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Attitudes and Perception of Nigerian Dentists about Shortened Dental Arch Therapy (SDAT)

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Abstract

Objective: The shortened dental arch therapy (SDAT) is a strategy to reduce complex restorative treatment in the molar area. By offering the partially dentate patients, a treatment option that ensures oral functionality, improved oral hygiene, comfort and possibly reduced costs, the SDA treatment approach appears to provide an advantage without compromising patient care. Despite these encouraging reports, it has been stated that there are few papers in the literature addressing clinical attitudes to SDAT. The current study is, therefore, designed to determine the attitude and perception of dentist in Nigeria about the concept.

Materials and methods: A cross-sectional study was conducted using a self-administered structured questionnaire. The questionnaire employed by Sarita et al. was modified and employed as the instrument for data collection. The respondents were requested to provide information about their socio-demographic variables and their attitudes and perception of SDAT. The questionnaires were randomly distributed among general dental practitioners and residents (postgraduate doctors) in dental training institutions in Nigeria.

Result: The clinical experience of most of the respondents was ≤ 10 years. Most of the respondents were working in government institutions. Few of the respondents (36.1%) indicated that the concept was good for developing country like Nigeria and only few of the respondents (38.0%) agreed with the problem-oriented approach. Most respondents indicated that patients with shortened dental arches are not nutritionally less healthy and that, the oral functions and TMJ health of these patients is acceptable.

Conclusion: It appears the attitude and perception of dentists in Nigeria as it relates to shortened dental arch concept is not impressive at the moment.

Keywords: **Shortened dental arch, Attitude, Perception, Nigeria**

Résumé

Attitudes et perception des dentistes nigérians concernant le concept d'arcade dentaire raccourcie (ADR)

Objectif : Le traitement par raccourcissement de l'arcade dentaire est une stratégie pour réduire un traitement complexe de restauration des molaires. En offrant une dentition partielle aux patients, cette option thérapeutique assure une fonction buccale, améliore l'hygiène orale et le confort et réduit les coûts de traitement. Le concept d'arcade dentaire raccourcie apporte un avantage sans compromettre la prise en charge du patient. Malgré quelques études encourageantes, peu d'études sont consacrées au traitement par raccourcissement de l'arcade dentaire. La présente étude se propose d'étudier l'attitude et la perception des dentistes nigérians face à ce concept.

Matériels et méthodes : Une étude transversale était menée par auto-questionnaire structuré. Le questionnaire utilisé par Sarita et al. était modifié et utilisé comme instrument de recueil de données. Les questions portaient sur les variables socio-démographiques et l'attitude et la perception face au

traitement par raccourcissement de l'arcade dentaire. Les questionnaires étaient distribués aux dentistes généralistes et aux internes résidents dentistes en formation dans les institutions nigérianes.

Résultat : L'expérience clinique de la plupart des participants était de ≤ 10 ans. Ils exerçaient en majorité dans le secteur public. Quelques uns ont indiqué que le concept était bon pour les pays en voie de développement comme le Nigéria. La majorité a indiqué que les patients à dentition réduite n'étaient pas moins sains sur le plan nutritionnel et que les fonctions orales et la santé maxillo-faciale de ces patients étaient acceptables.

Conclusion : Il apparait que l'attitude et la perception des dentistes Nigérians concernant le concept de l'arcade dentaire réduite ne sont pas significatives à l'heure actuelle.

Mots clés:
Arcade dentaire raccourcie,
Attitude,
Perception,
Nigéria

Introduction

Restoration of a full complement of teeth which is a prerequisite for a healthy masticatory system and satisfactory oral functions under the traditional approach of restorative oral health care may not be attainable or affordable for most elderly patients (1-4).

Besides, it has been stated that dental profession cannot ascertain the number of teeth that each individual needs, it is better to preserve the teeth that are remaining in the mouth (posterior teeth) instead of replacing those that have been lost and that there is no need to recommend prosthetic prosthesis if the patient manages well with a reduced dentition (1-4). These observations had led to the emergence of a new treatment approach called problem-oriented approach (1-4). This approach is primarily based on the functional requirements of the subjects (2) and is the guiding principle behind the shortened dental arch therapy (2, 5). For a long time, traditional treatment planning in restorative dentistry is based on the application of morphologic concepts (2-4). This means that in a broken–down dentition as many teeth as are technically possible should be saved or replaced. A complete dentition or, at least, 28 teeth was considered necessary to satisfy functional needs. This morphological approach sometimes called 'the 28-tooth syndrome' is being maintained in many health care systems, which use a fee-for-service system (2-4).

