

Automated Queue Management Systems on Service Delivery in Public Hospitals in Kenya During the Covid-19 Era: A Meta-Analysis

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ABSTRACT

Despite the vital role of the Automated Queue Management System (EQSM) on service delivery in both private and public organizations, little is understood on the impact of EQMS on service delivery in public hospitals and more specifically in Kenya. Conflicting findings have been revealed by previous researchers on the link between EQMS and service delivery in organizations thus the need for further studies to bridge the knowledge gaps. The main objective of this study was to examine the influence of automated queue management systems on service delivery in public hospitals in Kenya during the Covid-19 Era. This study was anchored on disruptive innovation theory. Comprehensive literature analysis and key informants were carried out to establish the influence of automated queue management systems and service delivery in public hospitals in Kenya during the Covid-19 Era. Published materials including peer-reviewed journals, conference papers, theses, reports, sessional papers that contained relevant information concerning the topic of the current study were reviewed. Findings, conclusions, and recommendations of this study were derived from findings of previous empirical studies. Recommendations were made following recommended protocols and guidelines of statistical literature. Based on the analysis of the findings of the quantitative studies, it was disclosed that EQMS had a significant influence on service delivery in public hospitals in Kenya during the Covid-19 era if effectively embraced. It was concluded that effectively managed EQMS can help public hospitals not only improve service efficiency and effectiveness but also improve employee performance. This study recommended that unless public hospitals in Kenya recognize the value of assistive technologies in service delivery such as EQMS, implementing public policy reforms in the healthcare sector in Kenya will be an uphill task. Public hospitals in Kenya would only prevent the spread of Covid-19 disease if they embrace EQMS that discourage human contact as well as waiting time. Furthermore, effective management of EQMS would help doctors, nurses, and pharmacists in public hospitals minimize physical contact with patients thus prevention of the Covid-19 disease in Kenya.

Key Words: Automated Queue Management System, Service Delivery, Public Hospitals, Covid-19-Era

1.1 Background of the Study

Technology is an inevitable driver of service delivery in both public and private organizations (AL-Jumaily & AL-Jobori, 2011). Small and large organizations operating in the dynamic business environment not only need to adopt assistive technologies for enhanced service delivery but also for enhanced operational efficiency and effectiveness (Branch, Agyei, Asare-darko & Odilon, 2015). Rethinking assistive technologies such as Automated Queue Management System (EQMS) is conceptualized to influence service delivery in organizations if effectively implemented (Farayibi, 2016). The automated queue management system is the process of improving your business by managing customer's waiting experience using computer technology (Gumus, Bubou & Oladeinde, 2017). Further, Jhala and Bhathawala (2016) regard automated queue management

systems as the use of computer technology to schedule customers for service delivery while queues are the number of customers waiting for a product or service. In any organization producing products or services, the demand of the product or service may vary depending on the number of service providers as well as the number of competitors in organizations (Kuklin, 2013).

Letsididi (2010) opines that organizations can adopt assistive technologies starting from the point when a customer inquires to the point when the customer is attended to or receives the intended product. The main aim of the automated queue management system is to enhance customer value by eliminating customer waiting time from the service delivery process (Liang, 2016). Mohamud (2016) postulates that as organizations strive to remain competitive in the highly changing business ecosystem, embracing appropriate technology is pertinent. Technology is regarded as new techniques, processes, models, tools, and new scientific knowledge harnessed by organizations to achieve their objectives more efficiently and effectively (Mbuvi, 2013). Any organization that effectively embraces appropriate technology in the production of products and services can maximize revenue as well as enhance customer experience during service delivery (Ravi, & Saraswathi, 2018).

Despite the setbacks associated with technology in some organizations, to a larger extent, many scholars have appraised technology in any enterprise because it helps organizations to improve overall productivity, facilitate companies to gain customer insight, and minimize production wastage (Situma, 2014). Further, Smith and Kerbache (2017) acknowledge that technology can help organizations develop new products, access customers in global markets, and provide timely information to customers as well as maximize revenue. Adoption of appropriate assistive technology such as EQMS is hypothesized to influence service delivery in organizations if effectively managed (Mohamud, 2016). As organizations expand, the demand for services may increase thus the need for organizations to rethink automated queuing systems (Kuklin, 2013). Mwangi and Ombuni (2015) argue that over the years, many companies in both developed and developing countries have been using EQMS to control queues of customers in need of different services and from different destinations. Marinkoric and Obradovic (2015) contend that automated queuing management systems have been in use for decades and more specifically in airline companies, commercial banks as well as shopping malls. Even though this technology has been of great value in the banking sector as well as in the airline sector, it is attributed to setbacks such as increased dependence on technology, job loss, and lack of information privacy. Various automated queuing systems such as EQC system-1 and EQC system-2. are used by organizations to manage long customer queues thus enhanced service delivery (Gumus et al., 2017).

