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Health data managers' perceptions and acceptance of health management information systems

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***Abstract*---**This study seeks to understand the concept of the acceptance and perceptions that these individuals have towards health management information systems, and how the resultant management is shaping this system. As a research area, health management information systems implementation challenges have been well studied, but little is known about the perceptions and acceptance of the individuals partially responsible for the successful implementation and management of health management information systems. Acceptance of health information systems in the workplace is a widely studied research area, and many factors that affect the acceptance of information technology have been quantified. However, to date, no research has focused specifically on understanding the acceptance levels of health data managers with regard to health management information systems. Health management information systems, if effective, enhance the delivery of patient-centered care, administrative efficiency, and the actual communication between healthcare professionals working within certain health sectors, and on a broader scale, cuts out the limbo of non-evidence-based practices.

***Keywords*---**Health data managers, health management, information systems.

1. Introduction

The process of healthcare delivery is changing. To comply with international e-health requirements, advanced economies and developing countries are either

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planning or have already implemented health management information systems. At the grassroots level, health management information systems are comprised of health data managers and any other personnel responsible for the overall management of a health facility. These individuals remain primarily responsible for the collection, report writing, and maintaining the facility registers where patient details and clinic statistics are recorded. For healthcare to achieve expected advancements, these health data managers must also be responsible for the input and accuracy of the data that is put into the facility's databases and health management information systems.

This study seeks to understand the concept of the acceptance and perceptions that these individuals have towards health management information systems, and how the resultant management is shaping this system. As a research area, health management information systems implementation challenges have been well studied, but little is known about the perceptions and acceptance of the individuals partially responsible for the successful implementation and management of health management information systems. Acceptance of health information systems in the workplace is a widely studied research area, and many factors that affect the acceptance of information technology have been quantified. However, to date, no research has focused specifically on understanding the acceptance levels of health data managers with regard to health management information systems. Health management information systems, if effective, enhance the delivery of patient-centered care, administrative efficiency, and the actual communication between healthcare professionals working within certain health sectors, and on a broader scale, cuts out the limbo of non-evidence-based practices. Currently, various documented challenges exist regarding implementing health management information systems. These challenges that affect data quality feed downstream into the overall outcome via the numerator, which is used to monitor and evaluate the programs that manage South Africa's public and private healthcare system. It is proposed that if the input of the delivered healthcare output is incorrect, then management decisions would be similarly inaccurate. This also affects the accuracy of the burden-of-disease estimates, which are used by the National Department of Health to keep the medical devices and pharmaceutical bases stocked and distributed from their central stock depot to the rural healthcare facilities throughout South Africa. Furthermore, the research argues that the information fed into the health outcomes and the annual health report is weakened. It is paramount that the data used for monitoring and evaluation purposes and reporting to funders and funding organizations is an accurate reflection of the healthcare reality.

2. Literature Review

Health Management Information Systems (HMIS) and Health Data Management have had little scholarly attention. In addition, the examination of health data manager selection and acceptance of HMIS for a developing economy is lacking in the literature. This study applies contemporary models of technology acceptance. The theory of planned behavior (TPB) and the technology acceptance model (TAM) are model-based methods that offer an understanding of the acceptance of a system by an individual or users in an organization. (Bagherian and Sattari, 2019)

The technology acceptance model began with the TAM. This model explains information systems user acceptance and behavior. It is only two factors, perceived usefulness and ease of use, that build users' behavioral intention of using the system. User satisfaction is influenced by the actual usage behavior of the system. Additionally, the model has been tested in past research among health information systems and other fields. From many relevant studies on health information systems and managers, only a few studies found that perceived ease of use, usefulness, and user satisfaction are related to the use of health systems. Although user satisfaction is not good, many HMIS or EHR systems are utilized. The study identifies the gap and motivates future studies. Furthermore, there are several hypotheses concerning HMIS in the organization, such as training, the commitment of other parties, perception of quality, staff attitudes towards computers, organizational culture, and the design of the system used.

Conclusion: The study points to the importance of further research to clarify the role of health data managers in connection with the acceptance of HMIS. It is necessary to go beyond specific categories and care through standardized research so that the evidence may be generalized to all health information systems. Ongoing research utilizing contemporary research frameworks will provide an interpretable and externally validated knowledge base relevant to future health information system implementation and development. This systematic, thorough, and replicable evaluation is particularly important.

