DEVELOPMENT AND UTILIZATION OF NEW ELECTRONIC DENTAL RECORD (EDR) FOR DENTISTS

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ABSTRACT

Dental records are essential to dentistry, serving as a central repository for patient information and facilitating effective treatment planning and care delivery. Traditionally, paper-based dental records have been the standard in documenting patient data. These records include critical information such as demographic details, medical history, illness records, and procedures performed. In recent years, technological advancements have led to the adoption of electronic dental records (EDRs) in many dental clinics. EDRs are digital systems that replicate and enhance the functionality of paper-based records by utilizing software to manage and store patient data. However, several barriers exist, such as a lack of resources and investment, limited awareness of the benefits of EDR, and resistance to change. The respondents were thirty-two (32) dentists practicing in private dental clinics in Laguna and three (3) IT experts. Two (2) researcher-made questionnaires were given to the dentists, and one (1) researcher-made questionnaire was given to the IT experts. The dentist utilized the new electronic dental record (EDR). Additionally, the IT experts evaluate the new electronic dental record (EDR). According to the study, dentists often face challenges with paper-based records, including difficulty finding records, time-consuming use, space usage, and damage. Dentists recommend that new electronic dental records (EDRs) have secure data, device accessibility, easy search functionality, comprehensive data storage, and user-friendliness. The new electronic dental record (EDR) is acceptable in dentistry due to its secure data, device accessibility, easy access to patient information, and step-by-step tutorial. IT experts assess the new electronic dental record (EDR) as very good in functionality, usability, efficiency, portability, reliability, and maintainability. The researcher suggests that dentists may use electronic dental records to address issues like record finding difficulty, space and time consumption, and damage risk. Developers may develop EDR based on dentists' recommendations or needs in the future.

Keywords: Dentists**,** Electronic Dental Record (EDR), Acceptance, Quality

INTRODUCTION

A dental record is a systematically maintained document that encapsulates comprehensive details regarding a patient's dental health and treatment history. A paper-based dental record is a traditional and fundamental format for documenting patient information in dental practices. Characteristically, these records comprise comprehensive historical medical data, diagnostic details, treatment plans, clinical notes, and other relevant health information concerning the patient (Samuel et al., 2021). Traditionally, dental professionals have relied on these tangible documents to maintain accurate accounts of patient interactions, diagnoses, and treatments through written entries, ensuring a straightforward narrative of the patient's dental health history, which is particularly important for continuity of care and legal purposes (Pavičin et al., 2021). In recent years, technological advancements have led to the adoption of electronic dental records (EDRs) in many dental clinics. EDRs are digital systems that replicate and enhance the functionality of paper-based records by utilizing software to

manage and store patient data. These systems allow for the integration of additional information, such as medical history, prescriptions, diagnoses, allergies, treatment progress, and laboratory results, into a centralized and accessible format (Timoschenko, 2024). EDRs offer numerous advantages, including improved data accuracy, streamlined workflows, and enhanced accessibility for both dental practitioners and their teams. Despite the potential benefits of electronic dental records, their adoption has not been without challenges. Smaller dental clinics often face significant barriers when transitioning from traditional paper-based systems to EDRs. The initial investment required for hardware, software, and training poses an additional obstacle, often straining the financial capabilities of these clinics (Neves et al., 2020).

Furthermore, the implementation of EDRs can disrupt daily clinic operations, especially during the adaptation phase. Staff members may require time to become familiar with the system, which can temporarily slow down workflows and impact patient care (Alshammary et al., 2020). Personal barriers, such as limited awareness of the benefits of EDRs or resistance to change, also hinder the successful integration of these systems. Dentists and their teams may perceive EDRs as overly complex or intimidating, particularly if the software is not designed with user-friendliness in mind (Farajollahi et al., 2024). These challenges highlight a gap in the current offerings of EDR solutions. While existing systems demonstrate significant potential for improving efficiency and patient care, they often fail to address smaller dental practices' unique needs and constraints. A solution that bridges this gap is needed by offering an EDR system that is both affordable and accessible while also being easy to implement and use.