Service delivery is the process of providing a service to a customer at the right time and in the right way (Nathalie & Dmoulin, 2013). Nzomoi and Muthoni (2017) affirm that organizations can enhance customer experience by adopting assistive technologies such as automated queuing systems. This technology can help organizations to provide instant services to customers, process customer arrival time, identify customer needs as well as track their location (Ravi, & Saraswathi, 2018). Nzomoi and Muthoni (2017) attest that effective management of automated queuing systems can help an organization minimize

customer physical contacts as well as serve more customers within the shortest time possible. Equally, Toshiba, Sanjay, and Anil (2013) ascertain that like any other organization, health facilities, and more specifically public hospitals cannot undermine assistive technologies such as automated queuing systems. Public hospitals are regarded as government-funded entities that provide health care services to members of the public at subsidized prices (Sheikh, Singh & Kashyap, 2013).

The core functions of public hospitals are to diseases through promotional health initiatives, diagnose and treat diseases, provide medical education and training (Situma, 2014). Like in any other organization using assistive technologies to enhance customer lifetime value, the automated queuing system in public hospitals is inevitable (Sztrik, 2010). For any country to attain the global healthcare standards adoption of appropriate technologies in the healthcare sector is key (Peter & Sivasamy, 2019). Titarmare and Yerlekar (2018) demonstrate that utilization of appropriate assistive technologies in service delivery is conceptualized to enhance customer experience. Assistive technologies not only help the public hospitals deliver quality services to patients but also manage the overwhelming demand of healthcare needs (Sheikh, Singh & Kashyap, 2013). Medical practitioners can utilize technology for telemedicine, giving appointments to patients, managing customer waiting time, providing timely feedback to patient needs, and managing patient information (WHO, 2020). From the global context, EQMS in the hospital context, have been appraised because they help medical practitioners process patient information quickly and lead to patient satisfaction. Further, they help hospitals to save costs, have a high level of customer engagements, and real-time provision of services to patients (KIPPRA, 2020).

Considering the emergency of the new pandemics such as Covid-19 disease that was declared by the World Health Organization (2020) as a global pandemic in March 2020, investment in appropriate assistive technologies such as EQMS is inevitable. The Covid-19 disease is a new highly infectious disease that is spread through physical contact with infected people. The disease can as well spread through coughs and sneezes from the infected people. Further, the transmissions can take place through touching surfaces touched by the already infected people and at the same time touching your eyes, nose, and mouth. The Covid-19 disease is associated with numerous symptoms ranging from headaches, dry coughs, fever, sore throat, loss of appetite and smell, extreme tiredness, and skin rashes (WHO, 2020).

Despite the efforts of governments around the world to prevent the spread of the disease and minimize increased cases of mortality rates associated with Covid-19 complications, little has been achieved thus the need for alternative assistive technologies such as automated queuing systems (WHO, 2020). Effective management of EQMS in public hospitals would not only patient experience but also conformity to public health reforms in Kenya (KIPPRA, 2019). For the enhanced operational performance of State institutions and more specifically public hospitals in Kenya, the adoption of assistive technologies in the healthcare sector is inevitable. As the government strives to implement the Vision 2030 initiatives, embracing assistive technologies in the health sector would as well make the government of Kenya conform to global health care goals outlined by World Health Organization (KIPPRA, 2019). Institutionalization of the

technological culture in the healthcare sector in Kenya is thought of as one of the practices that would make Kenya realize its social pillar as articulated in the 2010 constitution (KIPPRA, 2019). In the Covid-19 era which has become a global concern, efficiency in the administration of the Covid-19 vaccine is dependent on assistive technologies adopted by the Ministries of Health in the developed and developing countries (WHO, 2020).

Since the Covid-19 vaccine was invented, there has been an overwhelming demand from members of the public both in developed and developing countries (WHO, 2019). The demand has not only made some countries place orders for more vaccines but also rethink the appropriate strategy of administering the vaccines to both infected and non-infected people. The anxiety of the severity of the disease and the change of its variants within the short period is an issue of concern to virologists as well as countries. The impact of Covid-19 has not only destabilized economies but also made governments rethink new strategies of vaccinating the majority of their population to prevent more transmission and mortality rates associate with Covid-19 complications (WHO, 2020).

