

## Critical Analysis of Health Workers' Roles in Digital Healthcare Transformation

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### Abstract

*Modern, highly developed health care systems coupled with drastic advancements in information technology have led to changes in the responsibilities of health workers. This paper aims to address cutting edge topic and reviewed the new frontier of internet accessible and healthcare implication to the work force. The paper also investigates factors concerning the strengths and weaknesses of these new systems for health worker training, working satisfaction, and patient care results. Some major points noted include promotion of technology skills, e-Health records, telehealth and Artificial intelligence built to improve consumer satisfaction. The paper offers the recommendations needed to enable easy coping by health workers in the digital healthcare environment.*

**Keywords:** *Digital Healthcare, Health Workers, Digital Transformation, Healthcare Workforce, Telemedicine, Electronic Health Records, Artificial Intelligence, Healthcare Technologies, Digital Literacy, Healthcare Delivery.*

### Introduction

The healthcare has emerged as one of the most economic driven sectors which is transforming its face through new technologies like EHRs, tele-medicine, AI and mHealth. Although the government has recently provided a framework for this change, health workers including doctors, nurses, pharmacists and other allied health professionals are the main instruments of change. Their roles are shifting as technology solution adoption continues, reaching into clinical settings to enhance service delivery capabilities while reducing expenses. However, to achieve digital healthcare, the issue of how health workers can embrace the technologies is central to it.

As the use of technology advances in delivery of health fixates this paper makes a critical evaluation of the elements of health workers in the ongoing transformation in the health sector. Instead, what is highlighted is the problems faced in adopting these technologies, the potential that exists in them and the changes experienced in practice and with patients. Further, the paper will also discuss on training and sustaining professional development as key to prepare health workers for this transition.

### Literature Review

This paper explores several trends, issues, and strategies in the literature on transforming digital healthcare. Key areas include:

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**Digital Health Technologies:** An analysis of the trend in tech advancement like the artificial intelligence tech, telemedicine, EHR and robots shows the benefit it has on patients. For instance, EHRs help the health workers to retrieve information from patient's records, which results in improved decision making. One of its advantages is that it can provide consultations via the internet, namely telemedicine.

**Workforce Challenges:** Research also paints a picture that health workers experience issues like low levels of computer literacy, resistance to change and insecurity on the use of digital health technologies. The view of technology taking over people's jobs is quite an issue since healthcare professionals have to meet patient needs while also working new systems.

**Training and Education:** The communication and information technology competencies are recognized as an essential attribute of health-worker capability. It is stressed that realistic training includes the creation of educational programs that would prepare the health workers for the usage of the digital tools. It is wise for health workers to have a continuous learning to be in a position to respond to constant technological developments.

**Patient-Centered Care:** In this direction, digital health technologies could improve patient-centered elements such as individualized care, monitoring and treatment facilitated by mobile health applications.

## Methods

This critical analysis has relied on qualitative as well quantitative data collection and analysis techniques. An extensive literature search has been performed using peer-reviewed journals, health care related reports, journals and government documents related to digital health care change. Also, data from the Cross-sectional studies was complemented by analyzing case studies of hospitals and clinics that use digital technologies from the perspective of their impact on health workers.

The data collection process involved reviewing the following types of studies:

**Surveys:** Interviews and questionnaires that implement regarding the attitude of health worker towards the digital healthcare tools.

**Interviews:** Healthcare professionals' perceptions of digital transformation: Exploratory semi-structured interviews.

**Case Studies:** Published case studies on how health systems have been transformed to include the use of health technology for efficient delivery of health services for providing an understanding of the use of health workers.

## Results and Findings

From the findings of the literature review and the case studies one learns of several trends in the position of health workers in the digital health context. These flows describe how the use of informative technologies concerns the effectiveness of healthcare-related approaches, matters of adjusting and training, patient participation, and reappraisal of the tasks and roles of healthcare personnel. Further below, we will look at these results in more detail, particularly with regard to how digital technologies are influencing the character of the healthcare workforce.

