

Knowledge, Awareness and Attitude to the Practice of Orthodontics among a Population of Secondary School Teachers in Nigeria

Aikins EA^a daCosta OO^{b*}

Abstract

Background: This study was carried out to assess the knowledge of orthodontics, awareness and attitude to orthodontic care among a group of secondary school teachers in Nigeria.

Methods: A random sample of 241 male and female secondary schoolteachers comprising 112 (46.5%) males and 129 (53.5%) females with an age range of 20 to 56 years and a mean age of 34.8 ± 8.7 years from 9 public and 6 private schools in Rivers State were assessed. Data was collected using a structured questionnaire.

Descriptive statistics, t-test and chi-square were used to analyse data.

Results: Only 40.7% of the teachers had heard about orthodontics; with a good knowledge of the subject recorded in 37.8% of the study population. A favourable attitude towards orthodontics was found in 36.7% of the teachers but only about 20% were aware of the existence of any orthodontic centre in Rivers State, one of the states in South South Nigeria. Orthodontic knowledge was found to be higher among male private school teachers. This study also reported that favourable attitude was found in those with a good knowledge of orthodontics, while awareness of the study population was found to decrease with increase in length of service.

Conclusion: This study revealed low percentages of teachers with a good knowledge, awareness and attitude towards orthodontics thus we conclude that orthodontic knowledge, attitude and awareness among these teachers were generally poor.

Keywords: Orthodontics, teachers, knowledge, awareness, attitude

Authors Affiliations:

^aDept. of Child Dental Health, Dental Centre, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria

^bDept. of Child Dental Health, College of Medicine, University of Lagos, Lagos, Nigeria

*Corresponding author: O.O. daCosta - rantidacosta@metrong.com Tel: 08023221208

Introduction

There have been anecdotal reports on the poor provision of orthodontic services in Nigeria; with majority of orthodontic practices located in urban areas and particularly largely restricted to the South-Western part of the country. Provision of orthodontic services have only recently become available at the University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.¹

Orthodontic treatment is usually sought for and carried out during childhood and adolescence.^{2,3} A significant need for orthodontic treatment has been reported amongst the adolescents in Rivers State, Nigeria.¹ Therefore, orthodontists practicing in this state will need to adopt a more radical approach to achieve prevention and treatment of malocclusion. Although research has shown that parents play a major role in the

motivation for orthodontic treatment,^{4,5} school teachers can also be a major source of oral health education and referrals, if they have adequate knowledge.^{6,7}

Schools provide a big opportunity for promoting schoolchildren's oral health.⁷ The school environment, the curriculum, and even extracurricular activities can all be utilized in promoting the oral health of the child. Years spent in school are periods when many elements of attitude, behaviour and life skills are evolving.⁸ School teachers are considered to be an important target group for various health educational activities with the underlying objective of inculcating healthy lifestyle practices into children lasting a lifetime.⁹ Documented evidence shows that teachers and parents can augment dental health behaviour.⁸ School teachers, with their educational experience and constant contact with students, can actively contribute to the promotion of student's health, provided that they receive enough training and support to do so.¹⁰

School teachers are traditionally considered potential important primary agents of socialization, with a capability of influencing the knowledge, attitude and behaviour of school children.¹¹ Previous studies have

reported that teachers' knowledge about the different aspects of oral health and current methods of prevention were inadequate and inaccurate in some instances^{11,12,13}. In our environment, teachers are known to spend more time with children than their parents do and thus they can become important sources of referral, highlighting and bringing to the notice of the children and their parents the presence of malocclusions.

Our search of the literature revealed only one study which assessed awareness of orthodontics among Iranian teachers.⁶ The purpose of the present study was to assess the knowledge, awareness and attitude towards orthodontics among a group of secondary school teachers residing in Rivers State, South-South Nigeria.

Materials and Methods

This study was carried out in 6 private and 9 public secondary schools in seven Local Government Areas of Rivers State, Nigeria. The Local Government Areas and the schools included in the study from were randomly selected by simple ballot. An anonymous structured questionnaire was administered to all teachers present in the various schools on the day of data collection. A total of 275 questionnaires were administered out of which 241 were returned giving a response rate of 87.6%.

Demographic data of each participant was obtained. The questionnaire comprised three sections to assess the level of knowledge, awareness and attitude of school teachers in the study group to the practice of orthodontics. The level of knowledge was assessed with the following questions: "can the arrangement of the teeth be changed?" and "is it possible for crooked teeth to be straightened?"; whilst awareness was assessed by asking "have you heard of orthodontics before?" and "is orthodontics a branch of dentistry or medicine?" and ascertaining if they were aware of any place in Rivers State or Nigeria where teeth can be straightened. The teachers' attitude was assessed by asking if it was necessary for teeth to be straightened, whether they would recommend such for anyone and

whether they would pay for teeth to be straightened.