In response to these challenges, this study proposes developing a new electronic dental record (EDR) specifically tailored for dental clinics, particularly smaller practices. The electronic dental record (EDR) will simplify the transition from paper-based records to digital systems, ensuring minimal disruption to daily operations. By prioritizing usability and affordability, the proposed system will cater to the practical needs of dentists and their teams, allowing them to adopt the technology without significant financial or operational strain.

The system was designed with a user-friendly interface, enabling dental practitioners to navigate its features easily and confidently. It will integrate all essential functionalities, such as medical and dental history and billing. Support mechanisms, including training resources and technical assistance, will enhance the system’s accessibility and sustainability. By addressing the limitations of current EDR systems, this study aims to advance dental informatics and promote a more inclusive and practical approach to technology adoption in dental practices. The ultimate goal is to improve clinical efficiency, enhance patient care, and empower dental professionals to transition to modern record-keeping systems seamlessly.

LITERATURE REVIEW

Dental Record

Dental records contain crucial patient information, serving multiple purposes in dentistry and forensic investigations. They comprehensively account for a patient's oral health and treatment history (Briggs, 2021; Mortiboy, 2022). Proper maintenance of dental records is vital for legal protection, as they can serve as evidence in civil actions involving dental surgeons (Távora et al., 2022). These records play a significant role in human identification processes, particularly in forensic cases where other means of identification are unavailable (Mehta, 2021; Srivastava et al., 2020; André et al., 2020). Moreover, the dental record structure should consist of basic patient data, clinical findings, diagnostics, and supporting

documentation such as imaging or laboratory results. (Wardhana et al., 2024). However, studies have shown that dentists' knowledge about proper record-keeping practices may be lacking, highlighting the need for increased awareness and education on this topic (Mortiboy, 2022)

Paper-Based Record in Healthcare

Paper-based recording systems offer several advantages over electronic systems in healthcare settings. They are often perceived as more user-friendly and efficient, particularly in centers transitioning from paper to electronic records (Joukes et al., 2019). Paper-based systems can give students a higher quality and quantity of feedback in clinical skills assessments (Phillips et al., 2019). In nursing documentation, paper records sometimes outperform electronic systems regarding content quality (Alsalhi et al., 2022). Paper-based systems are also more accessible and cost-effective, especially in low-resource settings (Siyam et al., 2021; Rathnayake et al., 2019). However, Paper-based health records have several disadvantages compared to electronic health records (EHRs). They are less time-efficient, prone to missing data, and provide lower-quality feedback to students in clinical skills assessments (Phillips et al., 2019). Paper records also require more time for recording and reporting, with health workers spending significant time on documentation tasks (Siyam et al., 2021). The quality of paper-based nursing documentation is often poor, lacking in content, process, and structure (Alsalhi et al., 2022).

Electronic Record

Numerous electronic records exist in the medical field; some of the well-known electronic records are a) Electronic Health Record (EHR) and b) Electronic Medical Record (EMR). An Electronic Health Record (EHR) is a patient's medical history, maintained by a provider, containing critical clinical data like demographics, progress notes, medications, vital signs, and radiology reports. It automates access, streamlines clinicians' workflow, and supports care-related activities like evidence-based decision support and quality management (Net Health, 2024). Additionally, the hospital uses the EHR most (USF Health Online, 2024). While Electronic Medical Records (EMR) can store medical history, diagnoses, medications, immunization dates, and allergies, they are limited in their ability to travel outside practice and require printing and mailing (Practice Fusion, 2021b). There are numerous benefits of using electronic records.

