fall out soon (n=125; 53%). More than 45% (n=107; 45.3%) believed that it was not necessary to worry about the colour of one's teeth.

A majority (n=189; 80.1%) believed that toothache should be the main reason for visiting a dentist and more than half (n=122; 51.7%), believed One should avoid going to the dentist because of possible pain. Finally, most participants (n=173; 73.3%) agreed that how to keep their mouth clean and healthy was relevant information everyone should seek after.

Table 3: Oral Health Attitude Among Study Participants

Variable	Responses		
	I agree n (%)	I disagree n (%)	I am not sure n (%)
It is important to visit the dentist whether one has pain or not	133 (56.4)	89 (37.7)	14 (5.9)
The care of the teeth and gum is as important as other parts of the body	188 (79.7)	35 (14.8)	13 (5.5)
Teeth and gum problem is less important than other health problems	127 (53.8)	75 (31.8)	34 (14.4)
Milk teeth are not important because they fall out soon	70 (29.7)	125 (53.0)	41 (17.3)
It is not necessary to worry about the colour of one's teeth	107 (45.3)	122 (51.7)	7 (3.0)
Toothache is the main reason for visiting a dentist	189 (80.1)	29 (12.3)	18 (7.6)
One should avoid going to the dentist because of possible pain	122 (51.7)	85 (36.0)	29 (12.3)
How to keep the mouth clean and healthy is relevant information one should seek after	173 (73.3)	20 (8.5)	43 (18.2)

Analysis of the oral health attitude by the type of disability (Table 4), shows that the physical disability group had the best attitude on the importance of dental visits regardless if there was pain or not with 82.4% agreeing that it was important to do so. They also had the best attitude concerning the care of the teeth and gum being as important as other parts of the body (94.1%) and correctly disagreed with the notion that One should avoid going to the dentist because of possible pain (47.1%).

On the other hand, the hearing disability group had the best attitude in correctly disagreeing with the following notions; Teeth and gum problem is less important than other health problems (37.1%), Milk teeth are not important because they fall out soon (69.4%), It is not necessary to worry about the colour of one's teeth (75.0%). They also had the best attitude in correctly agreeing that how to keep the mouth clean and healthy is relevant information one should seek (91.1%).

Table 4: Participants' Oral Health Attitude by Disability Type

Oral health attitude statements	Intellectual disability n (%)	Visual disability n (%)	Hearing disability n (%)	Physical disability n (%)	p-value
It is important to visit the dentist whether one has pain or not					0.000
I agree	33 (61.1)	31 (75.6)	55 (44.4)	14 (82.4)	

I disagree	16 (29.6)	6 (14.6)	66 (53.2)	1 (5.9)	0.040
I am not sure	5 (9.3)	4 (9.8)	3 (2.4)	2 (11.8)	
The care of the teeth and gum is as important as other parts of the body					
I agree	36 (66.7)	34 (82.9)	102 (82.3)	16 (94.1)	0.000
I disagree	11 (20.4)	5 (12.2)	19 (15.3)	0 (0.0)	
I am not sure	7 (13.0%)	2 (4.9)	3 (2.4)	1 (5.9)	
Teeth and gum problem is less important than other health problems					0.000
I agree	28 (51.9)	19 (46.3)	72 (58.1)	8 (47.1)	
I disagree	17 (31.5)	10 (24.4)	46 (37.1)	2 (11.8)	
I am not sure	9 (16.7)	12 (29.3)	6 (4.8)	7 (41.2)	0.000
Milk teeth are not important because they fall out soon					
I agree	20 (37.0)	15 (36.6)	28 (22.6)	7 (41.2)	
I disagree	22 (40.7)	15 (36.6)	86 (69.4)	2 (11.8)	0.000
I am not sure	12 (22.2)	11 (26.8)	10 (8.1)	8 (47.1)	
It is not necessary to worry about the colour of one's teeth					
I agree	42 (77.8)	25 (61.0)	30 (24.2)	10 (58.8)	0.463
I disagree	10 (18.5)	14 (34.1)	93 (75.0)	5 (29.4)	
I am not sure	2 (3.7)	2 (4.9)	1 (0.8)	2 (11.8)	
Toothache is the main reason for visiting a dentist					0.000
I agree	40 (74.1)	34 (82.9)	102 (82.3)	13 (76.5)	
I disagree	10 (18.5)	5 (12.2)	13 (10.5)	1 (5.9)	
I am not sure	4 (7.4)	2 (4.9)	9 (7.3)	3 (17.6)	0.000
One should avoid going to the dentist because of possible pain					
I agree	21 (38.9)	18 (43.9)	79 (63.7)	4 (23.5)	
I disagree	19 (35.2)	16 (39.0)	42 (33.9)	8 (47.1)	0.000
I am not sure	14 (25.9)	7 (17.1)	3 (2.4)	5 (29.4)	
How to keep the mouth clean and healthy is relevant information one should seek after					0.000
I agree	20 (37.0)	28 (68.3)	113 (91.1)	12 (70.6)	
I disagree	15 (27.8)	4 (9.8)	1 (0.8)	0 (0.0)	
I am not sure	19 (35.2)	9 (22.0)	10 (8.1)	5 (29.4)	

Note: p-value= Probability/Significance

Further analysis of oral health attitude level by type of disability shows that the hearing-impaired group had the overall best attitude with 70.2% having a grade of either fair or good. The intellectually impaired group had the worst attitude with 29.6% having a grade of either fair

or good (see Table 5). The study population's overall oral health attitude level was fair with a mean attitude score and standard deviation of 3.93 ± 1.77 . Oral health attitude level was significantly associated with the type of special needs/disability ($p=0.000$).

