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The Relationship between the Use of Health Information Systems and Community Satisfaction with Health Services in Primary Health Care: a Systematic Review

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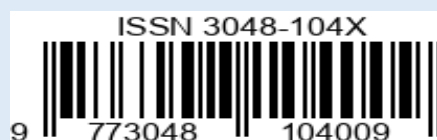
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ABSTRACT

Background: The goal of this study is to showed the relationship between the use of health information systems and community satisfaction with health services in primary health care. **Methods:** By comparing itself to the standards set by the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020, this study was able to show that it met all of the requirements. Several different online reference sources, like Pubmed and SagePub, were used to do this. **Result:** In the PubMed database, the results of our search brought up 561 articles, whereas the results of our search on SagePub brought up 447 articles. The results of the search conducted for the last year of 2013 yielded a total 139 articles for PubMed and 67 articles for SagePub. In the end, we compiled a total of 12 papers, 8 of which came from PubMed and 4 of which came from SagePub. We included three research that met the criteria. **Conclusion:** Implementing a health information system in PHC is beneficial for patients, according to research. This naturally adds value to the service, which contributes to the high level of customer satisfaction.

Keyword: Community satisfaction; Health information systems; Health services; Primary health care.

INTRODUCTION

Information technology already has a very important role in health services. The quality of health information processing is an important factor for the success of health service institutions.¹ A good information system will support and accelerate clinical workflow in various ways that will contribute to better patient care.² The demand to reduce costs and improve the quality of health services causes more and more health service facilities to use health information systems (HIS). The use of HIS with the integration of functions and processes of health services also makes it often adopted in many health service facilities to fulfill administrative requirements.³

The goal of health services adopting HIS is to fulfill the strategic goals of improving quality and reducing overall patient care costs. However, HIS requires a large capital investment for staffing and processing of information systems.³ HIS is an information communication technology (ICT) system that is used to process and integrate the entire health service process flow in the form of a network of coordination, reporting and administrative procedures in order to obtain precise and accurate information, and is part of the health information system.

HIS implementation applications must meet the minimum requirements that have been determined. One of the requirements of the HIS is that the architecture must contain at least the main service activities (front office); administrative (back office); and communication and collaboration. Hospitals are also required to be able to develop HIS by adding supporting

architectures, such as Picture Archiver Systems (PACS), Document Management Systems, Clinical Equipment Interface Systems, as well as Data Warehouse and Business Intelligence.⁴

Health information systems are generally used as administrative functions such as electronic patient registration (79.17%) and billing systems (70.83%). Clinical functions have been used for medical documentation (58.33%), electronic prescribing (22.92%), supporting examination results (39.58%), and pharmaceutical warehouse inventory systems (60.42%). Most hospitals still focus on administrative functions rather than clinical functions.^{5,6} Many studies are aimed at looking at factors closely related to HIS user satisfaction. Research conducted in 2005 found a strong correlation between user satisfaction with intention to use and acceptance of technology.^{7,8}

Primary health center (PHC) patient satisfaction is a vital indicator for the quality of health care delivery, and this internationally recognized factor must be studied repeatedly for the health care systems to operate efficiently.⁹ As technology improves like HIS, electronic medical record (EMR) systems help the healthcare system make a big change from the traditional paper medical record (PMR) to a digital form. This helps improve service.¹⁰

This study's objective is to examine the relationship between the use of health information systems and community satisfaction with health services in primary health care.

METHODS

Protocol

The author of this study validated that it was current and adhered to all applicable standards in line with the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 criteria. This phase is critical since it guarantees that the investigation's findings are correct. This study discovered a link between the utilization of health information systems and community satisfaction with primary health care services. Reviewing past research on the issue is the most efficient technique to attain this goal in a timely manner. This section will underline the importance of the stated topics in order to achieve the essay's goal.

Criteria for Eligibility

Researchers were needed to present paperwork indicating they completed the following requirements in order to participate in the investigation: 1) To be eligible for publication, the paper must be written in English and demonstrate the relationship between the usage of health information systems and community satisfaction with health services in primary care. 2) Works published after 2013 but previous to the review period will be considered. Editorials, applications without a DOI, already published review articles, and submissions that are almost identical to previously published journal articles are examples of research that cannot be published.

