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Satisfaction with Paper-Based Dental Records and Perception of Electronic Dental Records among Dental Professionals in Myanmar

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Objectives: To overcome challenges in the implementation of electronic dental record systems in a low-resource setting, it is crucial to know the level of users' satisfaction with the existing system of paper-based dental records and their perceptions of electronic dental records. **Methods:** A cross-sectional paper-based questionnaire survey was conducted among Myanmar dental professionals who worked in one of two teaching hospitals or in private dental clinics. Descriptive data were analyzed and regression analysis was carried out to identify factors influencing perceptions of electronic dental records. **Results:** Most dental professionals (>60%) were satisfied with just three out of six aspects of paper-based dental records (familiarity, flexibility, and portability). In addition, generalized positive perceptions were found among decision makers towards electronic dental records, and 86% of dentists indicated that they were willing to use them. Financial concerns were identified as the most important barrier to the implementation of electronic dental records among dentists who were not willing to use the proposed system. **Conclusions:** The first step towards implementing electronic dental records in Myanmar should be improvement of the content and structure of paper-based dental records, especially in private dental clinics. Utilization of appropriate open-source electronic dental record software in private dental clinics is recommended to address perceived issues around financial barriers. For the long term, we recommend providing further education and training in health informatics to healthcare professionals to facilitate the efficient use of electronic dental record software in Myanmar in the future.

Keywords: Electronic Dental Records, Myanmar, Perceptions, Paper-based Dental Records, User Satisfaction

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I. Introduction

Over the past two decades, electronic health records have seen a major breakthrough in healthcare organizations, brought about by the rapid advancement of information and communication technology worldwide. Electronic dental records (EDRs), a subset of electronic health records, have been developed, implemented, and widely used among dental professionals in developed countries because of their proven usefulness and improvements in the quality of patient care [1]. However, in developing countries, many

challenges have been identified regarding the use of EDRs due to a number of barriers to their successful implementation in dental clinics [2,3]. Implementation of EDR systems is challenging for dentists because most dental clinics are small; hence, they do not want to invest a lot of money in information technology [4]. Moreover, they face further challenges such as ethical issues. For example, autonomy can be breached when data is shared or linked without the patients being informed, and trust can be lost when proper security measures are not applied [5]. Most importantly, the doctor-patient relationship can be considerably impaired by the introduction of electronic health records in the dental office [6]. Dentists who practice in Myanmar keep only basic patient records, which include limited information of patients' health status, and patients are advised to bring their own records on subsequent visits. Only inpatient departments at two government hospitals keep full patient records. Dentists encounter a lot of problems related to paper-based dental records because patients often do not bring their paper-based records with them or lose them between visits, making it very difficult to obtain a reliable medical history for them. These problems could cause a serious weakening of the quality of patient care due to potential diagnosis or treatment errors [7]. Therefore, most dentists in Myanmar wished to use EDRs to overcome these undesirable effects on patients. Nevertheless, implementation of a new electronic data-entry system in their dental clinics has been challenging for most dentists for a number of reasons, such as financial barriers, human resources barriers, knowledge barriers, and legal and regulatory barriers [8]. In addition, even after the implementation of EDRs in dental clinics, paper-based patient records might still be superior to EDRs due to their simplicity of use and familiarity in most healthcare settings [9]. Based on these points, it has been considered crucial to assess the benefits and drawbacks of paper-based dental records as well as barriers to, and perceptions around, the implementation of EDRs. There have been very few studies on the perception of EDR systems around the world [10]. Furthermore, we did not find any work done in limited-resource settings, as in our study. We hypothesized that dental professionals in Myanmar were satisfied with currently using paper-based dental records, and this might influence their perceptions and intention to use the electronic dental record system. Therefore, this study aimed to measure user satisfaction regarding various aspects of paper-based dental records, views on EDRs, and perceived barriers to the implementation of EDRs among dental professionals practicing in the Yangon and Mandalay divisions in Myanmar.

