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Evidence-based healthcare practice adoption: The impact of electronic health records

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Background: For healthcare institutions, proper documentation of the upkeep of patient medical records is imperative. In addition, without a record of the patient's medical history, the doctors are unable to demonstrate that the treatment was delivered correctly.

Aim: The primary objective of this research was to determine the influence of electronic health records (EHR) towards the adoption of evidence-based healthcare practice (EBHP) in South African public healthcare.

Methods: The study used a quantitative methodology, and a self-administered questionnaire was used to collect data from 300 healthcare professionals. In all, 450 questionnaires were distributed, and of those, 150 were unfit for data analysis because of insufficient data, leaving a total of 300 responses. Data were analysed using exploratory factor analysis (EFA) to identify latent constructs. Confirmatory factor analysis (CFA) was used to assess the validity and reliability of these constructs. The appropriateness of the measurement model was then assessed using fit indices for a structural equation model.

Results: The findings show EHR had a direct influence on information quality, medical error reduction, diagnosis and treatment of diseases as well as better coordination of patient's care. In addition, the results show that EHR-based clinical decision support is crucial for practising evidence-based healthcare and plays a significant role in the quality of healthcare, particularly in the management of diseases and preventative care. As all requirements for validity and reliability (root mean square error of approximation [RMSEA] = 0.085, comparative fit index [CFI] = 0.956 and $\chi^2/df = 2.513$) have been satisfied, the model is considered valid and reliable.

Conclusion: When healthcare professions such as doctors and nurses accurately record patients' medical histories, they are able to make successful medical decisions and prescribe medications based on the patients' past and present medical histories. Electronic health records systems facilitate the easier and more efficient exchange of patient data between medical schools, research labs, specialists, pharmacies and other healthcare institutions. Furthermore, they provide medical professionals with resources and up-to-date information to help them deliver EBHP that can benefit patients by reducing or even eliminating medical errors.

Contribution: The study contributes theoretically to the field of information systems by outlining a model that includes the variables that affect the adoption of EBHPs in public hospitals.

Keywords: patients; information quality; knowledge quality; medical error reduction; better coordination of patient care.

Introduction

It is challenging for medical personnel to verify patients' medical histories as patients commonly lose previous prescriptions and test results. Numerous patients visit various healthcare facilities for care and treatment (Greenhalgh et al. 2018; Gremyr et al. 2018). A comprehensive patient record that is available and easily accessible can successfully support continuous care throughout the continuum of care and can encourage patient, care, coordination and continuity (PCCC) between healthcare facilities (Kohli & Tan 2016). In addition, a patient's medical history is preserved at the hospital where they received treatment (Wright, O'Mahony & Cilliers 2017). When they move to a different area there is a relationship between a patient's failure to reveal health information and a diagnostic error that increases the patient's risk and harm (Zwaan & Hautz 2019). In addition, Dickerson (2023) indicated that the main problems with paper-based systems are the accuracy and comprehensiveness of medical data.

