



Research article

Introduction of “qpdb” teeth numbering system

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ABSTRACT

This manuscript introduces a new method for teeth numbering system. The primary rationale of launching this system was to solve previous numbering systems' drawbacks. Furthermore, to keep simplicity and ease of reading and inputting data. The outcome of a questionnaire disseminated among 66 personnel showed the confusion existing among currently used tooth numbering systems. The 'qpdb' system divided the oral cavity into four quadrants, each quadrant represented by alphabetical English letter (q, p, d & b). In spite of being a promising system, this new system lacks the real usage and application, and need more future studies to prove its validity.

1. Introduction

1.1. Background

Dental charting is considered essential step for dental treatment. It has important role in communication with colleagues and also for referral purposes [1]. There are a lot of teeth numbering and coding systems that have been used from more than 130 years [2]. These systems aimed easy accessibility to information expressed otherwise by long sentences making easy coordination between dentists, dental assistants and laboratory technicians [3].

The three currently most used systems are universal system, Federation Dentaire Internationale numbering system (FDI), and Palmer/Zsigmondy system [4]. Each system exhibits some advantages and disadvantages [5].

In 1870 Palmer described teeth recording method using cross that divides the oral cavity into four quadrants [6–8]. In spite of its applicability and ease of record and understanding [9–11], this system has its drawbacks as it takes more space in files of the patients and not easily typed in electronic files [12–14].

The universal system launched by ADA in 1968 and is widely used in USA and Canada [15]. The advantages of this teeth numbering system (TNS) is easily recording and giving each tooth a separate number [1,16]. While its main disadvantages is the need of memorization for numbers and letters and the need of well training to refer tooth correctly, also the loss of midline differentiation makes it different to memorize [1,17].

The 2-digit system suggested by FDI in 1970 as a new TNS that fulfill a lot of requirements for a global system [18], as it is simple, easily pronounced and applicable for soft data usage [4,19,20]. Despite considered the most common and widely used system worldwide [21], still has confusion when dealing with primary teeth and misunderstanding of tooth number whether it is written in FDI or universal system [1,6,19].

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The FDI committee described the ideal TNS as a system that is simple to understand and to teach, easy to pronounce in conversation and dictation, readily communicable in print, easy translated into computer output and is easily adapted to standard charts used in general practice [2]. The two-digit system by FDI met all the requirements for ideal TNS, while Prior numbering systems did not adequately meet these requirements.

Although those previous systems are in practice there is lot of confusions in tooth referring that may lead to mismanagement or clinical mishaps, make the need for establishing new systems [22,23].

The aim of this study was to introduce a new system that makes dental charting more simple, easy, less confusion and overcomes the drawbacks of currently used systems.

2. Materials and methods

A questionnaire was conducted to 66 dental professions (dental students, interns, dentists and technicians, as shown in Fig. 1) to assess their knowledge about the commonly used teeth numbering systems and the results were represented in the chart (Fig. 2).

The survey explored that the system used in the questionnaire (FDI system) had confusion with other used teeth numbering systems as shown in (Fig. 3).

3. Outcome of the questionnaire

The results of an online questionnaire formed of six questions to show the knowledge of dental professions about the currently used teeth numbering systems (specially the FDI system) and the confusion present between these systems, the questionnaire done on 66 individuals, the majority of participants was dentists 41 % and the least number of participants were the dental technicians 9 %, while the dental students and interns were represented by 38 % & 12 % respectively.

The average of correct answers was 3.52/6 points while the range of answers was from 0 to 6 points, only 56 % of the respondents recognize correctly the used system in the questionnaire.

4. Implementation of the system

The analysis of the circular shape of the oral cavity and its division into four quadrants is the basic concept in establishing this system considering the midline (Fig. 4).

The philosophy of this numbering system is shown in (Figs. 5–8), it was considered that the straight line in each letter represent the midline and the circle (the head of the letter) as the selected quadrant.

In this system four letters were used (q, p, d & b) referred to the 4 quadrants (maxillary right, maxillary left, mandibular right & mandibular left quadrant) respectively. And the teeth are represented in numbers from 1 to 8 in each quadrant starting from central incisor (represented by number 1) ending in the last (third) molar (represented by number 8) for the permanent dentition (Fig. 9).