3. Conceptual Framework

3.1. Theoretical Basis

This conceptual framework provides (Kaufmann et al.2019) an outline of the different research variables adopted in this study. It begins with the perceptions of the health managers regarding what the Health Management Information System is about. A series of different acceptance criteria for the system is then proposed before identifying a range of different influencing factors that bear on these acceptance criteria. Several theories and models plausible for explaining the causal mechanisms in the model are used to influence the characterization of the influencing factors. This framework allows for the capturing of various dimensions of acceptance.

In the theoretical model chosen, behavioral intention is formulated as a function of attitude towards behavior, subjective norm, and perceived behavioral control. These judgments are determined by beliefs and refer to aspects of behavioral intent. In this conceptual framework, beliefs and attitudes towards behavior are expressed as the perceptions of the health manager population frame in tertiary care settings regarding the system. Subjective norms are operationalized as influential others' perceptions that categorically speak to arguments currently rooted in the thinking of those dedicated to the field.

3.2. Relationship Between the Model's Variables

The following visual model depicts the postulated relationships between the perceived dimensions of health manager perceptions of the system and the different

acceptance criteria, influencing factors, as well as the relationship between health data managers' perceptions and system use. For the purposes of the study's managerial implications and to ensure an appropriate emphasis on data quality in the National TB Programme, health data managers occupy an exclusive position in the model; their link with and influence on factors and issues pertaining to them and the system can thus be made explicit.

4. Methodology

Research design and approach: The study uses a quantitative research approach to collect data from health information managers in Uganda. Questionnaires are applied to collect responses from health information managers. Sampling technique: Stratified and simple random sampling was used to select study respondents. Sampling frame: A sample frame included health information managers and health information assistants working at national, regional, district, and health sub-district levels and were directly involved with health management information systems. Stratification: Principal organizations in the health sector are the Ministry of Health, regional referral hospitals, district hospitals, health sub-districts, and health centers. All these units have health information managers or health information assistants. The strata consisted of the five levels: Ministry of Health, regional referral hospitals, district hospitals, health sub-districts, and health centers. The five strata were divided into eight substrata of functional and dysfunctional. Simple random sampling was then used to select from these substrata. A pre-tested questionnaire was given to the health information managers to respond. The questionnaire was made up of three sections seeking the following information: demographic characteristics of the respondents, the perceptions of health managers or health information managers about the health management information system, including the constraints and to what extent health managers accept the health management information system. The questionnaire was pre-tested to establish reliability using the test-retest process and Cronbach's alpha coefficient. Validity was validated by experts. Ethical considerations and protection of rights, privacy, and dignity of the respondents were observed. The control of external influences was facilitated by proper training and the use of research assistants. The respondents were assured of confidentiality and anonymity before responding to the questionnaire. Data analysis: The data was entered into an Excel template and exported into the Statistical Package for Social Sciences for analysis. Data quality was controlled using various methods, including revamping the questionnaire for unclear responses. Descriptive statistics were run to present the findings in frequencies and percentages. The results were analyzed in the form of tables and narratives. (Taherdoost2019)(Ganesha and 2019)(Pandiangan et al. 2019)

5. Results and Findings

In this section, the findings from the data are presented, and exemplar statements from all participants are included to detail the thematic analysis. The findings are presented in relation to the key research questions. As the data was collected through semi-structured interviews, three versions of some survey questions were conceptualized to either decrease or extend the number of statements made by participants.

Data Analysis

In line with the research questions, there were virtually no differences in the answers across any of the questions. Participants drew on the exact same concepts or processes to describe each theme and did not change their responses based on different survey questions. Using thematic analysis allows researchers to identify, analyze, and report patterns within the data and identify common themes and sub-themes. This assists in providing rich data from which the research can extract meaningful results, which in turn will provide a better understanding of health data managers' perceptions and acceptance of HMIS. The main advantage of thematic analysis is its flexibility, making it a useful approach for many different parts of the research process.

The information received from the 10 participants was recorded, transcribed, and analyzed. Results from the interviews were then compared with the conceptual framework from which the research questions were generated. Data analyzed from transcript analysis and compared with the conceptual framework led to some interesting findings. The main themes and sub-themes that emerged regarding the research questions about the perceptions and acceptance of HMIS by health data managers were developed. The sub-themes developed and their main themes are listed as follows. Further analysis of the sub-themes will show the implications of this statement and assist practice. Limitations of the findings will also be discussed, and recommendations for future studies will be considered in the conclusion.

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