Some of the benefits are a) Improve Quality of Care (Uslu & Stausberg, 2021), b) Research Insights (Regis College, 2023), Economic benefits such as cost savings, effectiveness, and cost efficiency (Ariyanti et al., 2023), Security (Quiros, K. 2024), Increased Efficiency (Dugar, D. 2024), and reduces the chances of variation and errors (Stephens, T. 2020; Rotenstein et al., 2022). However, some study identifies the disadvantages of electronic records such as a) An increased work burden resulting in burnout (Dillon, E. C. et al., 2019; Marckini et al., 2019; National Academies of Sciences, Engineering, and Medicine; National Academy of Medicine; Committee on Systems Approaches to Improve Patient Care by Supporting Clinician Well-Being, 2019), b) Decreased face-to-face care (Honavar, 2020), c) slows down practitioners' practices and diverts their attention from patients (Upadhyay & Hu, 2022), and d) The patient perceived that the doctor requires more time for entering the data rather than assess the patient resulting to dissatisfaction (Tabche et al., 2023).

Electronic Dental Record (EDR)

Electronic dental records (EDRs) are digital systems designed to document and manage patient information in dental practices. They serve as a comprehensive tool for recording clinical data, treatment histories, and patient interactions, enhancing the quality of care and continuity (Levitin et al., 2019; Walji, 2019).

Electronic dental records (EDRs) provide numerous substantial benefits that improve operational efficiency and patient care. Initially, EDRs enable enhanced data management, which is crucial for the optimal management of oral and dental diseases, as it enables more comprehensive documentation of patient care (Maserat et al., 2020). Facilitate the seamless incorporation of patient information, which includes clinical, laboratory, and imaging data, to offer a comprehensive understanding of patient health (Barbosa et al., 2020). Furthermore, EDRs strengthen the quality of information, resulting in more accurate diagnoses and treatment planning, enabling users to access comprehensive patient histories (Swanik, 2019). In addition, using EDRs could improve communication among healthcare professionals, guaranteeing that all team members have access to the latest patient information, which is vital to care coordination (Barbosa et al., 2020) (Maserat et al., 2020). In general, the transition to electronic records substantially improves the quality and efficacy of dental care delivery.

Development of Electronic Dental Record (EDR)

Recent research has focused on developing and implementing electronic dental records (EDRs) to improve patient care and data management. Studies have explored creating web-based EDR applications that comply with health ministry standards (Wardhana et al., 2023) and establishing criteria for dental patient e-cards (Kulakov & Andreeva, 2021). Implementation efforts have been reported in various settings, including public healthcare systems (Capella et al., 2019) and pediatric dental clinics (Yossiant & Hosizah, 2023). Researchers have also developed virtual training environments to enhance dentists' decision-making skills (Johnson et al., 2020) and natural language processing pipelines to extract periodontal disease information from clinical notes (Patel et al., 2022). Quality measures have been created to assess tooth decay outcomes using EDR data (Brandon et al., 2022), while evaluations of EDR accuracy and completeness have highlighted areas for improvement in dental school settings (Meisha, 2019). These advancements aim to enhance overall dental care quality and support research initiatives.

Dental Recording in the Philippines

The Professional Regulatory Board of Dentistry provides guidelines regarding dental records, including the following: (1) Patient History, (2) Dental History, (3) Medical History, (4) Dental Record Chart, (5) Diagnosis, (6) Treatment Done (Professional Regulation Commission, 2008). The Philippine Dental Association in the Philippines also sets a code of ethics that requires all dentists to obtain baseline medical and dental records for patients, including treatment plans, diagnostics, blood test results, consent forms, and medical clearance (Philippine Dental Association, 2022). Additionally, the record must be kept within ten (10) years as mandated by the new law “Forensic Odontology Act of 2021” (Sotto, V. C. III, 2021). Dentists still use paper-based dental records. Some dentists use commercialized Electronic Dental Records (EDR) provided by the government of the Philippines. In Legazpi City, Philippines, the Police Regional Office in Bicol (PR0-5) launched an electronic dental

record (EDR) called "DIMAS," or "Dental Information Management Accuracy System," which can hasten the storage, retrieval, management, and printing of their dental records (Calipay, C. 2022). In the study of Mendoza, A. B. C. et al. 2024 regarding attitudes toward transitioning from traditional dental charting to electronic dental records, the researcher found that electronic dental records (EDR) are convenient, efficient, secure, and user-friendly. However, there will be a cost involved. Additionally, in a study by Rabe, G. S., 2022 regarding the implementation of electronic dental records, the researcher found that it can be helpful to small businesses and enhance their way of working.

