

# The significance of technology usage within the healthcare sector

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## Abstract

The aim of this research was to evaluate the use of technology in healthcare (patients' care and treatment). Whilst technology is advancing and leading to innovations that have not been possible in the past, it is seen that patients who are not digitally literate or who do not have the resources necessary to access the software used by their clinician or medical practice remain at a disadvantage.

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## Introduction

The purpose of this report is to evaluate the usage and impacts of technology within the healthcare sector; I will do this with the aid of collected secondary data which I will analyse in this report. I will begin by stating the reason and aims of my research, I will then discuss my chosen research methodology and why I believe that this method will be the most effective for my research, the next step would be to discuss the literature that I have included in my report; evaluating the merits and demerits. I will then analyse my own research and my current progress within this research, followed by an analysis of any other research mentioned in this report (research conducted by any other researchers/authors who will be mentioned with in-text citations and credited accordingly in the *References* section of this article). Finally, I will conclude this report; mentioning what I have done and stating the strengths and weaknesses of this research.

## Rationale

**“Explore how to find a research topic and then find a research topic of your choice where you feel there is necessity of a research to be conducted. Finally, justify the reason behind your choice.”**

In order to find a research topic, students need to take into consideration a few factors; the most important being relevancy to their studies as conducting a research that is irrelevant to coursework is a wastage of both time and resources, additionally, it is important that the research focuses on a current ongoing issue within the students' area of expertise and lastly, students also tend to take into consideration the opinions of lecturers, friends or family when picking a research topic (Dorji, 2020). The topic that I will be focusing on in this report is the evaluation of technology usage within the healthcare sector. Through this research, I aim to explore both positive and negative impacts of the uses of technology in healthcare institutes (GP surgeries and hospitals) in order to fairly conclude the best way to improve patients' care and treatment.

## Research Objectives

**“Briefly discuss your chosen research idea.”**

This research focuses on the use of technology in healthcare to aid in patients' care and treatment, a few of these technologies are:

- PatientAccess (GP app) - This app allows patients to book digital appointments with their GP and to request repeat prescriptions.
- VitalPAC – This is the NHS Trust's monitoring system, it makes clinical users aware if patients' vital signs are not within required limits (Kostakis et al, 2020).
- AI – AI robotics such as the Da Vinci Xi robot increases rate of success in surgeries and lessens the threat on patients' recovery; the use of these robotics also decreases surgery time. The use of AI in surgeries, especially the Da Vinci Xi robot has been proven to be effective in diverse surgeries such as the removal of breast cancer or whilst operating on the upper urinary tract due to the non-invasive nature of the procedures with the aid of robotics (Zeng et al, 2023).
- EPIC – This software supplier aids NHS patients with the administration of medication and the use of electronic prescriptions (NHS, 2023).

- Organ Biopsy – This is a procedure which aids in identifying small lesions or illnesses; it is done when a tiny piece of organ tissue is taken and inspected under a microscope by a medical professional (Mayo Clinic, 2023).

These innovations have made it possible for patients to not only receive better access to care and treatment but also to have an improved quality of life. However, the question remaining is; are patients who lack digital literacy at a disadvantage of receiving care from clinicians? Whilst the main focus of this research is the usage of technology in healthcare, it is also significant to fairly evaluate the impacts that the digitalisation of appointments and medication requests has had on patients who are not able to access the software necessary to receive the treatment that they require.

## Research Methodology

**“Which methodology would you like to consider for your chosen research? And justify why.”**

I believe that the research method that would be most effective in evaluating the impacts of technology in healthcare would be to gather patients’ feedback with regards to their care and treatment through written questionnaires. This would require the use of concurrent mixed methods to indicate the levels of patients’ satisfaction (quantitative) with the care and treatment they are receiving or have received but it will also allow patients to give feedback (qualitative) and state any issues that they have had with the care and treatment that they have received. This method would aid in receiving key details in order to obtain all necessary information for this research to be effective. It is also crucial that the questionnaire is written and not digital, this is so that it can be made available to everyone who wishes to participate as candidates in this research. By making this research digital, there is a risk of individuals being at a disadvantage of not being able to participate due to not having the knowledge or relevant device to access a digital questionnaire.