Search Strategy

We used between “the relationship between the use of “health information systems”; “satisfaction” ; “health services”; and “primary health care” as keywords.

The search for studies to be included in the systematic review was carried out from June, 24th 2023 using the PubMed and SagePub databases by inputting the words: (*"health information systems"[MeSH Terms] OR ("health"[All Fields] AND "information"[All Fields] AND "systems"[All Fields]) OR "health information systems"[All Fields]) AND ("personal satisfaction"[MeSH Terms] OR ("personal"[All Fields] AND "satisfaction"[All Fields]) OR "personal satisfaction"[All Fields] OR "satisfaction"[All Fields] OR "satisfactions"[All Fields] OR "satisfaction s"[All Fields]) AND ("health services"[MeSH Terms] OR ("health"[All Fields] AND "services"[All Fields]) OR "health services"[All Fields] OR ("health"[All Fields] AND "service"[All Fields]) OR "health service"[All Fields]) AND ("primary health care"[MeSH Terms] OR ("primary"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "primary health care"[All Fields])*) used in searching the literature.

Data retrieval

We looked at both the abstract and the title to determine the study's reliability. They looked at a greater quantity of historical documents. A synthesis of multiple experiments using the same methodologies supports this finding. You must use previously unpublished English to comment. The systematic review considered only those works that matched the predetermined inclusion criteria. There are fewer search results returned. Inadequate inquiry and analysis. This section includes an analysis. The subjects, authors, date,

place, topic, and parameters are all specified in the research paper.

Quality Assessment and Data Synthesis

The article includes the author's name and the date it was published. Endnote removed any duplicates it found. The titles and abstracts of the submitted articles were reviewed by two evaluators. Their extensive articles were examined to see if the research could be carried out and to create data. Other health challenges, in addition to GWAS, have been the focus of conferences and research. The conclusion was made by the assessors. Each author examined the abstracts and titles of each study before picking which papers to explore. Following that, all articles that match the inclusion criteria and are thus eligible for inclusion will be reviewed. Following the completion of the fundamentals instruction, we will select review topics. This strategy is used to choose research and review papers.

