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Assessment of Dentists Knowledge towards Cone Beam Computed Tomography in Public and University Teaching Hospitals in Khartoum StateA碢g鮀eowph碢는

e European Academy of Dental and Maxillofacial Radiology has issued guidelines for the use of this technology in European countries. Nevertheless, in many other countries including Sudan, such instruction is lacking (9).

In view of this and the importance of dentist's knowledge towards new technologies, this survey was designed with an aim to assess the current knowledge among dentists in Khartoum state towards the usage and application of CBCT.

by using Mann-Whitney test while comparison between more than two groups was accomplished by using Kruskal-Wallis test. A P value less than 0.05 were considered as signi cant.

Results

Out of the 250 questionnaires that were distributed among dentists 220 were answered. Generally, a notable response rate was observed (88%). e participants comprised 104 house o cers (47%), 78 medical o cers (35%) and38 specialists (17%), including 151 females (69%) and 69 males (31%) (Figures 1 and 2).

ere were 69 men (31.4%) and 151 women (68.6%) accounting for a sex ratio of 2.2 and aged between 23 and 56 yrs old with an average of 39.5 ± 7.73 yrs old (Figure 3).

e grading scales for assessing the level of knowledge were as follows; 0-20 was considered as very low; 21-40 was considered as low; 41-60 was considered as average; 61-80 was considered as high and81-100 was considered as very high. 20.9% had a very low average of knowledge, 54.1% had a low level of knowledge, 18.6% had an average level of knowledge and 2.7% had a high level of knowledge (Figure 4).

Dentists relative frequency of distribution for the answers of the een questions related to CBCT are illustrated in Table 1.

e statistical analysis did not show any signi cant correlation between the level of knowledge and age (p=0.2), years of employment (p=0.1) and working area in either University or public hospitals (p=0.1) (Tables 2-4)

However, upon comparison of the level of knowledge in with regards to to gender, a signi cant di erence was seen between males and females (p=0.001) (Table 5).

Additionally, a signi cant di erence in knowledge was found among dentists based on their educational degree (house o cers, medical o cers and specialists) (p=0.01) (Table 6).

Discussion

e selection of a proper diagnostic technique plays a pivotal role in the treatment of disease. An appropriate diagnostic method can provide essential information, in addition to the minimizing of cost and harm to patients. In dental radiography, e orts have been made to reduce patient exposure to radiation. Cone-beam computed tomography (CBCT) and digital radiography were developed to attain this goal [11].

In Sudan, no published study was done considering the knowledge about CBCT imaging among dentists and this may be due to the ignorance of the new techniques existence and the few number of the CBCT machines. erefore, it is necessary to shed light and to assess the knowledge in regards to CBCT to initiate continuing dental training on that subject.

e present study was conducted to evaluate Sudanese dentists' knowledge regarding CBCT.

Two hundred and twenty dentists including house o cers, medical o cers and specialists contributed in this cross-sectional study.

e present study found that the majority of respondents had a low level of knowledge about CBCT and only few respondents had a high level of knowledge regarding this topic. A possible clari cation for this nding can be the unavailability of CBCT at the work place with a consequent di culty in the acquirement of knowledge on a given system without practical experience. erefore, the lack of CBCT units in the dental o ce setup may represent a signi cant factor contributing to dentists' unfamiliarity with this technology with CBCT education being chie y limited to textbooks.

This is in line with the study carried out by Kamburoğlu et al., among Turkish dental students which underscored the problems with acquiring knowledge on a given system without practical experience [12].

In the current study no relationship has been found between age and knowledge about CBCT, a nding that could possibly be owing to its recent recognition as an imaging modality andthe lack of CBCT units at their work areas also the lack of practical experience and unfamiliarity with image characteristics in image acquisition. In addition to the advanced level of so ware knowledge regarding understanding and interpreting of CBCT images [13].

e results of the present study reveal a signi cant di erence between genders with regards to CBCT knowledge. Males had greater knowledge compared to females and this can be explained by the fact that most of the training courses in CBCT are held outside Sudan and the majority of females have certain obligations that prevent them from attending such courses to improve their level of knowledge.

Questions	Correct	Incorrect
Question 1: Prescribing CBCT	66 (30%)	143 (65%)
Question 2: Justifability for indications of CBCT	27(12.3%)	182 (82.17%)
Question 3: Comparing CT and CBCT	65 (29.5%)	

Concerning the number of years of employment, there was no signi cant di erence in the knowledge of individuals with di erent numbers of years of employment. is can also be attributed to the absence of CBCT in their working areas together with the lack of a su cient theoretical knowledge and practical experience through continuous education programs.

Moreover, specialists demonstrated a higher level of knowledge about CBCT than house o cers and medical o cers. is di erence may be due to the characteristics of the specialist's job as it involves various modalities of three dimensional imaging compared with a general dentist. Given the fact that the advantages of CBCT are clear over other methods of imaging, it should not be limited to specialty branches and comprehensive training must return the real and logic role of this modality.

is is in accordance with the study done by Mahdizadeh et al. which revealed that specialists had greater knowledge about CBCT compared to other conventional intraoral radiographies [11].

Regarding the knowledge of dentists on the basis of the eld of practice either private or public hospitals, there was no signi cant di erence found. is nding re ects the generalizability in the lack of knowledge towards the CBCT technology and the need for improvement of the level of education regarding this new technology, additionally e ort should be spent to increase the availability of CBCT machines in hospitals to encourage dentists to raise their knowledge in regards to it.

One of the limitations of the present study is the type of questionnaire used (self-reporting questionnaire) which could be a possible source of bias. Another limitation is the use of convenient sampling technique which could compromise the generalizability of the current results. However, the consensus achieved from this study on the general need of the dental practitioners to have a formal and structured training in CBCT cannot be overlooked.

Conclusion

e results of this study indicate that there is a gap in knowledge of CBCT applications among Sudanese dentists as it is a new innovation in the eld of dental radiology, with a consequent restriction in the ability to explore this imaging modality to the fullest.

Introduction of training in CBCT at undergraduate as well as postgraduate level will assist dentists in using this technique in an e cient way to upgrade the accuracy and reliability of oral and maxillo-facial diagnosis, treatment planning and outcomes.