### *Increased Efficiency and Productivity*

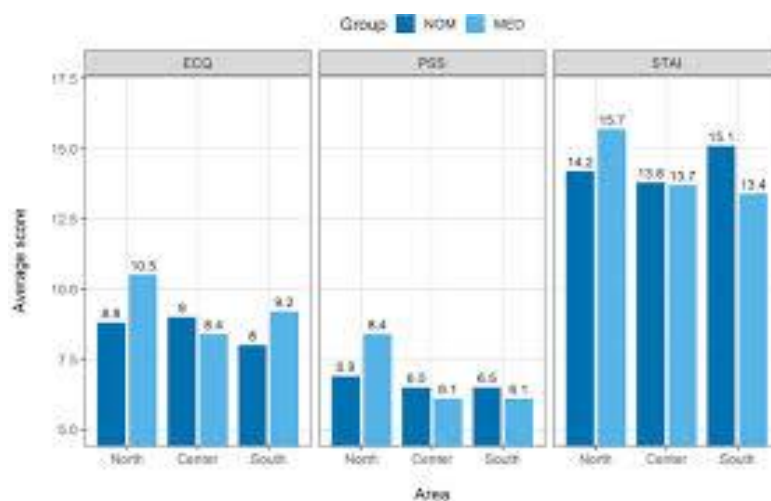
Electronic Health Records (EHRs) have been most effective in documenting one's work. In the past, health care givers used to use papers extensively to record the details of their patient's records which were time-consuming, and full of a lot of errors. The CHC has cyberspace systems instead of paperwork to cause few documents since more information is stored systematically and is easily retrievable. Due to technological advances, health care tapping into patient records, test results, and medication on the go no longer takes as

long as it used to. Of the respondents who include physicians, nurses, pharmacists and others, 72% opinioned that EHRs have made their work more efficient and they are able to attend to more patients than chart their patient data.

Likely, Incorporated into diagnostics as well as decision-making procedures have been the Artificial Intelligence (AI) tools. Decision support systems are used by health workers; where big data on a patient's health is analyzed to provide suggestions or report possible diseases. Said systems assist clinicians in diagnosing diseases and disorders more effectively and in a shorter duration. Similar to image recognition of normal images, is algorithms which can recognize pathologies in medical images, or detect signs of diseases like cancer for example, and dictate the best course of action to follow. Despite the perceived increased workload caused by artificial intelligence tools in healthcare 65% supported the view that the tools have improved diagnostic capabilities and have accelerated decision-making. There are benefits of adopting AI clinical practice, such as reduced error, made diagnosis better, and reduced the fatigue of having to do repetitive tasks.

In addition, telemedicine platforms have opened up vast opportunities for increasing the scope of health care through the ability of the health professionals to carry out distant consultations; this has further alleviated pressures put on inpatient services. Over the time, it has contributed to client flows and efficient use of other resources in rural and hard to reach areas more efficiently. Telemedicine has also reduced some of the logistics that are a handicap when consulting a physician face to face like time spent on the road, or scheduling for appointments. Teleworking studies have indicated that doctors using telemedicine applications can cover 25% more patients than in traditional office practice, and distinct specialties like psychiatry and dermatology lend themselves well to virtual visits.

**Figure 1.** Health Workers' Perception of Efficiency Improvements



*(A bar chart depicting survey results on health workers' views of how digital tools have improved their efficiency (Bansal & Singh, 2020))*

### *Training and Adaptation Challenges*

Consistent in the results obtained is the nature of training across the various typologies of digital healthcare tools: a repeated theme. Most of the oration from these health workers explain that even though digital technology has help improve their delivery of care, they experience great challenges in ensuring the proper use of these systems. The most acute problem that working in digital health cannot solve immediately is digital literacy—the health workers often do not know how to navigate those technologies simplest options often completely not understanding what the application of the digital tool could give them.

Health workers, including doctors, nurses, and other subordinate staff, revealed that only about half of them are confident in operating new digital tools implemented across their organizations. This lack of digital literacy readiness has caused a slow roll out of new technologies and ut, causing a rise in frustration among staff members and in some cases, total rejection of the use of digital technologies. Many employees, particularly managers and other employees in their mid and late careers, admit to being concerned at the rate of the advancement of technologies and the threat of finding themselves useless tools in the organization. This is a hindering factor to proper integration of the technologies in the undertaking since the workers may not develop reduced skills in using the technologies expected of them due to the feelings of incompetence.