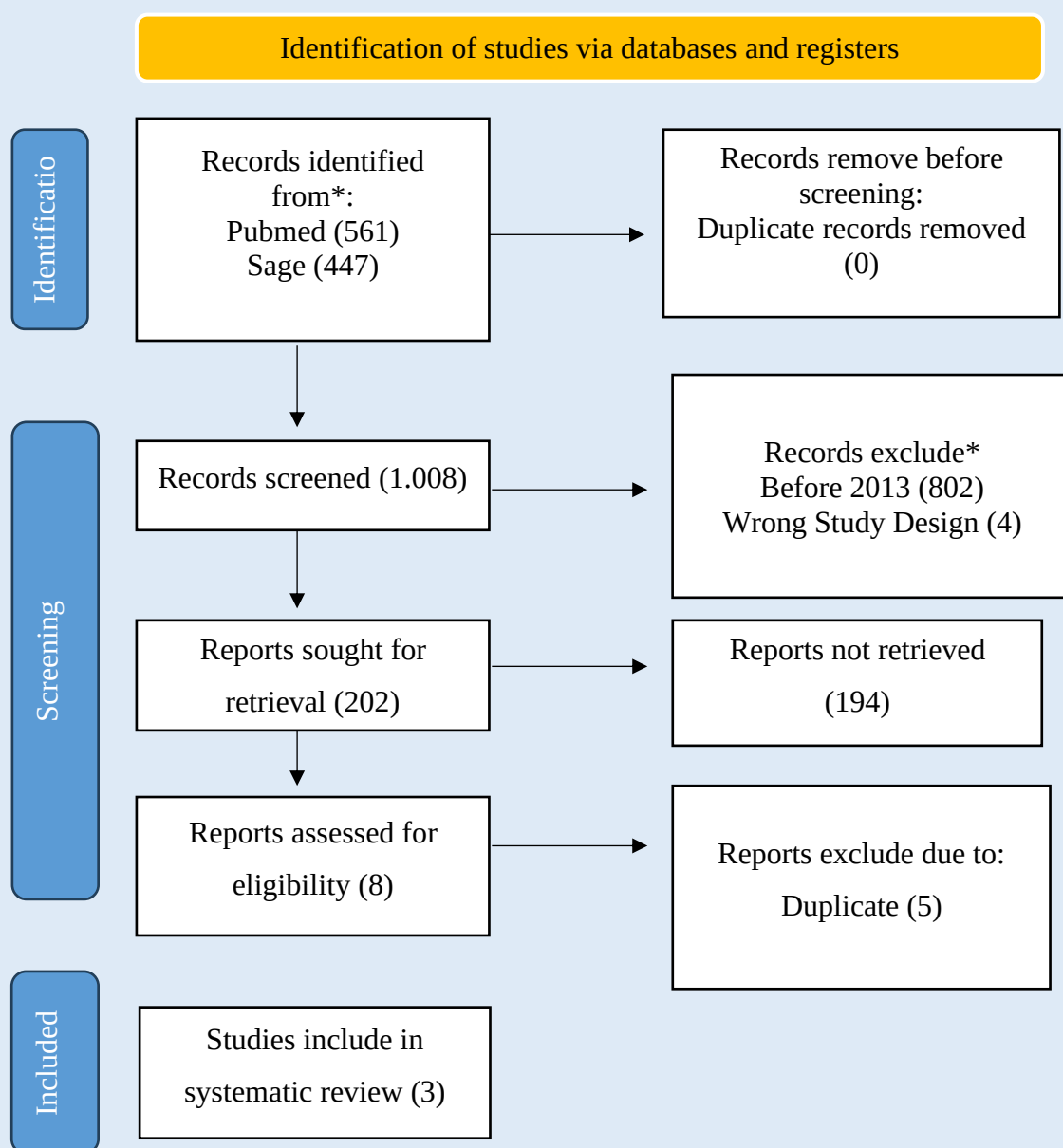


Figure 1. Article search flow chart

RESULT

In the PubMed database, the results of our search brought up 561 articles, whereas the results of our search on SagePub brought up 447 articles. The results of the search conducted for the last year of 2013 yielded a total 139 articles for PubMed and 67 articles for SagePub. In the end, we compiled a total of 12 papers, 8 of which came from PubMed and 4 of which came from SagePub. We included three research that met the criteria.

Table 1. The literature included in this study

Author	Origin	Method	Sample	Result
Wali, 2020 ¹¹	Kingdom of Saudi Arabia	Cross sectional	377 participants	With the introduction of EMR, both the patient's satisfaction during the clinical consultation as well as the patient's overall contentment with the various PHC services increased.
Curry, 2017 ¹²	United State of America (USA)	Cross sectional study	50 respondent	The majority of preceptors claimed that the use of EHR had both positive and negative effects on their teaching of medical students; however, respondents saw the negative consequences as being more considerable. This is consistent with a pattern of diminished passion for teaching as a result of EHR use. These data can be used to help inform education and faculty development activities that are being undertaken.
Rose, 2014 ¹³	USA	Cross sectional study	21 respondent	Issues with communication, patient preferences for electronic data, safety and security concerns, and transitional difficulties with the deployment of electronic health records (EHRs) were the four topics that arose from the three focus groups that were conducted.

First study by Wali, et al (2020)¹¹ showed patient satisfaction with the EMR was significantly higher than with the PMR (3.7241 versus 3.6919, $p < 0.001$). Several factors demonstrated the overall satisfaction with the EMR implementation, including an increase in physician attention during the clinical consultation (82.3%), an increase in the explanation of tests and medications (85.8%), an increase in the time spent with the patient during the consultation (80.4%), and an increase in the physician's active listening (77.7%). In addition, 84.0% of patients felt comfortable asking health-related questions during clinical consultations.