II. Methods

A cross-sectional paper-based survey questionnaire was developed and distributed among dentists who were working at private dental clinics and/or at one of two government teaching dental hospitals, along with house officers who were receiving internship training at the University of Dental Medicine, Yangon and Mandalay. Dental professionals who already had experience with EDR software were excluded from the study. Participants were purposively selected, and interviewers gave them a brief explanation of EDRs before they completed the survey questionnaires. The questionnaire consisted of two parts, with part one completed by all participants in this study. However, part two of the questionnaire was completed only by decision makers at private dental clinics who were responsible for making the decision to switch to an EDR system in their practice. Part one collected information about demographic characteristics and satisfaction with the currently-used paper-based dental records in their clinic. The level of agreement on satisfaction with various aspects of paper-based dental records, such as their perceived usefulness and ease of use, was determined using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Part two of the questionnaire comprised questions for assessing perceptions of EDRs, including perceived usefulness, ease of use, intention to use them, barriers for implementation, maximum affordable price in their dental clinics, and desirable components of EDR software. This survey questionnaire was constructed based on a previous survey questionnaire developed by Tange and an original technology acceptance model proposed by Davis [11,12]. The technology acceptance model (TAM) is the theory that is used to explain users' acceptance of new technology. The original technology acceptance model was proposed by Davis in 1989. It is one of the most popular models to evaluate and predict user acceptance of information systems and information technology. In this model, attitudes toward using information technology are influenced by two factors, perceived usefulness and perceived ease of use. There have been many modifications of TAM by including the TAM2 and the unified theory of technology acceptance. Original and modified TAMs have been used extensively in research on health informatics and business research [13]. The conceptual framework for the research is shown in Figure 1. The construction of the research conceptual framework is defined as follows:

- 'Perceived usefulness' means the extent to which an individual believes that using a particular system would

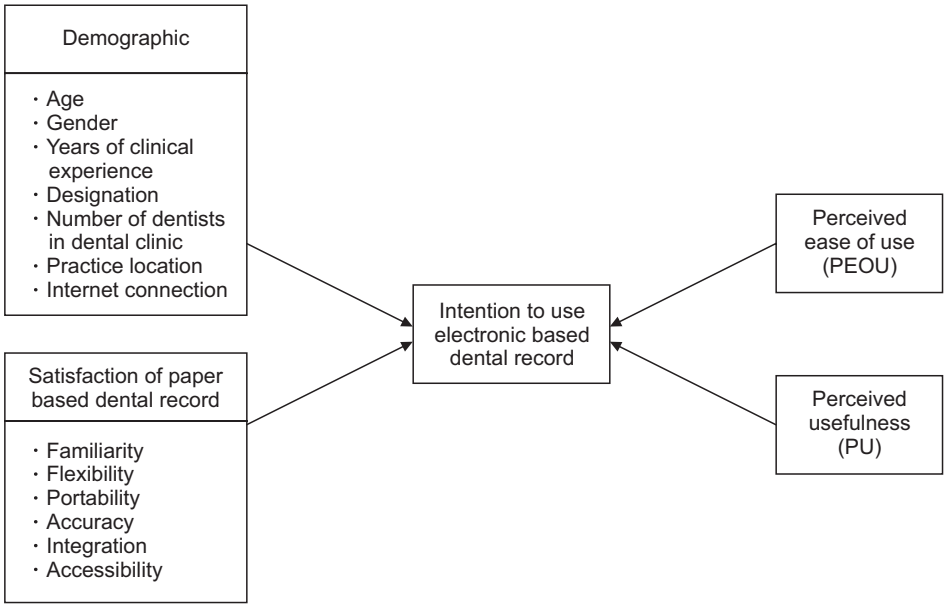

Figure 1. Conceptual framework.

increase his or her job performance [14].

- 'Perceived ease of use' refers to the perception of an individual that using the particular system would reduce physical and mental effort [14].
- 'Intention to use an electronic dental record system' refers to a person's motivation to use such a system [14].
- 'Barriers to implementation' are defined as an individual's perception of the factors that prevent the implementation of an EDR system [8].
- 'Satisfaction with paper-based dental records' is defined as the level of an individual's acceptance of the use of paper-based dental records [12].
- 'Portability' refers to the ability to carry a patient's record easily to the point of patient care [12].
- 'Availability' refers to the ability to look the patient's record to check a patient's health history and current health status [12].
- 'Flexibility' means the ability to select the desired words to describe content in the patient's dental records [12].
- 'Integration' can be defined as the ability to combine dental records and medical records or dental records of two or more clinics to give better patient care [12].
- 'Familiarity' refers to the ability of dental professionals to easily and comfortably use patients' dental records [12].
- 'Accuracy' means that a dental professional can record a patient's data such that the record is as close as possible to the true observation [12].