Statistical Analysis

The data was analysed using Epi- Info version 2008. Descriptive statistics was employed to assess means and frequencies. Cross tabulation, t-test and chi-square were used to analyse the data and statistical significance set at $P < 0.05$

Results

Socio-demographics

The sample comprised of 112 (46.5%) males and 129 (53.5%) females with an age range of 20 to 56 years and a mean age of 34.8 ± 8.7 years. There were 75 (31.1%) private school teachers, whilst 166 (68.9%) were in public service. Eighty of the teachers (33.2%) were teaching in rural areas and 161 (66.8%) were in urban areas. About one half (55.2%) of the teachers had been teaching for five years or less, whilst only 10.4% had been in the teaching profession for more than 20 years. About 90% were fully trained teachers, whilst 10.8% were undergoing national youth service (referred to as youth corpsers) [Table I].

Table I: Socio-demographic characteristics of the study population

Variable	Frequency (n = 241)	Percent
Age (year)		
20 – 29	63	26.1
30 – 39	116	48.1
40 – 49	38	15.8
≥ 50	24	10.0
Total	241	100
Mean age	34.8 ± 8.7	
Sex		
Male	112	46.5
Female	129	53.5
Total	241	100
Designation		
Youth corper	26	10.8
Regular teacher	115	89.2
Total	241	100
Years of teaching		
≤ 5	133	55.2
6 – 10	40	16.6
11 – 15	30	12.4
16 – 20	13	5.4
> 20	25	10.4
Total	241	100
Type of school		
Private	75	31.1
Public	166	68.9
Total	241	100
Location of school		
Rural	80	33.2
Urban	161	66.8
Total	241	100

Table II: Respondents' knowledge of orthodontic treatment

Variable	n=241	Frequency	Percent
Knowledge			
Arrangement of teeth can be changed		126	52.3
It is possible for crooked teeth to be straightened		124	51.5
Knowledge of score on orthodontic treatment			
Good		91	37.8
Poor		150	62.2
Total		241	100

Good knowledge = Knowing that the arrangement of teeth can be changed + Knowing that it is possible for crooked teeth to be straightened.

Table III: Associations between socio-demographic characteristics and knowledge of orthodontic practice

Variable	Knowledge of orthodontics treatment (%)			χ^2	df	p
	Good n = 91	Poor n = 150	Total n = 241			
Age (year)						
20 – 29	20 (31.7)	43 (68.3)	63	4.13	3	0.25
30 – 39	51 (44.)	65 (56.0)	116			
40 – 49	11 (28.9)	27 (71.1)	38			
≥ 50	9 (37.5)	15 (62.5)	24			
Sex						
Male	35 (31.3)	77 (68.8)	112	3.27	1	0.07
Female	56 (43.4)	73 (56.6)	129			
Designation						
Youth corper	7 (26.9)	19 (73.1)	26	0.99	1	0.32
Regular teacher	84 (39.1)	131 (60.9)	215			
Years of teaching						
≤ 5	58 (43.6)	75 (56.4)	133	6.81	4	0.15
6 – 10	12 (30.0)	28 (70.0)	40			
11 – 15	12 (40.0)	18 (60.0)	30			
16 – 20	2 (15.4)	11 (84.6)	13			
> 20	7 (28.0)	18 (72.0)	25			
Type of school						
Private	35 (46.7)	40 (53.3)	75	4.23	1	0.04*
Public	53 (31.9)	113 (68.1)	166			
Location of school						
Rural	25 (31.3)	55 (68.8)	80	1.76	1	0.18
Urban	66 (41.0)	95 (59.0)	161			

Knowledge of orthodontic practice

About 40% of the total population of teachers studied had a good knowledge of orthodontics [Table II]. Teachers in privately owned schools were also found to have a better knowledge than their public school counterparts ($p = 0.04$) [Table III].

Awareness of orthodontic practice

About forty per cent (40.7%) of the teachers

had heard of orthodontics, 19.9% were aware of an orthodontic centre in Rivers State, whilst 27% were also aware of other orthodontic centres in Nigeria mainly in Lagos, South-West Nigeria [Table IV]. Male teachers were more aware of orthodontic care than their female counterparts ($p = 0.01$), whilst the teachers awareness decreased with increase in length of service [Table V].