The shortened dental arch therapy (SDAT) protocol terminates the occlusal platform a the second premolar region (6). The molar are said to be most frequently and mos seriously affected by both caries and perio dontal disease. They are also said to be th most costly teeth to preserve (7). In addition RAMFJORD stated that the replacement o these teeth is a common source of iatrogen periodontal disease and should therefore b avoided where aesthetics and functiona stability requirements can be satisfied withou such replacement (2). The SDAT is a strateg to reduce complex restorative treatment i the molar area (3, 8). It can be applied eithe actively or passively (3,5). Actively is shorter ing the dental arch by extraction of badl decayed molars. Complex treatment plans ar simplified by shortening dental arches an focusing on the anterior teeth and the pre molars. Passively is no replacement of molar that have been recently extracted (3, 5).

Among the strategies recommended by th WHO for improving the oral health is th strengthening of the control of oral diseas and illness in older adults through organi zation of affordable oral health services whicl meet their needs (8). By offering the partiall dentate patients a treatment option tha ensures oral functionality, improved ora hygiene, comfort and possibly reduced costs the SDA treatment approach appears t provide an advantage without compromisin patient care.6 The relevance of the concept i

developing countries and in the care of elderly patients with limited possibilities for complicated restorative care e.g. poor general health and financial restrictions had been demonstrated (5, 9). Despite these encouraging reports, it has been stated that there are few papers in the literature addressing clinical attitudes to SDAT (6). In addition, the attitude of Nigerian dentists to the concept is currently unknown. The current study is, therefore, designed to determine the attitude and perception of dentists in Nigeria about the concept.

Materials and methods

A cross-sectional study was conducted using a self-administered structured questionnaire. The questionnaire employed by SARITA et al. (5) was modified for the purpose of the current study. All the dental training institutions were identified and selected for the study.
The questionnaires were randomly distributed among general dental practitioners and dental residents (postgraduate doctors) in these dental centres. Respondents who declined participation were excluded from the study.
Dental consultants were excluded from the study because our experience showed poor response from this cadre of workers.

The questionnaire was prefaced by a brief introduction about SDAT. The information requested from the questionnaire includes gender, address, years of experience and type of practice of respondents. The information requested on attitudes/perception includes: their opinion on the benefit of the concept to developing country like Nigeria; whether the respondents agreed with problem-oriented approach; whether patients with shortened dental arch (SDA) are nutritionally less healthy; how satisfactory the oral functions (chewing, appearance, oral comfort) and TMJ health of the patients with SDA are and the opinion of the respondents on what they consider to be limitations or side effects of the SDAT. The respondents were requested to indicate as appropriate whether the oral functions and TMJ health of patients with SDA is satisfactory, acceptable, unsatisfactory or whether they do not know.
The results of a similar study conducted earlier in Tanzania by SARITA et al. (5) was also retrieved and presented for comparison with ours. The consent of the respondents was obtained at the beginning of the study. Confidentiality and anonymity of the respondents were preserved

Data Management

The data was entered into a micro computer and analyzed using SPSS for window software version 11.0. Summary statistics (frequency and percentages) was generated.

Results

Out of the one hundred and sixty copies of the questionnaires that were distributed, one hundred and eight respondents returned the copies of the questionnaire. This gave a response rate of 67.5%. Out of the one hundred and eight respondents who participated in the study, there were 57 (52.8%) males and 51 females (47.2%).The clinical experience of most (82%) of the respondents was ≤ 10 years. Only 1.9% of the respondents were working in private dental institutions. The rest were working with government (Table 1).

The result of SARITA et al. (5) on similar parameters was also displayed in Table 1. Most of the Tanzanian respondents (79%) comprise subjects working solely in government hospitals and those combining private with government practice. Also, the clinical experience of most (57%) of the Tanzanian respondents was ≤15 years.