For example, (q1 refers to the maxillary right permanent central incisor) and (b5 refers to the mandibular left permanent second premolar) and so on.

In the primary teeth we use capital letters instead of numbers, (A, B, C, D & E) starting from central incisor (represented by letter A) ending in the second molar (represented by letter E) as shown in (Fig. 10).

For example, (pC refers to the maxillary left deciduous canine) and (dD refers to the mandibular right deciduous first molar) and so on.

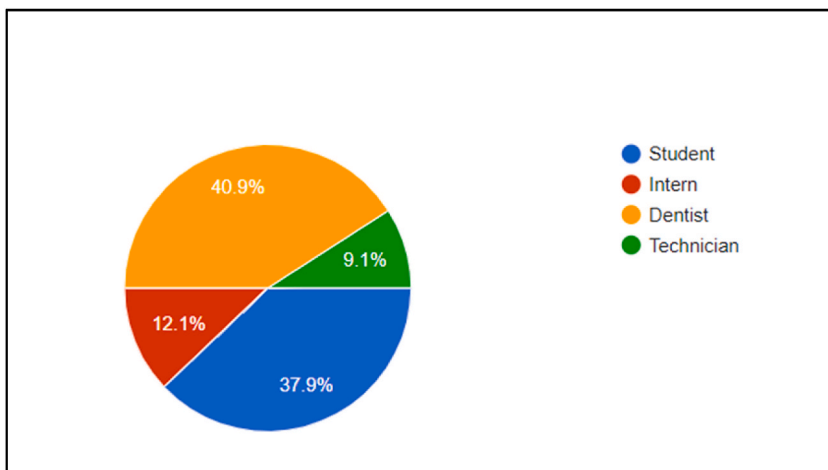


Figure (1). Pie chart showing the distribution of respondents to the questionnaire into four categories (students, interns, dentists & technicians) showing % of each of them.

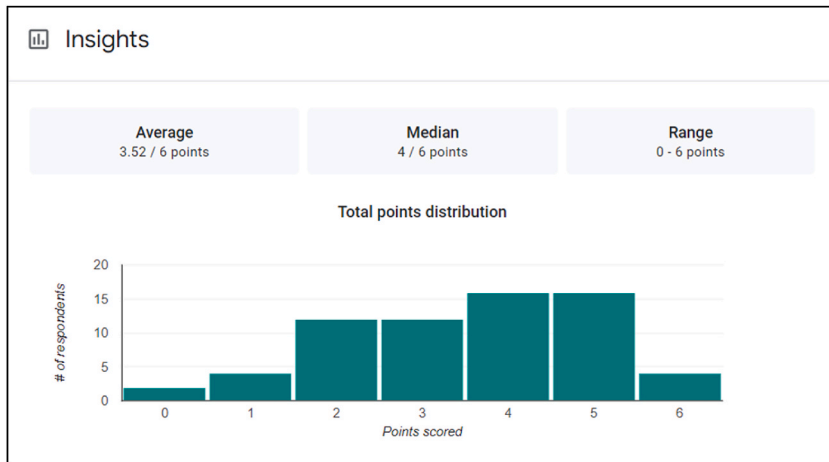


Figure (2). Bar chart showing the number of correct answers of the respondents.

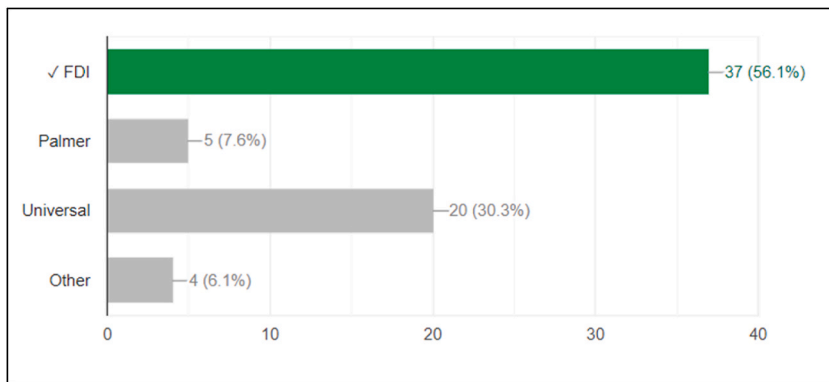


Figure (3). Bar chart showing the % of respondents who correctly recognize the used system in the questionnaire.