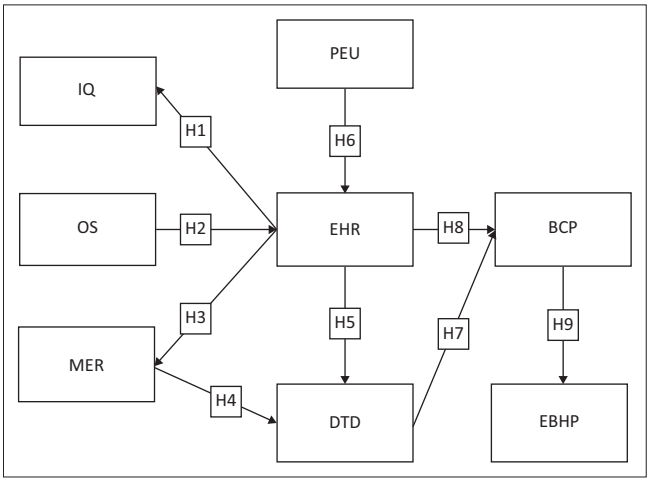
South Africa, like every other developing country, faces a high disease burden that it is unable to address, Amzat and Razum (2018 in Brahams 2021). Multiple flaws and inadequacies in the healthcare system, combined with racial and socioeconomic difficulties, have resulted in the spread of diseases such as HIV and AIDS in South Africa (Naidoo 2012; Van Rensburg 2014). Despite the fact that the introduction of the National Health Insurance (NHI) is a praiseworthy attempt to address imbalances in the healthcare delivery system (Katurura & Cilliers 2018), it has been met with tremendous opposition, resulting in a major delay in its implementation (Atasoy, Greenwood & McCullough 2019). Evidence-based practice (EBP) is generally acknowledged all around the world. Quality care, patient safety and improved patient outcomes all benefit from EBP (Zimmerman 2017). In addition, evidence-based practice provides high-quality health care, improved health outcomes and lower healthcare costs, according to multiple research (Melnyk & Fineout-Overholt 2018; Barrane, Karuranga & Poulin 2018; Lewkowicz, Wohlbrandt & Boettinger 2020; Amponin & Britiller 2023). The electronic medical records have come to be recognised for their productivity, efficiency and effectiveness by medical healthcare professionals because they represent a shift from antiquated paper records keeping to electronic records management in a computerised format, supported by internet network systems and offering versatility in the ability to transfer information and effect change (Mullins et al., 2020; Neves 2020). According to Ohuabunwa et al. (2015), paper-based systems have drawbacks like incompletely filled paper charts, handwriting that is difficult to read and missing notes that make it difficult for medical professionals to access vital patient data and lower the standard of care provided to patients. However, because of inadequate historical data, paper-based records also run the danger of misdiagnosing patients, which can have fatal consequences for their health (Weeks 2013). Several medical professionals, doctors, and healthcare workers may misinterpret patient medical documents written in poor handwriting. This could result in a patient receiving the incorrect diagnosis, which could have fatal consequences.

Motsi and Chimbo (2023) conducted a study to ascertain the prerequisites that public hospitals need to fulfil in order to adopt evidence-based healthcare practice (EBHP). The study showed a strong relationship between electronic health records (EHR) information quality (IQ), knowledge quality (KQ) and medical error reduction (MER) and EBHP. As this study investigates the relationship between the adoption of EHR and EBHP, it stands apart from previous research. With this information, policymakers will be able to develop comparable systems to maximise adoption and gain a better understanding of how EHR affect EBHP adoption in public hospitals. Therefore, the main goal of this study was to investigate the influence of EHR towards the adoption of EBHP at a South African public hospital.

Theoretical framework

The research's conceptual framework was developed by adopting as well as integrating three well-known models: Updated (D&M) IS Success Model (DeLone & McLean 2003); Technology, Organization, and Environment framework (TOE) (Tornatzky et al. 1990) as well as Technology Acceptance Model (TAM) (Davis 1989). To identify the relationship between EHR and EBHP from the Updated (D&M) IS Success Model, constructs, information quality, service quality, intention to use, user satisfaction and net benefits were adopted. While some research improves the traditional frameworks or adds or removes variables, many studies continue to use them in their existing form (Barrane et al. 2018; Taherdoost 2018). However, in this study, some of the constructs from the Updated (D&M) IS Success Model were changed to fit the study's goals based on the literature. Electronic Health Records (EHR) are widely recognised as essential instruments for delivering high-quality healthcare and are utilised for diverse objectives, including promoting collaboration, synchronisation, and joint decision-making (Wani & Malhotra, 2018). Access to an electronic health record (EHR) enables medical practitioners to promptly evaluate a patient's test results, medical history, and other pertinent data. Without altering the construct, IQ was selected for this study. According to this study, (IQ) refers to a healthcare provider's capacity to provide appropriate diagnosis, manage patient care, and lower the likelihood of medical errors when provided with high-quality data. It increases patient satisfaction, enhances patient care, and makes well-informed decisions easier.

The study postulates that medical error reduction (MER) directly influences disease diagnosis and treatment, with EHR serving as a catalyst for achieving that result. Based on the literature review, the researcher made the decision to add MER as a new construct to the D&M IS Success Model. The proposal framework depicted in Figure 1 shows that better coordination of patient care (BCP) has a significant influence on EBHP. The fundamental premise of this study is that BCP is critically important in this context. Medical records are the main source of clinic information and health data because they are succinct, precise and contain information about a patient's health history, ailments and medical occurrences from a medical perspective (Lungile & Trywell 2017). The



BCP, better coordination of patient care; DTD, diagnosis and treatment of diseases; EBHP, evidence-based healthcare practice; H, Hypothesis; HER, electronic health records; IQ, information quality; MER, medical error reduction; OS, organisational support; PEU, perceived ease of use.