Advantages of Electronic Dental Record (EDR)

Electronic dental records (EDRs) offer numerous advantages in dental practice, including improved data accuracy, completeness, and integration of patient information (Meisha, 2019; Beserra et al., 2022). EDRs enhance patient care by facilitating better clinical assessments and standardizing information management (Beserra et al., 2022; Elangovan et al., 2021). They also support public health surveillance by allowing for the analysis of non-communicable conditions among patients (Elangovan et al., 2021).

Disadvantages of Electronic Dental Record (EDR)

Electronic dental records (EDRs) present several disadvantages despite their potential benefits. Implementation challenges include the need for significant investments in hardware, software, and training (Neves et al., 2020). Resistance from health professionals and slow, inoperable systems can hinder adoption (Neves et al., 2020). EDRs may slow down clinic work, requiring comprehensive training to overcome usage difficulties (Alshammary et al., 2020). Data quality issues persist, with varying levels of accuracy and completeness across different data fields (Meisha, 2019). Legal and regulatory concerns surrounding EDRs in dentistry make practitioners reluctant to adopt this technology (Tiol-Carrillo, 2022). Some healthcare systems' separation of medical and dental records limits patient care and safety (Virdee et al., 2022). Additionally, the lack of mandatory rules, standard business processes, and cultural infrastructure deficiencies pose challenges to EDR implementation (Maserat et al., 2020). These factors contribute to the relatively limited uptake of EDRs in dental practices, particularly in secondary care settings (Virdee et al., 2022).

Implementation of Electronic Dental Records (EDR)

Electronic dental records (EDRs) are increasingly being implemented in dental practices to improve patient care and data management. Studies have shown varying adoption rates, with 46.07% of surveyed practices in Mississippi using EDRs exclusively (Brent et al., 2020). Implementation challenges include limited development costs, user adaptation, and the need for some manual processes (Sella Yossiant & Hosizah Hosizah, 2023). EDRs can be customized to integrate medical information, facilitating holistic care (Dolce et al., 2019). Key benefits include improved data quality, transparency, and surveillance capabilities (Thomas et al., 2020; Maserat et al., 2020). However, legal and regulatory considerations must be addressed (Tiol-Carrillo, 2022). Successful implementation requires multidisciplinary design teams, user training, and adherence to health ministry standards (Capella et al., 2019; Wardhana et al., 2023). Despite challenges, EDRs promise to enhance dental practice management, patient care, and public health monitoring. Adopting electronic dental records (EDRs) entails several drawbacks that may impede their efficacy in clinical environments. A prominent issue is the incomplete formats of EDRs, which can result in

voids in critical patient information, as evidenced in numerous healthcare facilities where vital data, including patient identification and treatment documentation, were absent (Wardhana et al., 2022). Moreover, the shift from traditional paper systems to electronic frameworks can pose challenges for certain dental practices, with research indicating that many practices continue to depend on paper records, indicative of a reluctance to embrace change and insufficient technological integration (Brent et al., 2020). In addition, the lack of compulsory regulations and standardized procedures can lead to discrepancies in data management and quality, as emphasized in a SWOT analysis concerning EDRs (Maserat et al., 2020). These challenges and apprehensions regarding data security and confidentiality highlight the intricacies of implementing electronic dental records in a clinical context (Virdee et al., 2022).

Implementing EDRs faces challenges, including legal considerations (Tiol-Carrillo, 2022), standardization (Kulakov & Andreeva, 2021), and security concerns (Wardhana et al., 2022). Studies have shown that EDR completeness and accuracy can vary significantly across different data fields (Meisha, 2019). To address these issues, researchers have developed web-based EDR systems that comply with health ministry standards (Wardhana et al., 2023) and integrated them with existing electronic health records (Capella et al., 2019). Despite progress, some dental clinics still rely on a combination of electronic and manual processes (Yossiant & Hosizah, 2023). As EDRs continue to evolve, focus should be placed on improving data quality, standardization, and security to ensure their effective implementation in dental practices.