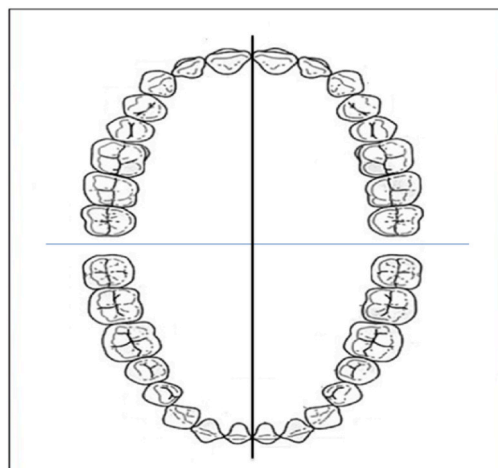


Figure (4). diagram of the maxillary and mandibular teeth divided vertically by midline (black line) and horizontally by horizontal plane (blue line). (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

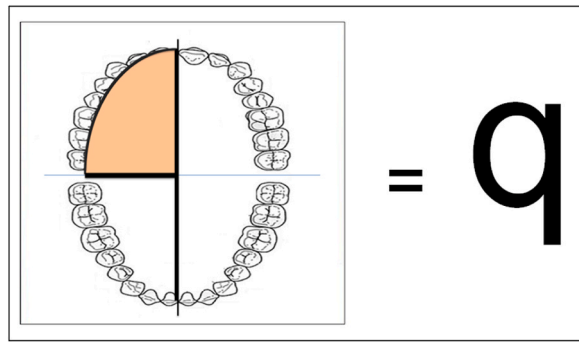


Figure (5). The maxillary right quadrant represented by letter (q).

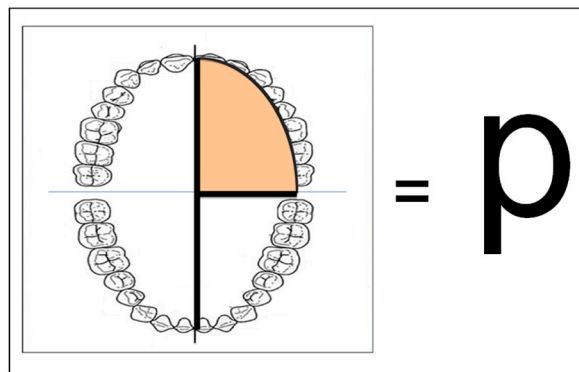


Figure (6). The maxillary left quadrant represented by letter (p).

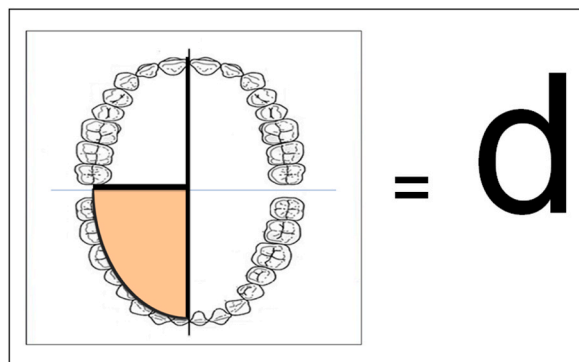


Figure (7). The mandibular right quadrant represented by letter (d).

5. Discussion

A questionnaire based on the commonly used TNS in the dental institutions was made online. Additionally, the rationale behind using a specific TNS was investigated. Specific questions focused on the TNS used in teaching and in patient records to make such a questionnaire.

The results of questionnaire done in this paper show how confusion still present between the used teeth numbering systems, and the inability of the FDI system to solve this problem. This makes the need for introducing new systems which is more communicable with the modern technology in the dental field and the transformation to digital dentistry.

Also the change in recording the patients' data in electronic files give the power to this new system as it is easily applied and recorded in soft data, and the ability of this system to solve the problems of the other used TNS, as it doesn't depend on memory and presents less confusion between primary and permanent dentitions, but still all the data about this new system is from theoretical point of view and need more studies to evaluate its practical application and to compare with other used systems.