FIGURE 1: Hypothesised model.

construct user satisfaction was changed in the Updated (D&M) IS Success Model to read diagnosis and treatment of diseases (DTD) and it takes the functions of a mediating variable in the conceptual framework. In practical terms, EBP is considered as a significant ingredient of high-quality healthcare (Lewkowicz et al. 2020). Based on prior studies, EBP was renamed EBHP] (Motsi & Chimbo 2023).

Net-benefits construct from the D&M IS Success Model was changed to EBHP for this study, and as shown in Figure 1, this construct is a dependent variable. Extending this claim, the independent variables (IQ, MER, DTD, OS and PEU) have a direct influence on EBHP (Motsi & Chimbo 2023). Technology Acceptance Model has been used in various studies over the last decade to better understand nurses' acceptance of EHR in hospital settings (Vehko et al. 2019). One of the TAM constructs, perceived ease of use (PEU) was adopted in this study. For the purposes of this study, perceived ease of use will be defined as the opinion held by healthcare professionals that using an EHR to get patient medical history is essentially effortless. To explore the context of a physical decision, the TOE framework (Tornatzky et al. 1990) is utilised, which incorporates an organisational level theory that defines the influence of healthcare institution's process in three contexts: organisational, technological and environmental. In this study organisation support (OS) was the construct adopted under an organisational context. The degree to which managers embrace a new technology system's technological promise is referred to as 'management support' (Jahanshahi & Brem 2017; Figure 1) depicts the integrated research model.

Hypothesis development

The following hypotheses were made based on the hypothesised model for EBHP:

- **H_1:** Electronic health records have a positive influence on IQ.
- **H_2:** Organisational support has a positive influence on the adoption of EHR.
- **H_3:** Electronic health records have a positive significant influence on MER.
- **H_4:** Medical error reduction has a positive significant influence on DTD.
- **H_5:** Electronic health records have a positive significant influence on DTD.
- **H_6:** Perceived ease of use (PEU) has a positive influence on the adoption of EHR.
- **H_7:** Diagnosis and treatment of diseases has a positive effect on BCP.
- **H_8:** Electronic health records have a positive effect on BCP.
- **H_9:** Better coordination of patient care has a positive influence on EBHP.

Methods

Survey design

This study includes new as well as modified constructs that require validation within the framework of EBHP. These constructs represent the result of the exploratory investigation that was carried out as part of this research. To operationalise the constructs of the conceptual model, researchers have recommended adopting verified and tested theories available (Motsi & Chimbo 2023). This increases the validity of the study and ensures that it is consistent with earlier research (DeLone & McLean 2003; Mukred & Yusof 2018; Salam 2020). To test the research model proposed for this study, a questionnaire survey was used. Survey items were derived from previous studies.

The developed model in Figure 1 constituted eight variables: IQ, OS, MER, PEU, DTD, EHR, BCP, the independent variables and EBHP, the dependent variable. Information quality was borrowed from Updated (D&M) IS Success Model and measured by using five items derived from previous studies (Sherif 2015; Stefanovic et al. 2016) and has been slightly modified to fit this study. Organisation support was borrowed from TOE framework, measured with five construct items and modified from the existing literature (Gangwar, Date & Ramaswamy 2015; Ramdani, Chevers & Williams 2013). Perceived ease of use was supported by five items, which were borrowed from the TAM and modified from the existing literature (Ardielli 2021; Dutta, Peng & Sun 2018). Medical error reduction, DTD, EHR, BCP and EBHP were each measured with five items borrowed from the Updated (D&M) IS Success Model and modified from the existing literature (Motsi & Chimbo 2023).

The repetition survey was divided into two sections. The first section examined the respondents' gender, age, work experience and their positions in their respective departments, whereas the second section measured the eight constructs presented in the research model under investigation through the use of a five-point (1–5) Likert scale ranging from strongly disagree to strongly agree. For the purpose of the pilot study, paper-based questionnaires were used to establish a relationship with the participants, gather their responses and provide prompt feedback and address any issues that were unclear. The questionnaire for this pilot study was distributed to a convenient sample of medical healthcare professionals (MHCP) at Tshwane district hospitals. Medical doctors, pharmacists, radiologists, physiotherapists, nurses and dentists who participated in this study are referred to in this study as MHCP. The participants were given the chance to ask questions regarding the survey after the researcher had gone over the purpose and goals of the study. For the pilot study, 70 questionnaires were used and 55 responses were received. This pilot study yielded a high response rate of 97%. However, five questionnaires were excluded because of insufficient information and unclear responses, leaving 50 valid responses for data analysis. Prior to the actual study, the survey was updated with the recommendations and feedback received from the pilot study.