METHODOLOGY

Research Design

The study utilized a descriptive developmental research design. Descriptive research aims to summarize the characteristics of a group or individual, while evaluative research measures the outcomes of specific plans or projects (Aggarwal & Ranganathan, 2019; Yuniarti et al., 2021). Developmental research design focuses on creating new products or systems, often incorporating evaluation methods to assess strengths and weaknesses (Faizin, 2020; Palmerola, 2024). This design systematically collects and analyzes data to assess the effectiveness of a program or intervention, focusing on understanding and describing outcomes rather than establishing causality. It involves the creation of a technological solution (the EDR system) and its iterative refinement based on feedback and testing. The approach combines quantitative methods to gather stakeholder insights, measure the acceptability in dentistry, and assess the quality level of the new electronic dental record (EDR) by an IT expert.

Sources of Data

The primary sources were the results collected from the respondents' answers to the survey questionnaire.

Population of the Study

The study's respondents consisted of thirty-two (32) dentists from private dental clinics in Laguna. The following inclusion criteria were as follows: (a) a member of Cabuyao Dental Club, (b) no experience in using electronic dental records, (c) a private dental clinic still uses a paper-based recording, and (d) a dentist who has any device such as laptop, computer, phone, tablets with an internet connection. Additionally, three (3) IT experts were included in this study.

The respondents were selected using the purposive sampling technique. Purposive sampling is a non-probability sample chosen based on the study's objectives and the population's characteristics (Crossman, Ashley 2019).

Instrumentation and Validation

The instruments were divided into three (3) parts: Part 1. Problems encountered by dentists in using paper-based recording and recommendations for the new electronic dental record (EDR), Part 2: Acceptance of the new electronic dental record (EDR) in dentistry, Part 3: Quality level of new electronic dental (EDR) assessed by IT experts.

The Cronbach Alpha results in the researcher-made questionnaire, part II, were 0.432, and in part III, 0, which indicated good reliability and internal consistency.

Evaluation and Scoring

To determine the level of acceptability of new electronic dental record (EDR) in dentistry, the following measures were used:

Assigned Points	Numerical Ranges	Categorical Responses	Verbal Interpretation
5	4.2 - 5	Strongly Agree	Highly Acceptable
4	3.4 - 4.2	Agree	Acceptable
3	2.6 - 3.4	Neither agree nor disagree	Neutral
2	1.8 - 2.6	Disagree	Unacceptable
1	1 - <1.8	Strongly Disagree	Highly Unacceptable

To determine the level of quality of the new electronic dental record (EDR), the following measures were used:

Assigned Points	Numerical Ranges	Categorical Responses	Verbal Interpretation
5	4.2 - 5	Strongly Agree	Very Good
4	3.4 - 4.2	Agree	Good
3	2.6 - 3.4	Neither agree nor disagree	Neutral
2	1.8 - 2.6	Disagree	Poor
1	1 - <1.8	Strongly Disagree	Very Poor

Data Gathering Procedure

The data-gathering procedure commenced upon securing a consent letter countersigned by the thesis adviser. This letter permitted the researcher to conduct the study and administer the questionnaire. Additionally, all ethical considerations were made before the study was conducted. The researcher contacted the president of the Cabuyao Dental Club, who approved the letter to implement the research among the club's members. During the implementation phase, a pilot test was conducted with ten (10) dentists who were not included in the sample population. All respondents agreed that all researcher-made questionnaires were understandable and acceptable to the intended respondents.

After the researcher-made questionnaires were validated, the researcher contacted all the members of the Cabuyao Dental Club via an online platform. However, only thirty-two dentists responded to the message. The implementation consists of three (3) phases.

Phase 1. All thirty-two (32) dentists were contacted via an online platform and provided with a Google Form link. The Google Form includes consent and ethical considerations before proceeding with the researcher-made questionnaire. Once the respondents agreed, a researcher-made questionnaire regarding problems encountered using paper-based recording and the recommendation for the new electronic dental records was provided.