The validity and reliability of the questionnaire was discussed with the thematic paper committee members. Potential participants were asked to read and complete a participant information sheet as well as an informed consent form to ensure voluntary participation. All information and results with personally identifiable information were kept confidential. The study was approved by the Research Ethics Committee of the Faculty of Tropical Medicine, Mahidol University, Thailand. The analyses were performed using SPSS ver. 20 (IBM, Armonk, NY, USA). Cronbach's alpha coefficient was used for the validity and reliability measure of the questionnaire. Descriptive statistics with percentage, mean, and standard deviation were used to report the demographic characteristics of the sampled population, scores of paper-based satisfaction, barriers, choice of maximum affordable price, and perceptions and intention to use an electronic dental record system. Regression analyses were carried out, with the level of statistical significance considered to be 95% ($\alpha = 0.05$) to identify significant factors influencing the outcomes including total perception and intention to use an electronic dental record system.

III. Results

1. Reliability and Validity Analysis

The reliability of the items included in the questionnaire as measured by Cronbach's alpha coefficient ranged from 0.6 to 0.7, which indicates a borderline acceptable level of internal consistency among the questions. The low alpha value could be due to the small number of questions (i.e., 6 questions) in each category and possibly some heterogeneous constructs [15-17].

2. Participants' General Characteristics

The general characteristics of the participants are shown in

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Table 1. Demographic characteristics of dental professionals (n = 245)

General characteristics		House officers, n (%)	Decision makers only, n (%)
Total in study		88 (35.92)	157 (64.08)
Age (yr)	<30	88 (100)	108 (68.79)
	≥30	0 (0)	49 (31.21)
		Mean = 22.35, SD = 1.165	Mean = 29.33, SD = 6.70
Gender	Male	47 (53.4)	87 (55.41)
	Female	41 (46.6)	70 (44.59)
Experience (yr)	1–10	88 (100)	121 (77.07)
	11–20	0 (0)	31 (19.75)
	>20	0 (0)	5 (3.18)
		Mean = 3.09, SD = 0.326	Mean = 8.76, SD = 5.31
Designation	House officer	88 (35.92)	0
	Dentist	0	136 (86.62)
	Specialist	0	21 (13.38)
Total number of dentists	≤3	0 (0)	79 (50.31)
	>3	88 (100)	78 (49.68)
Location	Yangon	46 (52.3)	97 (61.78)
	Mandalay	42 (47.7)	60 (38.22)
Internet connection	Yes	0 (0)	24 (15.29)
	No	88 (100)	133 (84.71)

House officers: dental students who received internship training at university teaching hospitals before they got bachelor degree.

Table 1. A total of 245 out of 263 survey questionnaires were completed, giving a response rate of 93%. The mean ages of the respondents were 22.35 years (SD = 6.36) for house officers and 29.33 years (SD = 6.70) for decision makers. House officers who participated in this study had been practicing in dental clinics for an average of 3 years, whereas decision makers had an average of 9 years of clinical experience. More than half of the respondents (56%) were general dentists, just 9% were specialists in a specific field of dentistry, and the remainder were house officers in dental hospitals (data not shown). All of the house officers and 49.68% of decision makers were working at large dental clinics in which the total number of practicing dental professionals was more than three. A greater percentage of respondents were from Yangon division (58%) than from Mandalay division (42%) (data not shown). The majority of dental professionals were practicing in clinics or hospitals where they could not access the Internet from their computers.

3. Satisfaction with Paper-based Dental Records

Satisfaction with paper-based dental records was assessed by examining participants' agreement with positive or negative statements regarding such records. It was found that nearly half of respondents (44%) strongly agreed that integration between medical and dental records was important for improving the quality of patient care in dental clinics. In addition, the majority of dental professionals (89%) were familiar with the currently used paper-based dental records, and most (86%) also considered the paper-based system easy to use in dental clinics.