In Kenya, long queues of people are currently witnessed in public hospitals due to the high demand for the vaccine from members of the general public. Considering the smaller number of the Covid-19 vaccines procured by the government from time to time, transmission cases are on the rise, and well as the mortality rates are increasing daily. The anxiety from the members of the public about the shortages of Covid-19 vaccine and inability of the government to outline a clear framework of administering the vaccine to the people, majority of the public hospitals in Kenya are receiving a large number of people seeking various medical services as well as the Covid-19 vaccine (Government of Kenya, 2020). Most of the people who have been visiting the public health facilities have been infected through seeking other health services apart from the Covid-19 disease.

The inability of the public hospitals to control queues not only calls for alternative ways of preventing the Covid-19 disease but also treating the already infected people. The inability of the Kenyan people to be vaccinated is not only attributed to vaccine resistance but also long queues that make some people give up before receiving the vaccine. The uptake of Covid-19 vaccines in public health facilities in Kenya is not only hindered by logistical constraints by the Ministry of Health but also challenges of managing long queues. If appropriate technology was embraced by public hospitals in Kenya, the transmission cases and deaths associated with Covid-19 disease would have been minimal. Therefore, it was against this background this study predicted that service delivery in public hospitals would only be improved if automated queuing systems are effectively utilized.

1.2 Research Problem

From the literature, automated queuing systems are appraised to influence service delivery in any organization significantly if effectively utilized (Abass, 2016). Despite this view, little is understood on the link between automated queue management systems and service delivery in public hospitals and more specifically in Kenya. Currently, the public hospitals in Kenya are experiencing overwhelming demand from customers seeking various services including the Covid-19 vaccine. Constraints of understaffing, as well as that of technology, are undermining service delivery in the public hospitals in

Kenya. Long queues of people not only make some patients to frustrated or dissatisfied before receiving the intended services but also the negative perception of public hospitals in Kenya. Managing long queues of patients in the public hospitals has been an issue of concern for decades from members of the general public but little has been done to enhance service delivery (KIPPRRA, 2019). Due to unspecified waiting times witnessed on physical queues in public hospitals, many patients are seeking healthcare services in private hospitals. Further, some deaths recorded in public hospitals in Kenya are not only associated with shortages of medical professionals but also delays witnessed between the arrival time and management of the health problem. The public outcry concerning service delivery in public hospitals in Kenya is a concern and more specifically this era of Covid-19 disease.

Despite efforts of the government of Kenya to encourage members of the public to be vaccinated, little has been achieved in terms of the Covid-19 vaccine uptake. The transmission cases and mortality rates are on the rise thus the need for the government of Kenya to rethink automated queuing systems in enhancing service delivery in public hospitals. Unless the government invests in alternative assistive technologies in the health sector, deaths associated with Covid-19 disease will be on the rise. In this regard, this study was considered pertinent on the premise that service delivery in public hospitals in Kenya would only be improved during this era of Covid-19 disease if the government of Kenya appreciates the role of automated queuing systems.

Even though studies have been conducted by researchers on the link between automated queuing systems and service delivery, automated queuing systems research in the public hospitals in Kenya is scanty as well as underrepresented. For instance, a study by Mwangi and Ombuni (2015) was confined to Jomo Kenyatta University of Agriculture and Technology. The study disclosed a significant link was revealed between queuing behaviours and student satisfaction. Genga (2018) established a significant link between the electronic queuing management system and customer service in commercial banks in Kenya. Abass, (2016) focused on Kenya Commercial Bank and found out that automated queuing systems positively influenced customer experience. Further, Gumus, Bubou, and Oladeinde (2017) in Cameroon focused on fast-food restaurants and established that queuing systems helped to influence customer satisfaction. Consequently, Uddin, Rashid, Mostafa, Salam, Nithe, and Ahmed (2016) in Malaysia found out that automated queue management systems had a positive impact on customer service delivery. Titarmare and Yerlekar (2018) in India disclosed that a patient queue management system can help hospitals improve service delivery.