Phase 2. The researcher developed a new electronic dental record (EDR) based on the dentist's recommendations. The new electronic dental record (EDR) is a website that can be accessed using any browser on a laptop, computer, or mobile device if connected to the Internet. Additionally, the user must log in to the account to access the records (Demographics, Medical and Dental History, Transaction or Billing) for security purposes.

Phase 3. The researcher distributed the new electronic dental record (EDR), tutorial, and researcher-made questionnaire using Google Forms via email among the thirty-two (32) dentists. The questionnaire was about the acceptability of the new electronic dental record (EDR) for dentistry and was available within ten (10) days of being sent. Additionally, another researcher-made questionnaire was distributed to three (3) IT experts to assess the quality of the new electronic dental record (EDR).

The researcher recorded all the responses in a spreadsheet. The gathered data was compiled in an Excel spreadsheet and sent to a statistician for computation.

Statistical Treatment Data

For the analysis of data gathered, the following statistical tools were utilized:

1. Frequency and Percentage distribution were used to determine the problems encountered in paper-based recording and recommendations of the dentist for the new electronic dental record (EDR)
2. Weighted Means were used to identify the acceptance level of the new electronic dental record (EDR) in dentistry and quality level of new electronic dental record (EDR) assessed by an IT expert.

RESULTS

The problems encountered by dentists in using paper-based dental recording

Indicators	Frequency	Percentage	Rank
Difficulty finding the record	28	87.50	1
Time-Consuming in Using (Filling up the form).	21	65.63	3
Space Consuming	26	81.25	2
Prone to damage	14	43.75	4

The highest indicator was “Difficulty finding the record,” with 87.5%, followed by “Space Consuming,” with 81.25%, then “Time-Consuming in Using,” with 65.25%, and the lowest indicator was “Prone to damage,” with 43.75%.

The recommendation of dentists for new Electronic Dental Record (EDR)

Indicators	Frequency	Percentage	Rank
User-Friendly	23	71.875	5
Comprehensive Data storage system for maintaining patient information, including demographics and medical and dental history.	30	93.75	2
Accessibility to Devices	27	84.375	3
Facilitate seamless billing	5	15.625	6
Easy search functionality for quick access to patients' records.	26	81.25	4
All data must be secure.	32	100	1

All the respondents recommend having secured data. Out of thirty-two (32) respondents, thirty (30) recommended having a comprehensive data storage system for maintaining patient information, including demographics and medical and dental history. Twenty-seven (27) respondents recommended having the new electronic dental record accessible to any device. Twenty-six (26) respondents recommended having an easy search functionality for quick access to patient records. Twenty-three (23) respondents recommended a user-friendly electronic dental record (EDR). Lastly, five (5) respondents recommended having seamless billing.

Level of Acceptance of New Electronic Dental Record (EDR) in Dentistry

Indicators	Weighted Mean	Verbal Interpretation	Rank
Using electronic dental records in my practice would enable me to find patients' records quickly.	4.9375	Highly Acceptable	1
Using electronic dental records in my practice would improve the retention of patient records.	4.84375	Highly Acceptable	2
Using electronic dental records in my practice would increase my productivity.	4.625	Highly Acceptable	3
Using electronic dental records in my practice would enhance my effectiveness in patient information recording.	4.4375	Highly Acceptable	7
Using electronic dental records in my practice would make it easier to do my job.	4.5	Highly Acceptable	5
I would find electronic dental records useful in my practice.	4.5625	Highly Acceptable	4
Learning to operate the electronic dental record would be easy for me.	4.03125	Highly Acceptable	10
I would find it easy to get the electronic dental record to do what I want.	4.21875	Highly Acceptable	9
My interaction with the electronic dental record would be clear and understandable.	4.375	Highly Acceptable	8
It would be easy for me to become skillful at using the electronic dental record.	4.21875	Highly Acceptable	9
I would find the electronic dental record easy to use.	3.875	Highly Acceptable	11
I will consider using electronic dental records for patient data recording.	4.46875	Highly Acceptable	6
Generally, I am satisfied using electronic dental records in patient data recording.	4.5625	Highly Acceptable	4
Overall Weighted mean	4.35	Highly Acceptable	

The highest indicator, "Using electronic dental records in my practice would enable me to find patients' records quickly," got a weighted mean of 4.94, and the lowest indicator, "I would find the electronic dental record easy to use, " got a weighted mean of 3.88. The overall weighted mean of thirteen (13) indicators was 4.35, which revealed that the respondents accepted using the new electronic dental record in dentistry.