In short, dental professionals were satisfied with the familiarity, flexibility, and portability aspects, while they were unsatisfied with the integration and accuracy aspects of paper-based dental records. For the accessibility aspect, a similar number of dental professionals who were either satisfied, neutral or unsatisfied with the paper-based system (Table 2).

4. Perceptions of Electronic Dental Records

As shown in Table 3, it was evident that most decision makers in dental clinics agreed with all of the positive statements regarding the perceived usefulness and ease of use of EDRs. A small majority of decision makers disagreed with two of the three negative statements about perceived usefulness (53% and 54%), and half of decision makers (50%) also disagreed with one of the three negative statements regarding perceived ease of use. The remaining two statements did not

Table 2. Distribution of percentage of agreement of paper-based dental records by item (n = 245)

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Strong components of paper-based dental records						
Familiarity	The dental professionals are familiar with paper-based dental records.	1 (0.41)	7 (2.86)	19 (7.76)	161 (65.71)	57 (23.27)
	Paper-based dental records are easy to learn.	0 (0.00)	9 (3.67)	25 (10.20)	177 (72.24)	34 (13.88)
Flexibility	Paper-based dental records are flexible for recording the level of detail in data.	1 (0.41)	27 (11.11)	62 (25.51)	145 (59.67)	8 (3.29)
	Paper-based dental records give flexibility in the choice of words to describe clearly the necessary content.	2 (0.82)	20 (8.23)	53 (21.81)	152 (62.55)	16 (6.58)
Portability	Paper-based dental records are easy to carry to the point of care.	3 (1.23)	33 (13.58)	59 (24.28)	127 (52.26)	21 (8.64)
	It would be convenient for me to bring paper-based dental records during history-taking and examination of the patient.	2 (0.82)	14 (5.74)	57 (23.36)	146 (59.84)	25 (10.25)
Weak components of paper-based dental records						
Accuracy	Using paper-based records is inaccurate in recording diagnostic and treatment data.	12 (4.90)	81 (33.06)	70 (28.57)	72 (29.39)	10 (4.08)
	Data concerning the treatment plan of is often missing with paper-based dental records.	5 (2.05)	32 (13.11)	59 (24.18)	121 (49.59)	27 (11.07)
Integration	Integration between dental records and medical records is important in the dental practice to enhance the quality of care for patients.	2 (0.82)	1 (0.41)	7 (2.86)	128 (52.24)	107 (43.67)
	Integration of dental records between dental clinics is needed for improving patient care.	1 (0.41)	1 (0.41)	16 (6.56)	135 (55.33)	91 (37.30)
Accessibility	I cannot easily access paper-based dental records whenever I need to get a patient's status and specific data.	1 (0.41)	72 (29.51)	77 (31.56)	82 (33.61)	12 (4.92)
	A patient's oral health condition cannot be seen outside the clinic with paper-based dental records.	5 (2.06)	72 (29.63)	71 (29.22)	76 (31.28)	19 (7.82)

Values are presented as number (%).