Table IV: Respondents' awareness of orthodontics and orthodontic practice

Variable	Frequency	Percent
Have heard of orthodontics		
Yes	98	40.7
No	143	59.3
Total	241	100
Orthodontics is a branch of medicine	n = 98	
Yes	79	80.6
No	7	7.1
Don't know	12	12.2
Total	98	100
Orthodontics is a branch of dentistry	n = 98	
Yes	78	79.6
No	4	4.1
Don't know	15	16.3
Total	98	100
Aware of orthodontic centre in River State	n = 241	
Yes	48	19.9
No	193	80.1
Total	241	100
Aware of orthodontic centre in Nigeria	n = 241	
Yes	65	27.0
No	176	73.0
Total	241	100

Table V: Associations between socio-demographic characteristics and awareness of orthodontic treatment

Variable	Awareness of orthodontics treatment (%)			χ^2	df	p
	Aware n = 98	Not aware n = 143	Total n = 241			
Age (year)						
20 – 29	30 (47.6)	33 (52.4)	63	5.33	3	0.15
30 – 39	50 (43.1)	66 (56.9)	116			
40 – 49	10 (26.3)	28 (73.7)	38			
≥50	8 (33.3)	16 (66.7)	24			
Sex						
Male	56 (50.0)	56 (50.0)	112	6.85	1	0.01*
Female	42 (32.6)	87 (67.4)	129			
Designation						
Youth corper	13 (50.0)	13 (50.0)	26	0.66	1	0.42
Regular teacher	85 (39.5)	130 (60.5)	215			
Years of teaching						
≤5	55 (41.4)	78 (58.6)	133	12.09	4	0.02*
6 – 10	24 (60.0)	16 (40.0)	40			
11 - 15	9 (30.0)	21 (70.0)	30			
16 - 20	5 (38.5)	8 (61.5)	13			
> 20	5 (20.0)	20 (80.0)	25			
Type of school						
Private	34 (45.3)	41 (54.7)	75	0.72	1	0.40
Public	34 (38.6)	102 (61.4)	166			
Location of school						
Rural	37 (46.3)	43 (53.8)	80	1.22	1	0.27
Urban	61 (37.9)	100 (62.1)	161			

Table VI: Respondents' attitude to orthodontics treatment

Variable	n=241	Frequency	Percent
Attitude			
It is necessary for crooked teeth to be straightened		138	57.3
Willing to recommend straightening of teeth		132	54.8
Willing to pay for straightening of teeth		139	57.7
Attitude to Orthodontics treatment			
Good		88	36.5
Poor		153	63.5
Total		241	100

Good attitude = Reporting that it is necessary for crooked teeth to be straightened + Willingness to recommend straightening of teeth + Willingness to pay for straightening of teeth

Table VII: Associations between socio-demographic characteristics and attitude to orthodontics

	Attitude to orthodontics (%)			X ²	Df	p
	Good n = 88	Poor n = 153	Total n = 241			
Age (year)						
20 – 29	23 (36.5)	40 (63.5)	63	6.42	3	0.09
30 – 39	50 (43.1)	66 (56.9)	116			
40 – 49	10 (26.3)	28 (73.7)	38			
≥ 50	5 (20.8)	19 (79.2)	24			
Sex						
Male	41 (36.6)	71 (63.4)	112	0.01	1	0.92
Female	47 (36.4)	82 (63.6)	129			
Designation						
Youth corper	9 (34.6)	17 (65.4)	26	0.05	1	0.83
Regular teacher	79 (36.7)	136 (63.3)	215			
Years of teaching						
≤ 5	52 (39.1)	81 (60.1)	133	2.29	4	0.68
6 – 10	12 (30.0)	28 (70.0)	40			
11 - 15	12 (40.0)	18 (60.0)	30			
16 - 20	3 (23.1)	10 (76.9)	13			
> 20	9 (36.0)	16 (64.0)	25			
Type of school						
Private	37 (49.3)	38 (50.7)	75	5.51	1	0.02*
Public	54 (32.5)	112 (67.5)	166			
Location of school						
Rural	27 (33.8)	53 (66.3)	80	0.24	1	0.63
Urban	61 (37.9)	100 (62.1)	161			

Attitude towards orthodontic practice

A good attitude towards orthodontic care was found in 36.7% of the teachers [Table VIII]. Teachers in private schools were also found to have significantly better attitudes than their public counterparts ($p = 0.02$) [Table VII].

Relationship between knowledge and attitude of the teachers to orthodontics

Table VIII shows the significant associations that were found between the knowledge and attitude of the teachers ($p=0.00$). Of the 88 (36.5%) teachers with a good attitude, 57(62.6%) of them also had a good knowledge, while 119 (79.3%) of the 153(63.5%) teachers with a poor attitude also

Table VIII: Relationship between knowledge and attitude of the study population to orthodontics

Knowledge	Attitude to orthodontics (%)		Total	χ^2	Df	p
	Good	Poor				
Good	57 (62.6)	34 (37.4)	91	41.25	1	0.00*
Poor	31 (20.7)	119 (79.3)	150			

Discussion

To the best of our knowledge, only one study has been carried out to assess the awareness of orthodontic treatment among school teachers.⁶ Meanwhile no previous studies have been done to assess the level of knowledge of orthodontics and attitude of teachers to the practice of orthodontics, thus making this the first study to do so. We decided to study these parameters in teachers due to the fact that (in our environment) teachers play a large role in the development of the child. With the changing socio-economic demands placed on parents, teachers may spend more time with the children than the parents do. Thus becoming an important source of referrals if educated adequately on the presence of malocclusion and when and where such may be adequately managed.