## Literature Review

**“Explain how to find some credible sources to support your research. Then find some credible sources relevant to your research and describe the way (From where and how) you found them. Finally, present all those sources according to Harvard referencing style.”**

In order to find credible sources, students need to make sure that the article they are incorporating into their work is a scholarly article which has been peer reviewed (Bird, 2019). It is also crucial to ensure that the website being cited is credible in order to guarantee that all information used are legitimate and not fabricated or biased. The sources that I have used in this report are from both Google and Google Scholar where I have induced the search by only searching for relevant keywords in brackets; as an example, to find the article mentioned in the *Research Objectives* section of this report regarding AI, I have typed the keywords “Da Vinci robot” and “surgeries” into Google Scholar and I have customised the date range to “Since 2019” to ensure that the article used is up to date, after reading the article mentioned (by Zeng, S. et al.) I have decided to incorporate it into my work as it is relevant to my research, it has been reviewed and it is up to date. All articles read in the benefit of this report have been reviewed which guarantees credibility and all authors whose work has been incorporated in this assignment have been credited accordingly in the *References* section at the end of this report; all references written are in accordance with the Harvard Referencing Style.

The articles used in this research are focused on the positive impacts of technology within the healthcare sector which is why a fair evaluation cannot be made. However, it is crucial to also mention the negative impacts that technology can have within the medical field, such as the possibility that AI robotics could malfunction during surgeries, threatening patients' life chances or that not all patients are digitally literate, which could regulate access to digital support provided by the NHS (e.g. PatientAccess app or myGP app which are both applications created to enable patients to attend virtual appointments with their GP or to request repeat prescriptions electronically).

## **Analysis and Discussion**

So far, I have collected and analysed secondary data in order to educate myself with regards to previous researches relating to the use of technology in healthcare. I have also discussed what I believe to be missing in the researches mentioned within this report and I have stated how I would conduct my own research so that it is inclusive of all patients in order to be able to obtain information with regards to their experiences of technology usage within treatment and care received and to determine whether patients are at a disadvantage of receiving necessary care if they are not digitally literate. I have also created a questionnaire for friends and family to find out their experiences with digitalised healthcare appointments and I have found that, out of the twenty-two people who have agreed to take my questionnaire, seven people felt that they have received delayed treatment as they have not had access to GP software applications; this has therefore resulted in waiting longer times for appointments to become available as well as delays in receiving repeat prescriptions. It is also highly likely that the demand to be digitally literate is not only affecting patients but also clinical professionals; this is due to the increase in workload, which can lead to increased stress levels and therefore decreased work performance (Stadin et al, 2020).

## **Secondary Data Analysis**

All literatures used within this report are from credible sources (scholarly articles which are up to date and have been peer reviewed). The researches that I have read were all in favour of technology being used in healthcare as, with the advancement of technology, medical innovations also increase. Medical innovations increasing means more advanced treatments being made available to patients which could potentially result in the treatment of chronic diseases or terminal illnesses; such as vaccine technology advancing and potentially being compatible with the treatment of cancer (Verma et al, 2022).

## **Conclusion and Recommendation**

In this report, I have discussed the importance of technology in healthcare. I have evaluated the positive impact that medical innovations, such as AI robotics in surgeries, have on patients' health and well-being as well as the negative impacts that the usage of technology can have not only on patients but also on clinical professionals; such as raising levels of stress on healthcare workers due to high volumes of workload which can decrease work performance and even robotics malfunction during surgery, which can potentially terminate patients' life prematurely. I have also analysed secondary data and discussed strengths and weaknesses within mentioned researches; a common weakness that the researches used within this report have is that these studies concentrate mostly on the positive impacts of technology usage within the healthcare sector, therefore not offering an in-depth evaluation to readers. Finally, I have also attempted to induce my own research by asking friends and family to participate in a written questionnaire to obtain feedback relating to their experiences of technologies used in the care and treatment that they have received in healthcare institutes; ultimately discovering that some of the individuals that have taken my questionnaire felt underprivileged due to not having access to software applications provided

by the NHS. I believe that, in the future, studies regarding impacts of technology in healthcare should be more inclusive and in-depth, to explore every aspect so that a fair evaluation can be made.

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