Table 3. Distribution of percentage of agreement regarding electronic dental records by item (n = 157)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Perceived usefulness (positive/negative statements)					
1. Using EDR will make a better dentist.	2 (1.28)	15 (9.61)	20 (12.82)	99 (63.46)	20 (12.82)
2. Using EDR will increase the efficiency of a practice.	0 (0.00)	11 (7.10)	33 (21.29)	105 (67.74)	6 (3.87)
3. Using EDR will increase the speed of the job.	0 (0.00)	9 (5.76)	36 (23.08)	98 (62.82)	13 (8.33)
4. Using EDR will slow performance.	8 (5.10)	83 (52.87)	38 (24.20)	27 (17.20)	1 (0.64)
5. Using EDR will not save chairside time.	5 (3.22)	75 (48.38)	48 (30.97)	24 (15.48)	3 (1.94)
6. Using EDR will slow the current workflow of the dental clinic.	4 (2.55)	85 (54.14)	55 (35.03)	12 (7.64)	1 (0.64)
Total mean score of perceived usefulness (out of 30) 21.48 (SD 2.84)					
Perceived ease of use (positive/negative statements)					
7. EDR systems are easy to use.	1 (0.64)	21 (13.38)	45 (28.66)	88 (56.05)	2 (1.27)
8. EDRs can reduce the physical and mental effort at work.	1 (0.64)	24 (15.28)	37 (23.57)	90 (57.32)	5 (3.18)
9. It is easy to become a skillful EDR user.	0 (0.00)	13 (8.28)	40 (25.48)	101 (64.33)	3 (1.91)
10. It is difficult for dental professionals to learn to use EDRs.	3 (1.91)	68 (43.31)	36 (22.93)	45 (28.66)	5 (3.18)
11. EDRs have a complicated data entry process.	4 (2.55)	78 (49.68)	41 (26.11)	33 (21.02)	1 (0.64)
12. A lot of training is needed before using EDRs.	7 (4.46)	64 (40.76)	35 (22.29)	43 (27.39)	8 (5.10)
Total mean score of perceived ease of use (out of 30) 20.08 (SD 2.99)					

Values are presented as number (%).
EDR: electronic dental record, SD: standard deviation.

result in clear opinions about the perceived ease of use. General disagreement with the negative statements about perceived usefulness and ease of use reflects the fact that most respondents believed in the capacity of electronic records to reduce physical and mental effort. The mean total perception score was 42 out of 60, which further confirmed the generally positive perceptions of EDRs by most of the decision makers in the participating dental clinics.

The findings of this study showed that 135 out of 157 decision makers (86%) were willing to use EDRs in their clinics. Individuals who did not want to use EDRs were questioned further about the reason(s) for their lack of intention to use an electronic record system. The major barrier was found to be financial, as shown in Table 4, which describes the distribution of barriers to the implementation of electronic dental records in clinics. The distribution of maximum affordable price for EDR software for these clinics was calculated, and the results are shown in Table 4. The results showed that 64% of decision makers wanted to purchase the cheapest dental record software among the five available choices given in the questionnaire, which further confirmed financial considerations as a major barrier for decision makers in dental clinics.

Multiple linear regression analysis was performed to identify any significant factors among the demographic variables for the total scores of perceived usefulness and perceived ease of use and total perception scores of EDRs. Designation was found to be the only significant predictor of total perception score for EDRs (see Table 5). We also analyzed the two aspects of perception separately, and practice location was found to be a significant predictor for perceived usefulness, whereas clinical experience, designation, and the number of dentists in a dental clinic were found to be significant predictors for the perceived ease of use (data not shown). Moreover, the results of logistic regression analysis revealed that the total perceived usefulness scores, total perceived ease of use scores, total paper-based satisfaction scores, and practice locations were significant predictors for intention to use an electronic dental record system (see Table 6).

IV. Discussion

One of the most important findings of this study was that the majority of dental professionals were satisfied with all of the three strong aspects of paper-based dental records, namely, familiarity, flexibility, and portability. The familiarity aspect received the most positive responses in this survey, which was not surprising as respondents had been using paper-based records since they were in undergraduate dental school. The flexibility of paper-based records was also strongly supported, with most physicians expressing satisfaction because they could choose a variety of words to describe what they wanted to express, which is similar to the findings of Tange [6]. In this study, most of the respondents were also satisfied with the accuracy of paper-based records, again showing good agreement with the findings of Tange's previous study [12]. A further crucial finding of the present study was the fact that respondents were unsatisfied with two of the three aspects of paper-based dental records, namely, their accuracy and integration. Inaccuracy may result from the unclear handwriting of dental professionals on paper-based dental records. This also agrees with the results of a previous study conducted in Australia, in which electronic health records were perceived to provide more accurate and more complete information than paper-based dental records [18]. In addition, almost all of the dental professionals surveyed in the present study wanted to integrate medical records and dental records to improve the quality of patient care in dental clinics. The reason for this finding could be the

Table 4. Affordable price, willingness to use, and barriers among the decision makers

	n (%)
Maximum affordable price (US$ per month) (n = 157)	
<50	100 (63.69)
50–100	45 (28.66)
101–150	9 (5.73)
151–200	1 (0.64)
>200	2 (1.27)
Willingness to use an EDR system (n = 157)	135 (86.00)
Barriers among those who were NOT willing to use an EDR system (n = 22)	
Electronic dental record software is too expensive for me.	11 (50.00)
I don't want to change to a new system that will disturb the current workflow in the clinic.	3 (13.64)
I don't need electronic-based dental records at the present time.	8 (36.36)
Currently available electronic dental record software is not good enough for my clinical practice.	4 (18.18)

EDR: electronic dental record.