Table 5: Oral Health Attitude Level by Disability Group

Type of Disability	Oral Health Attitude Grade				X ²	p-value
	Poor n (%)	Fair n (%)	Good n (%)	Total n (%)		
Intellectual disability	38 (70.3)	13 (24.1)	3 (5.6)	54 (100.0)	29.66	0.000
Visual disability	21 (51.2)	13 (31.7)	7 (17.1)	41 (100.0)		
Hearing disability	37 (29.8)	50 (40.4)	37 (29.8)	124 (100.0)		
Physical disability	9 (53.0)	6 (35.3)	2 (11.7)	17 (100.0)		
Total	105 (44.5)	82 (34.7)	49 (20.8)	236 (100.0)		

Note: X²= chi-square, p-value= Probability/Significance

DISCUSSION

This study used the cross-sectional study method. This was in keeping with studies by Oredugba in Lagos, Nigeria [24], Mohd *et al.* [25] in Malaysia, and Suma *et al.* [26] in India. An extensive English literature search of original articles did not reveal any other study method used for oral health-related KAP studies among persons with special needs. This may need to be considered in future research.

The current study recorded higher male-to-female participation. This was in tandem with the report of several other authors [27, 28, 29]. The reverse was however reported by Uwayezu *et al.* [30] who recorded higher female-to-male participation. A possible reason for the higher male-to-female participation in this current study may be connected to the reported higher literacy rate of males to females in Nigeria, especially in northern Nigeria [31].

The self-perceived oral health status of the current study population was positive. The majority of the respondents irrespective of disability type believed their teeth and gum health was between good to excellent, and were satisfied with the appearance of their teeth. This was in consonance with the report of Mohd *et al.* [25] in a cross-sectional study carried out in east coast Malaysia, where the majority of their respondents perceived their oral health status as either good or very good. The applied relevance of self-reported oral health status is mostly still rudimentary. It can be however used presently to estimate the treatment need or quality of life of a given population [26].

The current research revealed mixed findings (i.e., positive and negative findings) regarding the oral health attitudes of the participants. For example, while attitudes towards a visit to the dentist, care of the teeth and gum, the colour of one's teeth, and the relevance of seeking information on keeping a clean and healthy mouth were generally positive, on the other hand, attitudes towards the teeth and gum problem being as important as other health problems, visiting the dentist other than for toothache and oral pain, were generally negative. This was similar to the findings of other authors such as Oredugba [24], who reported a positive attitude towards a visit to the dentist among a majority of the special needs participants in her study conducted among a group of deaf adolescents in Lagos, Nigeria, and Suma *et al.* [32], who reported in a cross-sectional study conducted in Bengaluru, India that a majority of their participants believed the dentist should not be visited except for toothache. However, in contrast to our finding in this study, Suma *et al.* [26] reported that most participants in their study had a positive attitude towards teeth and gum problems being as important as other health problems. Sogi *et al.* [33] also in contrast to the finding in our study, reported a negative attitude toward

visiting a dentist among the participants in their study done in Haryana, India with a majority of the participants stating that they saw no need to ever visit a dentist.

The hearing-disability group and the physical disability group had the best oral health attitudes in this study in that out of the eight attitude areas assessed, they were top in four and three of the areas respectively. The intellectually impaired group was observed to have the least grade for attitude. An explainable reason for a lower attitude grade among the intellectually impaired group compared to the other special needs groups may be their reduced ability to understand information, leading to poor oral hygiene knowledge, which may lead to a poor oral health attitude. Some authors have reported a direct relationship between oral health knowledge and attitude [14, 34].

This study population's overall self-perceived oral health status was good and their oral health-related attitude level was generally fair. A possible reason for this may be related to the urban location of the study area and its close proximity to a referral Dental Centre. This may have had a positive impact on their oral health exposure and education and in turn their self-perceived oral health and oral health-related attitude.

A limitation of this study was that it was a questionnaire survey. Questionnaire surveys have been reported to be prone to Self-reporting bias which may occur in one or more of the following ways- social desirability bias, recall bias, or selective recall [35]. These biases are believed to have an impact on the validity of such surveys [35].

CONCLUSION

The self-perceived oral health status of the study participants was generally good, and their oral health attitude level was fair in general. However, areas of poor self-perception and negative attitudes were observed. Therefore, we recommend oral health programs that aim to improve these observed areas.

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