Data collection

The global coronavirus disease 2019 (COVID-19) epidemic presented a number of difficulties for scientists worldwide.

Studies were disrupted by restrictions on movement, quarantines and health hazards related to the infection, especially when online surveys were not utilised. This study was not an exception, as the pandemic had an impact on the data collection process. Of the three hospitals – Steve Biko Academic Hospital, Kalafong Provincial Tertiary Hospital and Dr. George Mukhari Academic Hospital (DGMAH) – gave the researcher permission to conduct the study. The practice of social distance, which entails avoiding social situations and remaining indoors as much as possible to help stop the spread of COVID-19, made it difficult to collect data for this study using self-administered questionnaires.

Ethics approval was granted by UNISA-CAES Research Ethics Committee (2019/CAES/075). As already mentioned, written permissions were taken from the Deputy Director Office of Clinical Services at DGMAH. The study was a cross-sectional design, and the questionnaire was administered to MHCP between 12 June and 30 August 2021. The study employed quantitative methods to carry out a positivist paradigm-based descriptive inquiry. The repetition respondents who consented to participate were given the information sheets containing the study's description before being asked to complete the questionnaire. Given the restricted resources, a sample size was to must be determined; the population of this study consisted of MHCP at DGMAH who were the target group. The sampling of such a population cannot be random; hence the sample method used is non-probability sampling (Saunders 2019):

> [*T*]he probability of each case being selected from the total population is unknown and it is impossible to answer research questions or to address objectives that require you to make statistical inferences about the characteristics of the population. (p. 297)

In this study, convenience sampling was used as it is incredibly efficient, simple and cost effective. Researchers distributed questionnaires in some places with dense populations, such as parks and libraries. The sample size for this investigation was determined by the need for a large sample size for structural equation modelling (SEM) (Hair et al. 2018). For factor analysis, Fidell and Tabachnick (2014) advise using a sample size of at least 300 respondents. Therefore, for this study, 450 questionnaires were self-administered by the researcher to the MHCP at DGMAH, and the time to complete the questionnaire was between 15 and 20 minutes. Of the 450 questionnaires, 150 questionnaires were eliminated for having inadequate data. As a result, 300 questionnaires were used for analysis in this study.

Data analysis and results

This study uses SEM – confirmatory factor analysis (CFA) and sequential exploratory factor analysis (EFA) for data analysis to identify underlying constructs and establish measurement model fit for a path model of the constructs. Structural equation modelling-path analysis is also used to examine the hypothesis on the strength of the relationship between the variables. The repetition data were statistically analysed using the IBM Statistical Package of the Social Sciences (SPSS) version 28 and the Analysis of Moment Structure (AMOS) version 26 software. The EFA and CFA were analysed using different survey data and findings. When conducting exploratory research to better understand a phenomenon, this method works well as it eliminates the need for experimental settings where a 'treatment group' is used to test a cause-and-effect relationship (Creswell & Creswell 2017; Lallmahomed, Lallmahomed & Lallmahomed 2017).

Demographic information of the sample

The majority of the respondents were female 211 (70.45%), while male respondents stood at 89 (29.6%). A total of 102 (34.0%) of the total respondents who took part were between the ages of 31 and 40 years, 26 (8.6%) were under the age of 25,98 (32.6%) were between the ages of 21 and 50 years, 57 (19.0%) were between the ages of 41 and 50 years and 17 (5.6%) were 50 years old and above. Medical doctors number stood at 16 (5.3%), while nurses were the majority (243, 81.0%). Experience-wise, 147 (49.0%) had 6–10 years of experience, 68 (27.6%) had 2–5 years of experience, 76 (25.3%) had more than 10 years of experience and 19 (0.6%) had less than 1-year experience. The demographic information of the sample values is displayed in Table 1.