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Table 5. Multiple linear regression model showing the impact of demographic variables on total perception score (n = 157)

	Total perception score for EDRs	
	β coefficient (95% CI)	*p*-value
Constant	34.61 (26.78 to 42.44)	0.000
Age	0.02 (–0.24 to 0.27)	0.881
Gender	1.28 (–0.18 to 2.74)	0.086
Clinical experience	–0.10 (–0.42 to 0.22)	0.543
Designation	2.38 (0.07 to 4.70)	0.044
Number of dentists in dental clinic	0.40 (–0.19 to 0.99)	0.184
Practice location	–1.27 (–2.76 to 0.22)	0.095
Internet connection	0.48 (–1.51 to 2.47)	0.635

EDR: electronic dental record, CI: confidence interval.

Table 6. Logistic regression model showing the impact of demographic variables, total scores of perceived usefulness and perceived ease of use, and total user satisfaction score on intention to use an electronic dental record system (n = 157)

	β coefficient	*p*-value	OR (95%CI)
Age	–0.03	0.811	0.97 (0.74–1.27)
Gender (female)	–0.03	0.966	0.97 (0.29–3.28)
Clinical experience	0.05	0.775	1.05 (0.76–1.44)
Designation (specialist)	0.35	0.782	1.42 (0.12–16.83)
Location (Mandalay)	1.72	0.021	5.58 (1.29–24.03)
Internet connection (no connection)	–0.10	0.908	0.90 (0.15–5.27)
No. of dentist in clinic (>3 dentists)	1.01	0.121	2.74 (0.77–9.78)
Total perceived usefulness	0.29	0.004	1.34 (1.10–1.63)
Total perceived ease of use	0.33	0.001	1.40 (1.14–1.71)
Total user satisfaction score	–0.17	0.037	0.84 (0.72–0.99)
Constant	–4.39	0.370	0.01

OR: odds ratio, CI: confidence interval.

unreliability of medical histories obtained from patients and dental professionals' wish to prevent undesired events during dental treatment due to compromised medical conditions of patients. Structural integration of medical and dental records is needed to provide comprehensive patient-centered healthcare [19]. A survey-based study in Canada also revealed that most Canadian dentists wanted to use EDRs to consult with other dental specialists; this agrees with the findings of the current study regarding the intention to integrate records between dental clinics [20]. However, integration of records between clinics is not easy. As a recent study in Korea showed, there is a lack of health information exchange between external organizations, such as clinics, hospitals, or government organizations due to several complex issues, such as patient's privacy protection, legal requirements, and technological infrastructure problems [21]. The findings of this study showed that dental professionals were satisfied with only three (familiarity, flexibility, and portability) out of six aspects of paper-based dental records. Therefore, software developers should make serious efforts to improve the familiarity, flexibility, and portability of electronic dental record software in the future. Such efforts are all the more desirable because the adoption of an electronic system is less likely if most dental professionals are more satisfied with the strong aspects of paper-based dental records in comparison with electronic record systems [12]. This conclusion is also supported by the results of the logistic regression analysis conducted in this study, which showed that user satisfaction was a negative influence on intention to use EDR systems by decision makers (see Table 6). A generalized positive perception among decision makers in dental clinics towards electronic patient records was expressed in this survey, as illustrated by the mean total perception score of 41.56 (SD = 4.46) out of 60. This is in agreement with the results of a study conducted at Saudi Arabia Dental College, in which most dental students had a generalized positive perception to the Dentoplus software system 1 year after its implementation at that college [22]. However, the results of the present study in Myanmar may be over-optimistic, since respondents did not have any experience with electronic dental records, leading to the possibility of their ignoring drawbacks of EDR systems at this time. Furthermore, 86% of decision makers in dental clinics were willing to use EDR software despite a number of barriers being identified. However, this study has revealed the increased potential for future use of an EDR system in dental clinics in Myanmar. This idea is supported by an earlier technology acceptance model proposed by Davis, in which behavioral 'intention to use' is one of the preceding factors that can result in the actual use of such a system [13].