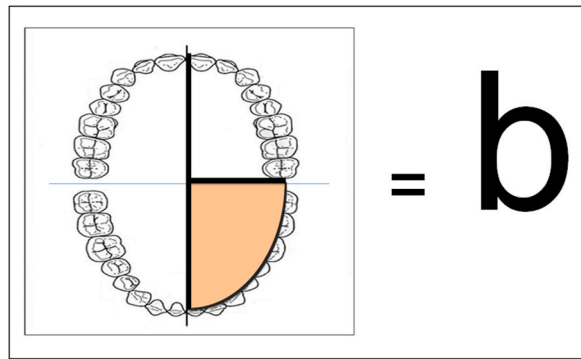


Figure (8). The mandibular left quadrant represented by letter (b).

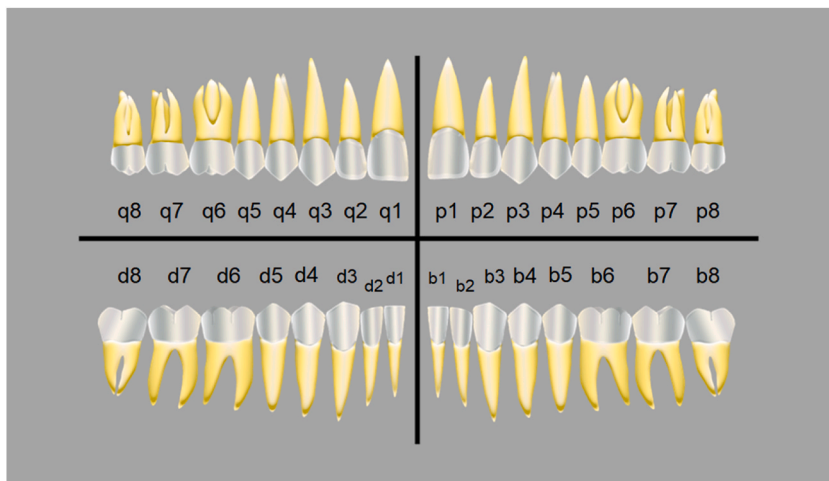


Figure (9). qpdb teeth numbering system for permanent human dentition.

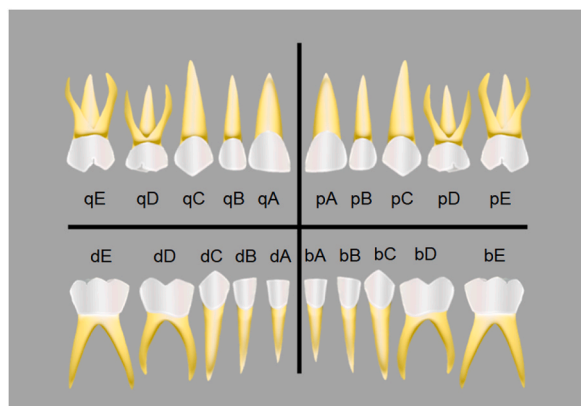


Figure (10). qpdb teeth numbering system for primary human dentition.

It may be some limitations in the first application of this new system as it need more time and training to be familiar for usage like any new system presented for the first time. Previous studies discussed the difficulty in applying new system and resistance it may face, however many systems overcame this problem by introducing solutions for old systems' problems.

6. Conclusion

qddb is a new teeth numbering system that takes the advantages of currently used systems and avoiding their drawbacks.

Recommendations

It needs more studies to prove its valuability and how easy, simple and non-confusion system is it. Also the future studies can be done on the online platforms, which is more easy and time saving.

Clinical significance

The use of simple, easy TNS improves the daily clinical practice and decreases the chances for mishaps which may lead to incorrect management and treatment plans, in addition the applicability to electronic data keeps up the digital transformation and the up-to-date changes in dental field.

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Data availability statement

Data will be made available on request.

CRedit authorship contribution statement

Rami R. Shehabeldin: Writing – original draft, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Hamdi H. Hamama:** Writing – review & editing, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2024.e24367>.

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