Exploratory factor analysis

The suitability of the data for EFA had to be established before factor extraction and rotation could conducted. In statistics, Bartlett's test of sphericity shows that samples from populations are with equal variance or are homogeneous. This test explains that variables are not associated with the other variables (Tobias & Carlson 1969). The results in Table 2 show that Bartlett's test of sphericity reached statistical significance at 0.000 and confirmed the multivariate normality of the data that show that data are multivariate normally distributed. Statisticians suggest that higher results of Bartlett's test confirm that the assumption of multivariate normality is met (Tobias & Carlson 1969).

TABLE 1: The demographic information of the sample.

Demographics	Items	Frequency	Percentage
Gender	Male	89	30.0
	Female	211	70.0
Age (years)	> than 25	26	9.0
	25–30	98	33.0
	31–40	102	34.0
	41–50	57	19.0
	< than 50	17	6.0
Occupation	Medical doctor	16	5.0
	Pharmacist	12	4.0
	Radiology	10	3.0
	Physiotherapist	9	3.0
	Nurse	243	81.0
	Dentist	10	3.0
Work experience (years)	Less than 1	19	0.6
	2–5	68	28.0
	6–10	147	49.0
	More than 10	76	25.0

TABLE 2: Kaiser–Meyer–Olkin and Bartlett's test.

Test	Variables	Values
Kaiser–Meyer–Olkin measure of sampling adequacy	-	0.554
Bartlett's test of sphericity	Approx. chi-square	1214.866
	df	528.000
	Sig.	0.000

Sig. significance; *df*, degree of freedom.

TABLE 3: Validity and reliability.

Latent variables	Items	Outer loadings	Alpha cronbach	CR	AVE
Perceived ease of use (PEU)	PEU1	0.819	0.897	0.96	0.85
	PEU2	0.821	-	-	-
	PEU3	0.805	-	-	-
Organisational support (OS)	OC1	0.530	0.833	0.92	0.77
	OC2	0.498	-	-	-
	OC3	0.515	-	-	-
	OC4	0.600	-	-	-
Information quality (IQ)	IQ3	0.725	0.796	0.86	0.81
	IQ4	0.671	-	-	-
	IQ5	0.776	-	-	-
Diagnosis and treatment of diseases (DTD)	DTD1	0.560	0.803	0.91	0.75
	DTD2	0.358	-	-	-
	DTD3	0.443	-	-	-
Better coordination of patient care (BCP)	BCP1	0.496	0.763	0.95	0.74
	BCP2	0.524	-	-	-
	BCP3	0.486	-	-	-
	BCP4	0.593	-	-	-
Medical error reduction (MER)	MER1	0.598	0.736	0.87	0.70
	MER2	0.425	-	-	-
	MER3	0.721	-	-	-
Electronic health records (EHR)	EHR1	0.761	0.743	0.89	0.78
	EHR2	0.665	-	-	-
	EHR3	0.590	-	-	-
	EHR4	0.696	-	-	-
Evidence-based healthcare practice (EBHP)	EBHP1	0.914	-	-	-
	EBHP2	0.756	0.72	0.787	0.569
	EBHP2	0.668	-	-	-

AVE, average variance extracted; CR, composite reliability.

To ascertain the factor loadings and dependability of every item with a 0.50 cutoff, an EFA was conducted utilising the principal component technique and varimax rotation. Cross-loading effects were not seen, and all loadings were more significant than the 0.50 cutoff. Both the survey data and the research tool are suitable for this investigation. The intention is to have loadings that are suitable and potent enough to carry out an exhaustive investigation. Table 3 indicates that factor loadings were also higher than 0.70. Measures of reliability, validity and Cronbach's alpha were computed. (see Table 3). Hair et al. (2017) state that no value be less than 0.70. The internal consistency of the constructs (average variance extracted [AVE]) was evaluated using the composite reliability (CR) and AVE reliability measures.

For the suggested framework to be deemed internally consistent, its CR needs to be at least 0.70. Moreover, all the AVE values were significantly greater than 0.50. Moreover, comparative reliability was demonstrated to be higher than average variance estimates, the average variance was found, and CR was employed to validate each component. The study's confidence interval (CI) is 0.86 to 0.95, and its acceptable degree of consistency (AVE) is from 0.74 to 0.85. To assess a concept's reliability, its discriminant validity is essential. For the reliability to be deemed acceptable, a construct's AVE must be higher than the squared correlation between it and the other constructs. Discriminant validity is demonstrated by the measurement model, which is considered satisfactory in this inquiry. Results for validity and reliability are shown in Table 3.