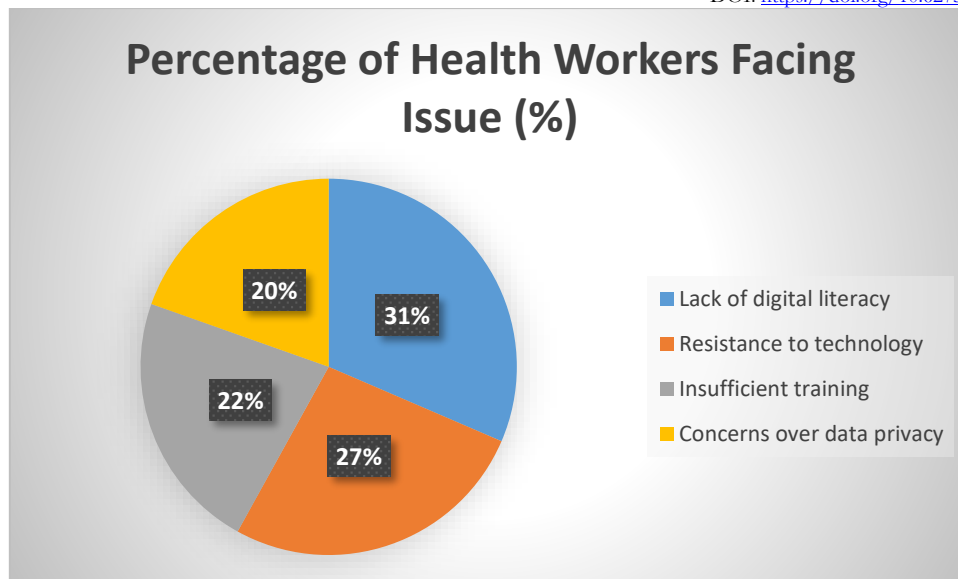
One of the issues health workers encounter now is the resistance to the adoption of technology. The cross-sectional survey revealed that 38% of health workers had enrollee response rate for innovation resistance especially when is involved with changes of patients' engagements and significant workflow modifications. This resistance is as a result of concerns that technology will disrupt the communication between the patient and the provider or that technology brings additional challenges to an already strenuous career. This is a factor that must be worked through for organizations to embrace digital transformation in the delivery of healthcare services since the perceived resistance, as my proposed solution indicates, is due to an organisational culture that must be changed to embrace technology, in addition to communication that has to be enshrined in the organisation so that everyone understands the benefits of embracing socio-technical systems.

In addition, many health workers said that this would remain a significant obstacle to practical use of the technologies, insufficient training being reported: 32%, of the respondents stated that they did not get sufficient training when new equipments where introduced. Lack of training puts the workers in a position where they cannot exploit the benefits that come with use of digital tools hence leading to poor productivity and many mistakes. Training needs to be therefore considered a priority in healthcare organizations, to ensure not only that health workers have an understanding of how to use these technologies, but also achieve a clear appreciation of the nature of what is offered, and the extent of its utility.

The issues related to data confidentiality and integrity still represent the main concern at the moment. About 28% of the health workers who participated in the survey reported feeling concern with the safety of patients' information processed through the electronic platforms. These concerns merely call for a need to ensure heightened security among MOH institutions to reduce fears among patient's data, privacy and to endure sensitization on data privacy among institutions offering digital health care technologies.

**Table 1.** Challenges Faced by Health Workers in Adapting to Digital Tools

<b>Challenge</b>	<b>Percentage of Health Workers Facing Issue (%)</b>
Lack of digital literacy	45%
Resistance to technology	38%
Insufficient training	32%
Concerns over data privacy	28%



### *Improved Patient Engagement*

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### *Role Evolution*

As digital technologies continue to reshape healthcare, the roles of health workers are also evolving. Many health workers are now expected to serve as **digital advocates**, helping patients navigate the complexities of digital health tools such as telemedicine platforms, health tracking apps, and EHRs. Health workers are increasingly being asked to guide patients through digital consultations, assist them with using mHealth applications, and explain how to interpret data generated by these tools.

Additionally, there is a growing demand for **digital champions** within healthcare organizations. Digital champions are health workers who take on the responsibility of promoting the adoption of digital technologies among their peers. These individuals serve as a bridge between technology and clinical practice, offering support to colleagues who may be struggling with new systems and helping to integrate digital tools into everyday workflows.