Based on the comprehensive analysis of the extant empirical studies (Genga, 2018; Titarmare and Yerlekar, 2018; Gumus et al., 2017; Uddin et al., 2016 & Ombuni, 2015), it is noted there is deficiencies in evidence on the link between the variables of this study thus the need for a study unfold the research gaps. For instance, some of the studies conceptualized and operationalized variables of the current study differently thus the need to fill the conceptual research gaps. Some studies used different theories to measure the dependent variable thus the need for further studies to reconfigure the theories to measure service delivery in the public hospital context. Some studies were confined to different contexts thus the need for a study to address the contextual research gaps and

finally, some studies adopted different methodologies thus the need for a study to bridge the mythological gaps for collaboration of the results. Considering these research gaps, the specific objective of the current study was to:

- (i) Determine the influence of automated queue management systems and service delivery in public hospitals in Kenya during the Covid-19 era.

2.1 Theoretical Review

This study was anchored on disruptive innovation theory that was pioneered by Christon Christensen in 1997. The theory emphasizes that disruptive innovations are those that facilitate organizations to identify new markets and value links over time. Older technologies are replaced by disruptive innovations that give organizations a competitive edge in terms of new product development and enhanced customer value. Every organization can experience different results due to disruptive technologies. Some organizations may maximize revenue through disruptive technologies while others can experience challenges while implementing new technology. Organizations that embrace new technologies such as automated queue management systems can enhance service delivery, unlike organizations that manage customer queues physically. The theory postulates that organizations operating in the changing business environment can only remain competitive if they embrace new technologies. For efficiency and effectiveness in service delivery adoption of new technologies in any organization is inevitable. Further, the theory opines that organizations that remain rigid in adopting new technologies not only remain redundant and inefficient but also fail to readjust their strategies for strategic competitiveness. The theory was used in this study on the assumption that public hospitals could only enhance service delivery if they adopt automated queue management systems.

3.5 Conceptual Framework

Figure 1 depicts that the Automated Queue Management Systems (EQMS) is a function of service delivery in public hospitals. The EQMS variable is measured using two antecedents namely; structures and unstructured queue systems while the dependent variable (Service Delivery in Public Hospitals) is evaluated using four metrics namely; the variety of medical services competence of medical personnel, quality of healthcare services, and availability of medical equipment.

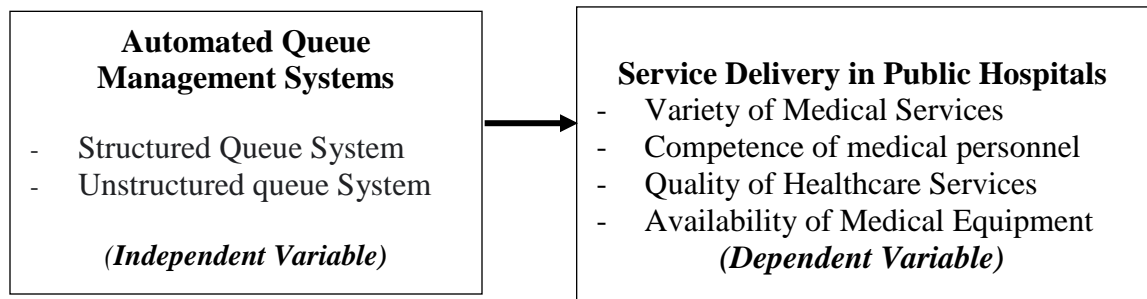


Figure 1: Conceptual Framework

2.2 Empirical Literature Review

2.2.1 Automated Queue Management Systems and Service Delivery

For decades, researchers have paid attention to automated queue management systems research in organizations. Mixed findings have been disclosed from the previous empirical studies thus the need for further studies to be conducted in different contexts to unfold the controversies. For instance, Letsididi (2010) focused on commercial banks to establish the role of the Electronic Queue Management System (EQMS). The findings revealed that EQMS positively influenced customer experience in banking services as well as optimized employee productivity. The study concluded that EQMS if effectively managed can help organizations improve service efficiency, reduce customer waiting time, decrease perceived waiting time and improve organizational revenue. Consequently, Kuklin (2013) reported that EQMS can improve customer experience in organizations up to 35% if effectively managed. The author observed that EQMS can help financial institutions to minimize costs of operation as well as enhance customer value. The study concluded that EQMS can help organizations provided services to customers without physical interaction in terms of transactions, cash deposits, and withdrawals. However, the authors recommended that further studies can be conducted in other sectors for comparison of the results.

Electronic Queue Management System (EQMS) can help organizations reduce customer waiting time and serve them on a priority basis (Youseef & Liu, 2013). The same position is supported by Kuklin (2013) who identified that commercial banks can transform the customer experience by using EQMS. The study concluded that EQMS can help any organization maximize revenue as well as enhance customer loyalty. Though the author recommended collaboration of the results, future researchers should replicate the study in other fields to confirm this position. Liang (2016) on the other hand revealed a positive link between EQMS and customer satisfaction. However, the author recommends further studies to be carried out in other areas apart from the banking sector for comparison of the findings.