Confirmatory factor analysis

The measurement model of the constructs (IQ, OS, MER, PEU, DTD, EHR, BCP and EBHP) found by the EFA was tested using CFA in this study. The SPSS AMOS was used for the analysis of the gathered data. Basic descriptive statistics were performed using SPSS, and the measurement model's validity and model fit were assessed using SPSS AMOS. To verify the hypotheses and ascertain the degree of correlations between the constructs, the chosen measurement model was later transformed into a path model. The model fit was evaluated using the comparative fit index (CFI), Tucker–Lewis index (TLI) and aggressive goodness of fit index (AGFI); absolute fit quality (adjusted AGFI) was evaluated using the chi-squared to the degree of freedom ratio (CMIN/*df*) and root mean square error of approximation (RMSEA). A well-fitting model is indicated by CMIN/*df* larger than 3.0, CFI greater than 0.90, TLI greater than 0.90, RMSEA greater than 0.08, *P*-Close greater than 0.05, standardised root mean square residual (SRMR) greater than 0.08 and AGFI greater than 0.80.

The least acceptable level (CMIN = 768.032, *df* = 281, CMIN/*df* = 2.312, CFI = 0.927, TLI = 0.915, RMSEA = 0.045) was exceeded by all fit statistics (Yuan & Zhong 2013). According to MacKinnon, Lockwood and Williams (2004), the following metrics were used to evaluate the overall structural equation fit: *p*-value, Chi-square divided by degrees of freedom (CMIN/*df*), Root mean square error of approximation (RMSEA), Goodness of fit Index (GFI), Comparative fit index (CFI), Tucker-Lewis index (TLI), Normed Fit Index (NFI), Incremental Fit Index (IFI), Relative Fit Index (RFI), Adjusted goodness of fit index (AGFI). Once the measurement model was established, the expected relationships between the exogenous and endogenous variables were captured by the estimation of the structural model. The Goodness of Fit (GOF) for the measurement model and the GOF for the structural model were determined using the same set of criteria. The significance of the indirect effects was ascertained by comparing the standardised direct and indirect route coefficients, using a 90% CI, and a 5000-bootstrap sample (Bryant & Satorra 2012).

Structural equation modelling

Using SEM, the relationships between the suggested constructs and the primary research hypotheses were examined. Bollen and Lennox (1991) and MacKinnon et al. (2006) reported excellent results with TLI of 0.949, IFI of 0.953,

TABLE 4: Results of structural model hypothesis testing.

Hypothesized path or relationship	Path coefficient (β)	*t*-values	*p*	Findings
H1: EHR → IQ	0.025	1.004	0.176	Rejected
H2: OS → EHR	0.765	3.590	0.000	Accepted
H3: EHR → MER	0.585	2.064	0.001	Accepted
H4: MER → DTD	0.433	2.440	0.001	Accepted
H5: EHR → DTD	0.019	1.082	0.163	Rejected
H6: PEU → HER	0.510	2.126	0.001	Accepted
H7:DTD → BCP	0.433	2.440	0.001	Accepted
H8: EHR → BCP	0.019	1.072	0.163	Rejected
H9:BCP → EBHP	0.510	2.326	0.001	Accepted

BCP, better coordination of patient care; DTD, diagnosis and treatment of diseases; EBHP, evidence-based healthcare practice; EHR, electronic health records; H, hypothesis; IQ, information quality; MER, medical error reduction; OS, organisational support; PEU, perceived ease of use.

GFI of 0.942, AGFI of 0.965, NFI of 0.941, CFI of 0.922, RMSEA of 0.030, *P*-Close of 0.478 and RMR of 0.0382. These results suggest a well-fitting model that explains 55% of the variation in respondents' interpretations of how EHR influenced the adoption of EBHP at a South African public hospital. Table 4 presents the findings, with a result's column that indicates if the hypothesis was accepted or rejected. The findings indicate that hypotheses H2, H3, H4, H6 and H9 have significant effects on the EHR, MER, DTD, BCP and EBHP.