Table 1 : Types of practice and years of experience

Types of Practice	Years of experience			
	Tanzania (Sarita et al)		Nigeria	
	≤ 15	>15	≤ 10	> 10
A. Only private practice	7 (11%)	6 (10%)	1 (0.9%)	1 (0.9%)
B. Others (Government hospitals, Government hospitals & private practice, Dental school and private practice)	29 (46%)	21 (33%)	79 (73.1%)	24 (22.2%)
C. Missing item		-	2 (1.9%)	1 (0.9%)

Table 2 shows the views of Nigerian and Tanzanian respondents on the benefits of SDAT ar problem-oriented approach.

Table 2 : Opinion of respondents on benefits of SDAT and proble-oriented approach

Questionnaire items	Yes		No		Not sure	
	Tanzania (Sarita et al.)	Nigeria	Tanzania	Nigeria	Tanzania	Nigeria
A. SDAT is beneficial for developing country	89.0%	36.1%	11.0%	8.3%	-	48.1%
B. Agreed with problem approach	89.0%	38.0 %	11.0%	9.3%	-	49.1%
C. Patients with SDA are nutritionnally less healthy	-	6.5 %	-	63%	-	27.8%

Only 39 (36.1%) of our respondents indicated that the concept was good for developing country like Nigeria unlike in the Tanzanian study where majority (89.0%) of the respondents indicated that the therapy was good. Similarly, 89.0% of the Tanzanian respondents agreed with the problem-oriented approach as against only 38.0% who so indicated among the Nigerian respondents. Most of the Nigerian respondents (63.0%) were of the opinion that patients wit shortened dental arches are not nutritionall less healthy than their counterparts wit complete dental arches. This parameter wa not investigated by SARITA et al. (5).

Most of the Nigerian (45.9%) and Tanzania (38.0%) respondents indicated that the ora function of patients with shortened denta arches as it relates to chewing was acceptabl (Table 3).

Table 3 : Dentist's judgment about oral functions and TMJ health in SDA

Assessment	Characteristics							
	Chewing		Appearance		Oral comfort		TMJ health	
	Tanzania	Nigeria	Tanzania	Nigeria	Tanzania	Nigeria	Tanzania	Nigeria
Satisfactory	21 (33%)	12 (11.0%)	38 (60%)	16 (14.7%)	12 (19%)	19 (16.4%)	-	13 (11.9%)
Acceptable	24 (38%)	50 (45.9%)	12 (19%)	55 (50.5%)	18 (29%)	49 (45.0%)	-	41 (37.6%)
Unsatisfactory	8 (13%)	25 (22.9%)	7 (11%)	14 (12.8%)	9 (14%)	16 (14.7%)	-	20 (18.3%)
Do not know	10 (16%)	17 (15.6%)	6 (10%)	18 (16.5%)	24 (38%)	20 (18.3%)	-	30 (27.5%)

However, the opinions of these groups of respondents on appearance and oral comfort of patients with shortened dental arches appeared slightly different. Most of the Nigerian respondents (50.5%) thought that the appearance of the subjects was acceptable while most of the Tanzanian respondents (60.0%) thought that it was satisfactory. In addition, most of the Nigerian respondents (45.0%) indicated that the oral comfort of subjects with shortened dental arches was acceptable as against the result of the Tanzanian study where most of the respondents (38.0%) claimed that they did not know how satisfactory the oral comfort of these patients are. Finally, most of the Nigerian respondents (37.6%) were of the opinion that the TMJ health of those with shortened dental arches was acceptable. This parameter was also not investigated by SARITA et al (5) (table 3).

The opinion of the two groups of respondents on limitations or side effect of shortened dental arches is shown in table 4.

Table 4 : Opinion of respondents on limitations of SDAT

	Tanzania (Sarita et al.)	Nigeria
A. Respondents who had views on limitations or side effects of SDAT	7 (11%)	13 (12.0%)
B. Views of respondents on limitations	Problem-oriented approach is too simple and outcome is unpredictable Molars are indispensible for chewing staple foods in Tanzania Dentists may lose income if they do not replace missing molars	Chewing difficulty Occlusal instability TMJ signs and symptoms Poor aesthetics

Only seven Tanzanian respondents (11.0%) indicated their views on what they considered to be side effects of shortened dental arches. About the same percentage, 13 (12.0%) of the Nigerian respondents indicated their views in this regard (table 4). The arguments of the respondents varied within and between the two groups. Chewing difficulty appeared to be common between the two groups.