Equally, Jhala and Bhathawala (2016) contend that commercial banks can only solve the problem of long queues of customers by adopting EQMS. The authors identified that EQMS can help commercial banks improve employee morale as well as minimize costs of operation by 23 percent. Further, they concluded that for any technology to succeed in any organization, training employees as well as sensitizing customers on how to use it is key. The observed that sophisticated technology can make an organization experience loss if employees are not trained effectively. Despite the benefits associated with technology such as EQMS, Farayibi (2016) identified that system downtime can make customers develop a negative attitude toward the services provided by the organization. The author recommended that for enhanced customer experience with service provided by the organization, timely information should be provided to customers. Further, the study recommended that for enhanced customer experience, organizations should be committed to upgrading their systems from time to time to address the changing business trends.

Many scholars have revealed a significant link between EQMS and service delivery and more specifically in financial institutions (Farayibi, 2016; Sheikh, Singh & Kashyap, 2013; AL-Jumaily & AL-Jobori, 2011; Ndungu, 2013; Mohamud, 2016; Shyfur, Chowhury, Rahman, & Kabir, 2013). These studies generally appraise EQMS in financial

institutions because it helps organizations increase the number of customers attended on the daily basis as well as increase profits generated. It helps financial institutions reduce customer waiting time thus enhanced customer loyalty. Further, the studies revealed that EQMS can help organizations improve employee productivity, as well as help customers, save time. The studies recommended that for enhanced service delivery in organizations, assistive technologies such as EQMS in organizations are inevitable. In addition, the studies recommended that future scholars should use other theories for the explicit explanation of EQMS research in organizations.

Despite the positive link between EQMS and service delivery, other scholars have revealed differences between EQMS and service delivery (Sheikh, Singh & Kashyap, 2013). The study revealed EQMS can as well result in a decline in profits for any organization if customers find the technology is complicated as well as workers. The inability of the customers to interact with the system can make organizations experience losses. Further, the study pointed out that if employees are not trained effectively on how to use the new technologies introduced, then reduced employee productivity is likely and vice versa. The study recommended that for any organization to excel using new technologies in service delivery, investment in human capital, equipment, and training customers on how to interact with the system is key. The study pointed out that applications that organizations develop as an alternative mechanism of serving customers should be user-friendly. The study emphasized on continuous improvement of systems for enhanced customer value.

Based on the comprehensive analysis and review of the extant empirical literature discussed in the current study, it is noted that conceptual, theoretical, contextual, and methodological research gaps are evident. For instance, some of the previous studies have conceptualized variables of the current study differently thus the need for further studies to unravel the conceptual research gaps between EQMS and service delivery. Also, some previous studies did not examine the relations between EQMS and service delivery thus the need for further studies to examine the link between variables. Further, some researchers used different theories to explain variables of the current study thus theoretical gaps were addressed by the current using disruptive innovation theory to measure service delivery in the public hospital context. Moreover, it was noted that most of the studies were skewed towards financial institutions thus contextual gaps that were addressed by the current study focusing on public hospitals in Kenya. Methodologies adopted by each study were different in terms of research designs, sampling techniques, data collection instruments, and data analysis methods. This study departed from methodologies used by previous studies by adopting a meta-analysis approach.

3.1 Methodology

This study departed from methodologies adopted by the previous empirical by adopting a meta-analysis approach. To address the aforementioned research gaps, numerous publications from 2010 to 2021 were reviewed. A comprehensive literature analysis was carried out to establish the influence of automated queuing systems and service delivery. Published materials including peer-reviewed journals, conference papers, theses, reports, sessional papers that contained relevant information concerning the topic of the current study were reviewed. Journal databases were searched using the terms “Automated

Queue Management Systems and Service Delivery”. 31 articles were retrieved from databases of various journals. All the articles were re-filtered to reflect the objective of the current study. To ascertain the link between variables of the current study, statistics such as mean scores, standard deviations, frequencies, percentages, and r-square were used.

4.1 Findings of Study

Based on the comprehensive literature review of quantitative empirical studies, this study established a positive relationship between automated queue management systems and service delivery. Specifically, EQMS parameters which include structures and unstructured queue systems were positively found to influence service delivery in public hospitals in terms of variety of Medical Services, the competence of medical personnel, quality of healthcare services, and availability of medical equipment. Generally, it was concluded that public hospitals can experience enhanced service delivery if they adopt and manage EQMS effectively.