The *t*-values, or critical ratios, of these constructs (3.590, 2.064, 2.440 and 2.326) were found to be more than 1.96, and the *p*-values were found to be less than.001, supporting the hypothesised relationships between them. Hypotheses H1, H5 and H8, however, show an insignificant effect on BCP, IQ, or DTD. The *t*-values or critical ratios (1.004, 1.082 and 0.163) of these constructs were found to be less than 1.96, and the *p*-values were found to be greater than 0.001, supporting the hypothesised correlations between them. Therefore, the proposed hypotheses H1, H5 and H8 were rejected as the predicted relationships were statistically insignificant.

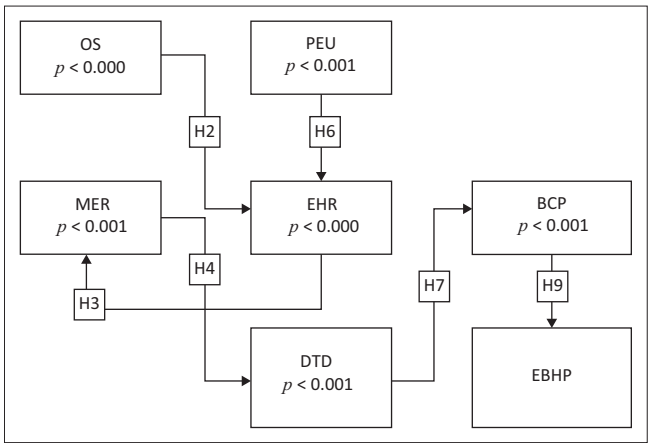
Investigating the impact of EHR on the implementation of EBHP at a South African public hospital was the study's main goal. In this section, the accepted hypotheses H2, H3, H4, H7 and H9 (see Table 3) illustrate critical success factors influencing EBHP adoption. The final model is shown in Figure 2.

Ethical considerations

Ethical approval to conduct this study was obtained from the University of South Africa, Health Research Ethics Committee (No. 2019/CAES/075).

Discussions of results

The CFA fitted model indicated that the construct CR for the seven constructs ranged from 0.736 to 0.897 indicating that they were all above the suggested cutoff of 0.70. These results demonstrated that the typical convergent validity and CR requirements had been satisfied. In addition, in this present study, the fit of the model obtained through the EFA was tested with the CFA. While the RMSEA and root mean square (RMS) values lower than 0.80 in CFA indicate that the model is



BCP, better coordination of patient care; DTD, diagnosis and treatment of diseases; EHR, electronic health records; EBHP, evidence-based healthcare practice; H, Hypothesis; MER, medical error reduction; OS, organisational support; PEU, perceived ease of use.

FIGURE 2: Model for the influential factors for the adoption of evidence-based healthcare practice.

acceptable, the AGFI and GFI values greater than 0.090 indicate acceptable fit indices (Capik 2014). Results of the hypothesis testing are displayed in Table 4. Three of the nine hypotheses (H1, H5 and H8) were rejected, while six were accepted (H2, H3, H4, H8 and H9). The hypothesis (H1) was supported by the finding that there is a positive and statistically significant relationship between EHR and IQ. The findings of this study corroborate those of van Poelgeest et al. (2021) and Atasoy et al. (2019), who claimed that implementing an EHR system can facilitate health information exchange by catalysing the sharing of clinical information and better coordination of patient among healthcare providers, potentially resulting in higher patient quality of care.

The findings indicate that there is a statistically insignificant relationship between top management support OC construct and EHR; hence hypothesis H2 is not supported. This finding conflicts with earlier studies that showed how different leadership roles affect how well implementations go in a variety of circumstances (Ehrhart, Aarons & Farahnak 2014). Furthermore, top management setting the tone and agenda for strategic efforts that include the introduction of new technology and services, according to Moulin, Ehrhart and Aarons (2017), strengthens this claim. Medical error reduction and EHR have a positive and statistically significant relationship, supporting the hypothesis H3. The findings of this study, on the other hand, are in line with those of Hydari, Telang and Marella (2019), who found that using EHRs decreases typographical errors by offering grammatical checks and underlining unclear content.