Discussion

The response rate recorded in this study was comparable to that reported by WITTER et al.(1), lower than that of SARITA et al. (5) but much higher than the value presented by ALLEN et al. (9). Most of the respondents in the current study have ≤ 10 years of clinical experience as against the result from a previous publication (1) on similar investigation where the respondents appeared to be more experienced. A similar pattern in terms of years of experience of respondents was, however, presented by SARITA et al. (5). The proportion of respondents from private dental practice in the current study (1.9%) was quite low compared with 21% recorded by SARITA et al. (5). The reasons why the private practitioners did not respond to our questionnaire were not clear, but it may not be unrelated to lack of awareness of the concept among this group of dentists.

The proportion of respondents who agreed with the problem-oriented approach and who taught that SDAT is beneficial in this study is also not impressive compared with the result reported by SARITA et al (5). This shows an underlying misunderstanding of the concept. This view is supported by the fact that most of the respondents indicated that they were not sure of the benefits of the concept and problem oriented approach. SDAT is an interesting concept of clinical relevance to both

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industrialized and developing countries. The main reason behind the poor attitude of respondents to the concept appears to be the fact that it is not being taught in dental schools. An indirect relationship between years of experience and attitudes to SDAT was reported by SARITA et al. (5). They explained that the dentists with few years of experience completed studies when the concept must been introduced to dental schools.

Most of the respondents in this study felt that the oral functions of patients with SDA are acceptable and that these patients are not nutritionally less healthy. WITTAL et al (1) also reported satisfactory oral functions in patients with SDA. Similar results were presented by SARITA et al. (5) with the exception of oral comfort where most of the respondents claimed that they did not know how satisfactory the oral comfort of patients with shortened dental arches are ? Generally speaking, research data have shown that a shortened dental arch with intact anterior and premolar regions can provide satisfactory oral function which is not enhanced significantly by free-end saddles removable partial dentures (5, 8, 10-12). In addition, most of the respondents in this study indicated that the TMJ health of people with SDA is acceptable. This result is at variance with KANNO and CARLSSON's (2) as well as LUDER's (13) earlier publications. However, it corroborates the result of a 9-year follow-up study by WITTER et al. (14) which revealed that subjects with SDA had similar prevalence, severity and fluctuation of signs and symptoms related to TMD compared with subjects with complete dental arches. This parameter was not investigated in the study conducted in Tanzania by SARITA et al. (5). It should be noted that the result of this subjective study represents the opinion of dentists in Nigeria about SDAT and is not an objective evaluation of the concept with experimental evidences.

Only seven Tanzanian respondents (11.0%) indicated their views on what they considered to be side effects of shortened dental arches. About the same percentage, 13 (12.0%) of the Nigerian respondents indicated their views in this regard. The arguments of the respondents varied within and between the two groups. The result of the opinion of the respondents on what they considered to be limitations or side effects of application of SDAT shows that chewing difficulty, occlusal instability, TMJ symptoms and poor aesthetics were the only areas of concern indicated by these respondents. The limited number of responses on this subject may not allow meaningful deductions. Some of the reservations earlier expressed in the literature included the fact that shortening of dental arches may result in the loss of potential abutment1, dental profession cannot ascertain the number of teeth that each individual needs (2), dentists may lose income if they do not replace molars (5) and the fact that loss of molars is associated with reduced masticatory performance which has been reported to lead to mandibular displacement and various changes in the body, at least, in animals (14, 15).

The attitudes of the respondents to shortened dental arch concept in the current study do not appear impressive compared with the result of the study conducted many years earlier (16). However, dental residents constitute the majority of the respondents in the current study as against the previous study (16) where the views of consultants were sought. We suggest that conscious efforts should be made to educate every dental surgeon about the concept of SDAT especially considering its relevance in the development of occlusal rehabilitation for implant supported prosthesis.

Conclusion

It appears the attitude and perception of dentists in Nigeria as it relates to shortened dental arch concept is not impressive at the moment. The reasons why this is so is not very clear. Further studies are suggested to determine the reasons for the negative attitudes towards the concept among Nigerian dentists.

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