4.2 Discussion of Results

This study revealed that automated queue management systems positively and significantly

influenced service delivery in the public hospitals set up. This position is supported by findings of multiple scholars even though were not focused in the public hospitals (Youseef & Liu, 2013; Liang, 2016; Jhala & Bhathawala, 2016; Farayibi, 2016; Sheikh, Singh & Kashyap, 2013; AL-Jumaily & AL-Jobori, 2011; Ndungu, 2013; Mohamud, 2016; Shyfur, Chowhury, Rahman, & Kabir, 2013). However, the studies recommended that for the effective application of EQMS in organizations, future studies should reconfigure disruptive innovation theory to explain EQMS and service delivery in different contexts. Collaborative frameworks should be developed to provide an explicit explanation of the link between EQMS and service delivery in both product and service-oriented organizations. Despite extensive studies in EQMS, it was observed that EQMS research in the healthcare sector was scanty thus the need for future researchers to replicate this study in other sectors for collaboration of the results. Different theories can be used to explain variables of the current study to assess convergence or divergence of the results.

4.3 Conclusion

This study concludes that for enhanced service delivery in public hospitals during the Covid-19 era, EQMS is inevitable. The government of Kenya should appreciate the role of EQMS for enhanced service delivery. The government of Kenya should understand that service delivery in public hospitals is measured using multiple aspects from the customer's point of view. From the customer perspective, service delivery may be evaluated based on

the variety of medical services, the competence of medical personnel, quality of healthcare services, and availability of medical equipment. In this regard, this study concludes that if the government of Kenya is dedicated to enhancing service delivery in public hospitals in this era of Covid-19 disease, it should shift from the current models of service delivery to new models that are embedded in assistive technologies such as EQMS. Based on the World Health Organization protocols of preventing the spread of

Covid-19 disease, the adoption of EQMS in public hospitals is inevitable. Further, to conform with the new reforms in the health sector in Kenya as envisaged in Kenya's Vision 2030, EQMS cannot be undermined in public hospitals in Kenya.

4.5 Theory Implications

This study revealed that automated queue management systems positively and significantly influenced service delivery in the public hospital setting. In this regard, this study contributes to new knowledge by validating disruptive innovation theory. Even though researchers have revealed constraints associated with the theory in literature, future scholars should seek to reconfigure the theory for an explicit explanation of concepts in different contexts.

4.6 Policy Implications

This study revealed that automated queue management systems positively and significantly influenced service delivery in the public hospitals setting. In this regard, this information may help the government of Kenya and more specifically the Ministry of Health in developing policies that will support public hospitals to fully utilize EQMS in service delivery. Further, this information will help related agencies in the healthcare sector such as World Health Organization develop policies that will help other developing countries in improving service delivery in public hospitals and more especially this era of the Covid-19 pandemic. This information will make the governments appreciate that service delivery in public hospitals is dependent on EQMS.

4.7 Strategic Management Practice Implications

The results of this study will help administrators of public hospitals appreciate the direct role of EQMS in enhancing service delivery. The hospital administrators will appreciate that to prevent the spread and deaths associated with Covid-19 disease, EQMS are inevitable in public hospitals in Kenya this era of Covid-19 pandemic.

4.8 Recommendations

This study depicts that there exists a positive and significant link between automated queue management systems and service delivery in public hospitals. Therefore, this study recommends that, for enhanced service delivery in public hospitals in Kenya, EQMS are inevitable. In this regard, the government of Kenya should allocate more funds to the Ministry of Health to support the implementation of EQMS in public hospitals. Further, the government should train all medical practitioners on how to use EQMS to deliver services to patients in this era of the Covid-19 pandemic. Equally, promotional health campaigns should be geared towards sensitizing members of the general public about the benefits of using EQMS in this era of the Covid-19 pandemic.

4.9 Limitations and Future Research Frontiers

This study examined the direct link between automated queue management systems and service delivery in the public hospitals setting. Future studies should seek to investigate the indirect link between the variables to assess whether the findings can uphold. Further, future researchers should seek to explain EQMS using different theories such as technology acceptance theory for the explicit explanation of EQMS in evaluating service delivery. Because this study took a meta-analysis approach which may be attributed to constraints of generalizations, future researchers should seek to collect primary data and use quantitative methods such as the regression method to confirm convergence or divergence of the findings.

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