As there is a positive statistically significant relationship between MER and DTD, hypothesis H4 is supported. The findings of this study are consistent with those made by Wani and Malhotra (2018), who asserted that an EHR system can handle inquiries resulting from laboratory test results as well as patients' historical data, enabling clinicians to follow up on patients' test results. The relationship between EHR and the DTD was found to be statistically insignificant; hence hypothesis H5 was rejected. These

findings go against research by Amponin and Britiller (2023), who discovered that medical records are an effective tool for enhancing patient care and promoting the production of crucial data for use in decision-making throughout the healthcare system. The medical professional must be aware of earlier diagnoses and whether or not they were accurate. Thus, hypothesis H6 was not supported because it was determined that there was no statistically significant relationship between PEU and EHR. The results of Setiawan and Setyawati (2020) and Pitafi et al. (2020), who found a significant relationship between attitude and PEU in the context of physician acceptance of EHRs, conflict with the findings of this study. As a result, even though this hypothesis was not confirmed, this study acknowledges these inconsistencies and literary differences.

Better patient care coordination and DTD were found to be statistically significant relationships and thus hypothesis was supported. This is consistent with the findings, which showed that EHR systems are becoming more widely accepted as a vital instrument for raising the general standard of healthcare's effectiveness, safety, and quality (Byrne, & Johnston 2017; Schopf et al. 2019). Stated differently, the implementation of such systems facilitates improved record keeping, decision making, and patient care monitoring among healthcare practitioners. There was a negative insignificant relationship between EHR and BCP; hence hypothesis H8 was not supported. These results contradict those of Sebetci (2018), who discovered a direct relationship between better patient care coordination and the use of EHR in terms of assisting doctors, lowering human medical error rates, raising standards of medical care, improving patient care and enhancing health outcomes. Hypothesis H9 was supported. The relationship between BCP and EBHP was found to be statistically significant. These findings concur with Kumar and Mostafa (2020), who in their study found that electronic health information system has a lot of potential to increase organisational effectiveness, patient satisfaction and safety, all of which will enhance patient medical outcomes.

Conclusion

The purpose of this study was to ascertain how the adoption of evidence-based healthcare practices was impacted by EHR. The findings show that MHCP such as doctors, pharmacist, radiologists and nurses are better equipped to successfully make decisions about patients' care and prescribe medications when their medical histories are accurately entered into the EHR. Electronic health records systems simplify it and make it more effective for specialists, medical schools, research labs, pharmacies and other healthcare organisations to share patient data. In addition, EHR offer tools that facilitate the sharing of patient medical records among healthcare professionals to support them in delivering EBHP that can minimise or even eliminate medical errors, which can benefit patients. Patients obtain better care whenever medical practitioners have access to thorough and trustworthy information.

Electronic health records can help patients by lowering or even eliminating the rates of medical errors made by doctors. The results of the study showed that patient care coordination, illness diagnosis and treatment, lowering medical errors and data quality were all directly impacted by the adoption of EHR. The results also suggest that the utilisation of evidence-based practice is positively impacted by the combined effect of variables. Contrary to previous research, PEU however, had no effect on EHR. Adoption and perceived usefulness have been found to positively correlate in a number of additional research (Ali Alhur 2023; Choi & Tak 2022; Rouidi et al. 2022). Therefore, more research is needed to confirm this finding.

The study, firstly, contributes theoretically to the field of Information Systems by outlining a model that includes the variables that affect the adoption of EBHP in public hospitals. The proposed model explains the important factors that affect the adoption of EBHP and how each of the factor affects this adoption. Researchers can now more accurately predict and articulate the factors influencing the adoption of EBHPs. Secondly, the study contributed to the development of a fresh framework outlining the critical success factors for the adoption of research-based medical procedures. Using the developed conceptual framework from the viewpoint of MHCP, a questionnaire was developed that was utilised as a data collection tool to evaluate the critical success criteria for the adoption of evidence-based healthcare practice at a public hospital in South Africa.

Furthermore, perceived utility had a negligible impact on adoption in this research. Subsequent studies may focus on the uptake of EHR and the department of health's perspective on patient medical record digitalisation. In conclusion, for Africa's underdeveloped healthcare systems to break free from the existing impasse over service delivery, bold ideas and creative thinking are required. It has been demonstrated that the application of evidence-based practices in practical contexts reduces costs for both patients and institutions by standardising and optimising care and considerably reducing the probability of needless operations.

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Competing interests

The submitted manuscript has no financial connections. Contributing to the body of knowledge was the key objective.

Authors' contributions

L.M. wrote the article and B.C. assisted in completing the journal article as a supervisor by offering advice and support.

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Data availability

The data set will be made available on request to the corresponding author, L.M., upon reasonable request.

Disclaimer

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