Quality Level of new Electronic Dental Record (EDR) assessed by an IT expert

Indicators	Weighted Mean	Verbal Interpretation
The website is performing the tasks required.	5	Very Good
The website has a feature to address your questions or concerns.	5	Very Good
The website has a feature (Contact Us) that allows you to contact the website administrators.	5	Very Good
The website has a feature (About us) that lets you know the people behind the project.	5	Very Good
The website's content is accurate.	5	Very Good
The website is free from spelling errors.	5	Very Good
The website's text is well-written and grammatically correct.	5	Very Good
The website's menu items are working.	5	Very Good
The website usage is easy to understand.	5	Very Good
The website usage is easy to learn.	5	Very Good
The website is user-friendly.	5	Very Good
The website's navigation can be used easily.	5	Very Good
The website's look is attractive.	5	Very Good
The website looks organized.	5	Very Good
The website loads fast.	5	Very Good
The website's response time is fast.	5	Very Good
The website's contents are displayed properly without delay.	5	Very Good
The website can run even on different browsers.	5	Very Good
The website can run on different mobile devices (Android, Apple, Tablet, Ipad, etc.)	5	Very Good
The website can display errors.	5	Very Good
The website is capable of handling errors.	5	Very Good
The website can resume its operation after an error or a failure.	5	Very Good
The website performs its function without failure for a reasonable amount of time.	5	Very Good
Errors on the website can be repaired in a reasonable amount of time.	5	Very Good
The website is easy to maintain and remains effective despite environmental changes.	5	Very Good
The website can easily be enhanced to improve its overall performance.	5	Very Good
Enhancing the website can quickly be done without incurring too much cost.	5	Very Good

All the following indicators have a weighted mean of five (5), which is interpreted as “Very Good.” This means that the new electronic dental record (EDR) is of very good quality, as assessed by IT experts.

DISCUSSION

The result reflects the study of Phillips et al., 2019, which discusses that paper-based recording is less time-efficient and prone to missing data. Additionally, the study by Siyam et al., 2021, requires more time for recording and reporting, with health workers spending significant time on documentation tasks. The study's results were related to the findings, which are the importance of data security (Baserra et al., 2022). Additionally, according to the study of Maserat et al., 2020, the electronic dental record (EDR) enables more comprehensive documentation which is also reflected in the study results. The study's results were related to the other research findings, which are that electronic dental records (EDR) improve data management (Brent et al., 2020). Additionally, the result reflected the study of Neves et al. 2020, which stated that investment in training must be made during the implementation of electronic dental records (EDR). The study results are related to the study of Uy, C. et al., 2022, which found that the reliability and maintainability of the website assessed to have high ratings based on the web developer.

CONCLUSIONS

Based on the results, the following conclusions were drawn:

1. The problems with using paper-based dental records were difficulty finding records, space and time consumption, and proneness to damage.
2. The most important criterion for a new electronic dental record is to have secured data. Additional features of the new electronic dental record are device accessibility, easy search functionality for quick access to patient records, a comprehensive data storage system for maintaining patient information, including demographics and medical and dental history, and user-friendliness for new electronic dental records.
3. The new electronic dental record (EDR) is acceptable in dentistry. The following factors to consider are: (1) the data is secured because only the dentist can have access to the record, (2) the new electronic dental record is accessible on any device while connected to an internet connection, (3) easy to find the record such as patient information such as demographics, medical and dental history and billing, and (4) a step by step tutorial was provided for easy utilization of new electronic dental record. Who develops EDR,
4. The new electronic dental record (EDR) is very good in terms of quality in functionality, usability, efficiency, portability, reliability, and maintainability.

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