One of the most significant results noted in the multiple regression analysis was that designation was the only influential factor for the total perception score of EDRs by decision makers. This was further confirmed by the higher mean total perception score among specialist dentists (43 out of 60) in contrast with general dentists (41 out of 60) in

this study. Generally, specialists are more likely to deal with complex and advanced procedures in dentistry, requiring the assistance of an electronic record system for clinical decision support or advanced analysis of radiographs using software. A previous study conducted in the Netherlands also found that specialists were more motivated to improve the quality of care for their specialized dental treatment [10]. The total score for perceived ease of use was influenced by clinical experience, the number of dentists in the dental clinic, and the designation of dentists, according to the results of the multiple regression analysis in this study (data not shown). Increased clinic size and the presence of a specialist dentist increased the likelihood of EDR software use in these clinics (data not shown). These findings agree with those of previous studies, in which larger practices and specialist dentists were more likely to use EDRs than smaller practices and general dentists [10,23]. Moreover, additional years of clinical experience with paper-based dental records made the use of EDRs more complicated and difficult for some dentists. Dentists practicing in Yangon division tended to produce higher perceived usefulness scores. This might be related to differences in attitudes towards the performance of advanced technology due to differences in socioeconomic factors between the two divisions. According to the logistic regression analysis results in Table 6, perceived usefulness and perceived ease of use were the significant determinants of intention to use electronic dental records by decision makers. A recent study also found that the intention to use electronic devices increased with the perception that these devices were effective and convenient to use [24].

Financial barriers were identified as one of the most important barriers among Myanmar dentists, along with the maximum affordable price of dental software, as shown in Table 4. This might be influenced by the overall economic situation in Myanmar. Generally, dentists do not want to invest in an electronic record system since the potential benefits of using electronic records are unlikely to cover their investment in software, hardware, and training of personnel in their clinics. Studies conducted among Indian undergraduate dental students, Canadian dentists, and US dentists also concluded that financial barriers were one of the major obstacles for the implementation of digital technology in dental clinics [2,20,25]. A feasibility assessment study of Electronic Medical Record at Marie Stopes International's Clinics in Myanmar found that some of the major concerns of healthcare providers were extra workload, training requirements, accessibility, confidentiality of data, as well as the availability of technical support and infrastructure. They did not worry about financial concerns, unlike the participants in the present study, because they could get private funding from a non-government organization for implementation of technology in their workplace [3]. Since most dental professionals in Myanmar did not use the Internet with either laptop or desktop computers in their clinics, they were less likely to buy a Wi-Fi package for their practice. Wi-Fi connection was available in just 10% of dental professionals' practice areas and 15% of dental clinic owners' practice areas, which may contribute to limiting the effective implementation of an EDR system in the future.

In conclusion, this study found that dental professionals were only satisfied with three out of six aspects regarding the use of paper-based dental records, despite this system being in use for over 50 years in Myanmar. Furthermore, most dentists surveyed expressed intention to use an electronic record system, even if they could not afford to implement it in their clinics at the present time due to financial barriers. To draw up a step-by-step strategy for the implementation of an EDR system in Myanmar, there should be both a short-term and a long-term plan. The first and most important step in moving towards an EDR system should be proper record keeping and improvement of the structure and organization of the currently paper-based dental record system, especially in private dental clinics. Utilization of appropriate open-source EDR software in private dental clinics is strongly recommended to overcome the financial barriers to its implementation. For the long-term, we recommend that additional education should be provided to healthcare professionals. For example, a biomedical and health informatics element could be introduced in undergraduate dental courses in Myanmar's two medical schools to prepare students for the use of platforms using advanced technology which could support their work in the future.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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