Good knowledge was indicated by both knowing that the arrangement of teeth can be changed and that it is possible for crooked teeth to be straightened. It is worthy of note that in this study although 37.8% of the teachers had a good knowledge, more of these teachers were in private (46.7%) than public schools (31.9%). Private schools in Nigeria are patronised by the middle and upper classes of society. Orthodontic treatment in Nigeria is *not paid for by the Government* and is generally considered to be expensive, so there is a greater possibility of private schoolchildren to undergo orthodontic care. This may account for private school teachers having a better knowledge than public school teachers due to their increased exposure to children and adolescents undergoing orthodontic treatment.

The teacher's knowledge of orthodontic practice in our study did not have any

significant association with their gender, age or years of teaching experience. This finding is similar to that obtained by Al-Jundi et al,¹⁴ in a study carried out to assess the knowledge of Jordanian school health teachers with regards to emergency management of dental trauma but contrary to a very recent study in India⁹ where females had significantly more knowledge of prevention of malocclusion than male teachers.

In the study carried out in India⁹ regarding the knowledge of school teachers about the prevention of malocclusion, 84.39% were aware that once a primary tooth fell off prematurely the space needs to be maintained to enable the eruption of its successor. Thumb sucking was considered to be an important factor in the development of malocclusion by 81.46% of the study sample. Similarly tongue thrusting was considered to be a cause for malocclusion by 67.8% of the study sample. While 50.73% respectively felt that milk teeth require care to ensure that its successors will be healthy. Although the parameters investigated are not the same, however this gives an indication that Indian schoolteachers have a better knowledge of orthodontic care than the Nigerian schoolteachers. This is probably due to the fact that orthodontic care is much more widespread and available in India than in Nigeria. It has been suggested that lack of information about orthodontics in the media or any other type of it may be the reason for the lack of knowledge about orthodontics among school teachers and recommend that an appropriate method of informing people of the subject be implemented.⁶ Mean while the importance of an orthodontic information package has been emphasized.¹⁵

About forty per cent (40.7%) of the secondary school teachers had heard of orthodontics, 19.9% were aware of an orthodontic centre in Rivers State, whilst 27% were also aware of other orthodontic centres in Nigeria mainly in Lagos, South-West Nigeria. This is much lower than the 79.0% of schoolteachers in Iran that had heard of orthodontics.⁶ Ajayi and Ajayi¹⁶ in a Nigerian study among schoolchildren found that females have more orthodontic concerns than males. Although there were more female than male teachers in our population, we found that male teachers were more aware of orthodontic care than their female counterparts ($p = 0.01$). This was a significant finding but no reason could be adduced to it. This finding however, is contrary to that of a study¹⁷ where more females were found to be aware of prevention of malocclusion than males.

In our study also as the teachers' length of service increased, awareness decreased significantly. This is probably due to the fact that orthodontic care is a recent development in this part of Nigeria.

A good attitude towards orthodontic care was indicated by reporting that it is necessary for crooked teeth to be straightened and being willing to recommend and pay for the straightening of teeth. About 40% of the teachers were found to have a good attitude towards the practice of orthodontics. Similar to the results obtained concerning knowledge, there were more teachers in private schools (49.3%) than public schools (32.5%) with a good attitude. Again, this could be due to the fact that since the teachers in private schools have better knowledge of orthodontic treatment they probably have realised the importance of such care. Though awareness is generally low, it is still an encouraging result which indicates that with the establishment of orthodontic care in the State and more enlightenment programmes that teachers may indeed become good sources of referrals.

The results in this study are an indication of the presence of significant deficiency in the knowledge, attitude and awareness of these

secondary school teachers towards the practice of orthodontics. This has been said to constitute a significant obstacle when seeking the co-operation and support of school teachers in school based programmes¹¹. It is therefore necessary that adequate educational measures are taken to inform this particular population about orthodontic care.

Conclusion

A good knowledge of orthodontics was seen in only 37.8%, while a good attitude was recorded among 36.7% of teachers. These findings are generally poor. Teachers with good knowledge of orthodontic treatment also showed a good attitude towards orthodontic care. Knowledge was observed to be higher among private school and male teachers. Education of teachers in this region on malocclusion and orthodontic care will be of great benefit to the students and to the profession.

Contributors

Aikins EA was responsible for conceptualized design, data collection, analysis and write up while daCosta OO was responsible for design, analysis, write up, critical revision and final approval of the article.

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