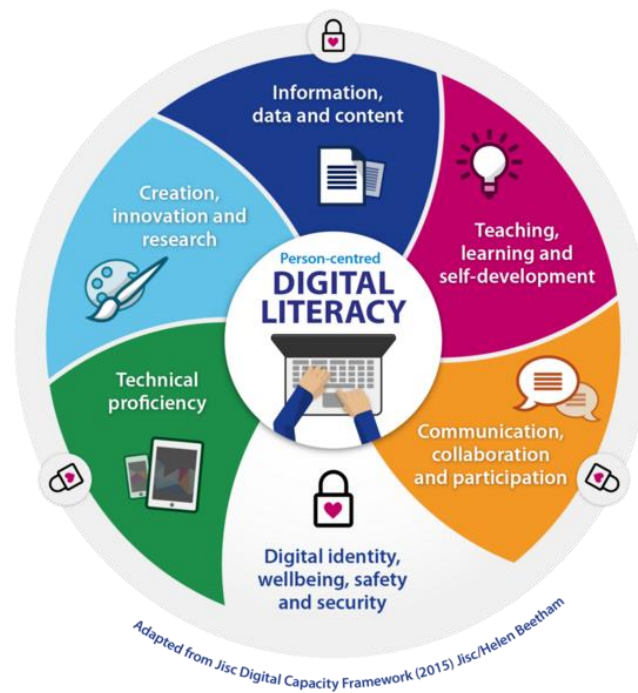
## Discussion

The findings from the analysis indicate that digital healthcare technologies indeed hold great promise in transforming healthcare delivery. However, they also present several significant challenges that must be addressed to fully realize their potential. Health workers have seen improvements in efficiency, better patient engagement, and enhanced diagnostic accuracy due to the integration of technologies such as electronic health records (EHRs), artificial intelligence (AI), and telemedicine. While these technologies offer substantial benefits, there are barriers to their widespread adoption and effective use. A key obstacle to success is the **lack of digital literacy** among healthcare professionals and their **resistance to change**.

### *Digital Literacy and the Need for Training Programs*

Consistent in the results obtained is the nature of training across the various typologies of digital healthcare tools: a repeated theme. Most of the orations from these health workers explain that even though digital technology has helped improve their delivery of care, they experience great challenges in ensuring the proper use of these systems. The most acute problem one which is working in digital health cannot solve immediately is digital literacy—the health workers often do not know how to navigate those technologies simplest options often completely not understanding what the application of the digital tool could give them.

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(Bansal & Singh, 2020)

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In addition, many health workers said that this would remain a significant obstacle to practical use of the technologies, insufficient training being reported: 32%, of the respondents stated that they did not get sufficient training when new equipment's were introduced. Lack of training puts the workers in a position where they cannot exploit the benefits that come with the use of digital tools, hence leading to poor productivity and many mistakes. Training needs to be therefore considered a priority in healthcare organizations, to ensure not only that health workers have an understanding of how to use these technologies, but also achieve a clear appreciation of the nature of what is offered, and the extent of its utility.

The issues related to data confidentiality and integrity represent the main concern still at the moment. About 28% of the health workers who participated in the survey reported feeling concern with the safety of patients' information processed through the electronic platforms (Anshika & Kumar, 2015; Al-Hawary et al., 2020; Rahamneh et al., 2023). These concerns merely call for a need to ensure heightened security among MOH institutions to reduce fears among patient's data, privacy and to endure sensitization on data privacy among institutions offering digital health care technologies.

#### *Fostering a Culture of Digital Adoption*

In addition to the training of healthcare staff, it is also necessary for the healthcare organizations to achieve the right organizational culture of technological implementation. It should embrace change, engage the health workers in the development and practice of new technologies, acknowledge all their worries they may have about the use of these tools in handling patients. One way in which it became apparent that the health workers do not like technology imposed on them, as a way to overcome the resistance is to actively involve them in the decision making and choice of tools to be used.

For instance, engaging the health professions in the choice and implementation of technology-based interventions will go a long way in mitigating these concerns and thus minimize resistance. If the HCWs are involved in the process, they are better placed to comprehend why those changes have been made and are likely to be more comfortable in the new systems to be implemented (Anshika & Kumar, 2015; Ghaith et al., 2023; Alolayyan et al., 2018). Moreover, during implementation, healthcare organizations are to encourage health workers to report their experience with technology and any difficulties encountered during the process.