Curry, et al (2017)¹² conducted a study with 50 surveys. They showed the EHR has affected their teaching (70% unfavorable, 84% positive). Teaching EHR use, evidence-based medicine, and information viewing are positive effects. EHR use may hinder students' critical thinking and clinical integration skills and reduce instructional time. Providers who had taught medical students with and without EHR ($P = 0.024$), over 50 ($P = 0.019$), and with at least 5 years of teaching experience ($P = 0.006$) were more likely to report unfavorable effects.

Issues with communication, patient preferences for electronic data, safety and security concerns, and transitional difficulties with the deployment of electronic health records (EHRs) were the four topics that arose from the three focus groups that were conducted. Increased patient satisfaction, higher levels of nurse practitioner and physician satisfaction, and the avoidance of communication issues during the implementation of EHR systems are

some of the potential benefits that could accrue if nurse practitioners put the recommendations contained in this study into practice. Other potential advantages include improved communication between patients and providers while using EHRs, increased levels of patient satisfaction.¹³

DISCUSSION

Consumer or customer satisfaction is a concept that can be understood as the gap that exists between consumer expectations before using a service and the realization after they use the service. Customer satisfaction is complex to define because it is usually exceeded by their expectations. Consumers will be satisfied if the services they get are in accordance with their expectations or expectations. Consumers are one of the driving forces that become one of the factors in the success of a business carried out by the company.¹⁴

Satisfaction is the consumer's perception of the extent to which the ability of a service can be perceived in accordance with their expectations. Consumer satisfaction is defined as a situation where consumer expectations of a product are in accordance with the reality received by consumers. If the product falls short of expectations, consumers will be disappointed. Conversely, if the product meets expectations, consumers will be satisfied. Consumer satisfaction is one of the important points that can improve the company's marketing performance.¹⁵

The information system is a combination of computer components that are linked to each other to collect, process, store, and provide output that can be in the form of information so that it can facilitate all activities in

health care facilities. The information system is not only in the form of software and databases but also the manual processes involved in it. Information systems produce information that supports the organization, and its employees, customers, suppliers and partners.²

Information systems used in health services in general must have a filing system module that is connected to the patient care unit. The system link with the filing section must be connected to the registration section, so that it is no longer necessary to borrow medical record documents for old patients. This can avoid manual methods such as borrowing medical records via airphone between departments as a process of tracing the whereabouts of medical record documents.^{16,17}

The filing subsystem in the form of a medical record file tracer is a subsystem that functions to trace medical record files that are often used by sections or departments within an organization including medical record file management, storage, borrowing and return of medical record files by other parts/departments. The application menu display includes the master menu consisting of patient master, medical record officer master, and unit master. While the transaction menu consists of borrowing transactions, return transactions, expedition forms, the report menu consists of borrowed medical record reports, medical record reports that have been borrowed.¹⁸

According to the findings of this study, the transition from paper medical records to electronic medical records results in an increase in patient satisfaction overall.^{11,12} As a result of installing the EMR, the

physician was able to engage in more active listening, and the participants reported that it was easier for them to ask questions on their health status and concerns. This may have been because the participants had to spend less time writing and attempting to fill out the papers.^{19,20}

A qualitative study in which physicians were observed during clinical consultation found that the physicians were more able to take an active role, such as encouraging questions and explaining health topics, but less effective in terms of exploring a patient-centered agenda, such as the effect of the patient's health problem on the patient's life, ideas, and concerns compared to PMR. This was discovered by observing the physicians during the clinical consultation.^{13,19}

In addition, after the implementation of the EMR, the physician's active listening improved, and participants found it easier to pose questions about their health status and concerns. This may be due to less time spent writing and filling out documents. A qualitative study in which physicians were observed during clinical consultations revealed that they were more capable of taking an active role, such as encouraging questions and explaining health topics, but less effective in exploring a patient-centered agenda, such as the impact of the health problem on the patient's life, ideas, and concerns, compared to PMR.¹⁹

CONCLUSION

Research shows that implementing a health information system in PHC is very useful for patients. This of course gives a positive value to the service which

has an impact on the high level of satisfaction.

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