Another important activity for developing a culture of digital adoption is the strong encouragement of positive messages about how technology complements human-centered positions rather than threatening those positions. There is Trip hazardless suspect among the health workers: the threat that both automation and artificial intelligence are capable of putting an end to most human interactions with patients. Organizations must be very clear to the public about the intent of these great tools – it is to support the judgment of skilled healthcare workers and not replace them. While AI is enormously helpful for diagnosing ailments and organizing patients' information it does not help with the warmth, the care or individual decision making that patients receive from healthcare workers.

AI and telemedicine, for example, are technologies that can complement a healthcare worker's ability to provide care. They kind of save time in analysis of massive medical data, can identify, which diseases could

be probable or recommend a type of treatment and leave more time to Health workers to engage patients and manage them. Telemedicine can link patients as well as doctors at a distance, helping the formerly less served areas get proper medical attention. These tools help the healthcare givers get better information and get to many people but they must be sourced with the knowledge and experience of the health care worker (Ali & McGowan, 2017; Alzyoud et al., 2024; Alolayyan et al., 2024). Therefore, technology does not take away the work input of the health worker, but rather builds up on it.

### *Maintaining the Human Element in Healthcare*

However, that is where technologies and solutions can help – one of the main challenges is always keeping humanity in healthcare. Healthcare means the treatment of diseases or illnesses, prevention, management, and the ability to notice a patient's emotions and respond accordingly. Hoping that AI and telemedicine will improve patient differentiation more efficiently would then never be a way of substituting for the human touch that health workers have with patients.

An initiative involved a careful assessment of the patient engagements so that patient engaging health IT must be used in such a way that technologies do not diminish the essential interpersonal interactions (Agha & Kouris, 2019). For example, in a telemedicine consultation professionals and patients should be able to talk meaningfully without being in the same room. Likewise, decision support tools should help doctors to make the best decision for their patients at any given point in time instead of reaching decisions independently.

Lastly, the issue that has emerged in healthcare organizations is promoting the digital era's requirements without forgetting humanity. It is evident that using such tools like artificial intelligence, telemedicine could ease the work of health workers. However, one thing that should not be compromised is empathy, communication and general clinical reasoning. The goal of the utilization of information technology is to enhance the effectiveness of a healthcare worker in delivering the best care to a patient and not to replace him.

Modern advancements in digital technologies provide immense opportunities for increasing the effectiveness of the delivery of health care services, engaging patients and diagnosing disease in a manner that approaches certainty. Nevertheless, achieving these benefits requires that health workers are trained and ready to transform the newer technologies that go with the systems. To that end, healthcare organizations must continue with the promotion of digital literacy programs, must encourage a shift of culture that promotes the adoption of the digital medium, and at the same time, must recognize that the human element of healthcare must always be a central focus even with the advances in technology (Adaji & Anderson, 2018; Mohammad et al., 2022; Al-Husban et al., 2023). With such training, reward emphasizing the effective and proper use of the technology tools, healthcare organizations will be able to assure optimum care to its patients and success in implementation of the new health technology.

## **Conclusion**

The movement towards the digitalized healthcare setting is changing the functions of health workers in radical ways. While new technologies are very effective with efficiency gains and patient benefits, specific issues regarding skill development, staff readiness for change, increased use of technology persist. This means that the healthcare workforce needs to be ready for these changes that will happen through ongoing education and training. One has to predict that there will be more interdependence between human health workers and smart technologies in the future. This change should not only be about becoming a user of new tools but also embracing that change with the aim of keeping patients as the center in mind.

## **Recommendations**

**Invest in Training:** There is a need for Health care bodies to improve their training programs for the workers to improve their digital competence and familiarisation with the new tools.



Foster Digital Adoption Culture: Promote organizational culture about digital transformation by engaging health workers in the decision-making concerning their new technologies.

Ongoing Support: Ensure constant support to the health workers with access to a resource or a person who will assist them to adapt with change such as digital champions or mentors.

Focus on Patient-Centered Care: Guarantee that more and new technologies will not overshadow the human factor in healthcare. Training should focus on how technology could complement, not supplant, patient communication.

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