Title:

Exploring the Clinical Outcomes of Telemedicine Approach in Managing Chronic Illness.

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1 Introduction

This report examines the potential for telemedicine to improve chronic illness management among patients. Waller and Stotler (2018) define Telemedicine as an innovative approach to telecommunications and remote patient monitoring. Telemedicine could be a valuable tool in managing chronic diseases, such as diabetes, heart disease, hypertension, and depression, as it could allow for better access to healthcare services, improved outcomes, and reduced healthcare costs. This approach improves patient outcomes by providing rapid assessment and advice, research-based treatments, and immediate follow-up care (Nittari et al., 2020). Telemedicine is imperative in extending the reach of healthcare services, particularly for situations that require urgent or long-term care but do not necessarily require a physical visit to the doctor. In addition, telemedicine can reduce healthcare costs, increase access to specialist care, and provide better patient satisfaction with improved care outcomes.

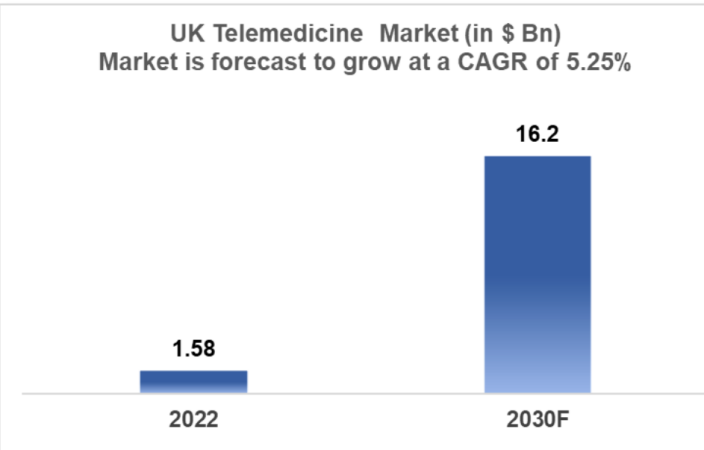
As such, this report aims to evaluate the current practices and effectiveness of Telemedicine in chronic illness management and to propose changes to the delivery of telemedicine services. The proposed changes will focus on improving the effectiveness of existing telemedicine services and providing new telemedicine approaches that are more cost-effective, and more suited to individual patients' needs. The report will also consider the availability, affordability, and accessibility of telemedicine services, particularly concerning their use in remote or rural areas. Finally, the report will address the impact of changes to the current telemedicine system on patients and staff.

2 Proposed change

This section highlights the proposed changes in the healthcare system and its effectiveness in healthcare delivery. The proposed change is to utilize a Telemedicine approach to managing chronic illnesses. Telemedicine combines information and communication technologies, such as computers, mobile devices, and internet-based applications, to provide remote healthcare services (Dorsey & Topol, 2020). This approach has been increasingly used in healthcare settings, including primary care, mental health, and hospital-based speciality care.

As of 2022, the UK telemedicine market size was estimated at $1.58 billion and is projected to expand to $16.2 billion by 2030 (Geifman, Armes & Whetton, 2023), representing a compounded annual growth rate of 5.25%, as shown in Figure 1.0 below. The clinical outcomes of the telemedicine approach in managing chronic illness are an area of growing interest in recent times. In light of this, telemedicine is a potential solution to combat these challenges by improving access to healthcare and delivering better clinical outcomes.

Figure 1.0: UK Telemedicine Market and Projections



Source: (Kalu, 2022)

The NHS continues to face challenges in providing timely, high-quality healthcare due to inadequate resources and staff shortages (Oderanti & Li, 2018). Since implementing the NHS' long-term plan' in January 2019, the Government has committed £12.7bn and £3.3bn of extra funding for primary care and mental health services, respectively (Alderwick & Dixon, 2019). Nevertheless, despite this funding, Public Health England's (PHE's) adult health survey of 2018 has indicated that chronic illness and mental health care are inadequate and falling behind other services (Menichetti & Graffigna, 2019). The expensive and limited capacity of hospitals means that people requiring chronic care have to face regular hospital visits for diagnosis and treatment. This not only affects the quality of life of the individuals but also hurts the economy, as patients incur extra costs for repeated visits for treatment.

Therefore, utilizing the concept of telemedicine in managing chronic illness has the potential to provide quality healthcare with improved clinical outcomes. The UK government is also promoting telemedicine as an efficient and feasible method, aiming to provide quick healthcare access to patients with long-term diseases (Graffigna et al., 2017). For instance, The National Institute for Health and Care Excellence (NICE) has recommended introducing remote monitoring of people with major depressive disorder, which means healthcare workers can take care of the patients virtually (NICE, 2021). Given this background, there is a great need for research to improve our understanding of the clinical outcomes of the telemedicine approach in managing chronic illness. This study will provide insight into the impact of integrating telemedicine into the current

healthcare system, which could lead to better health outcomes for those suffering from chronic conditions.

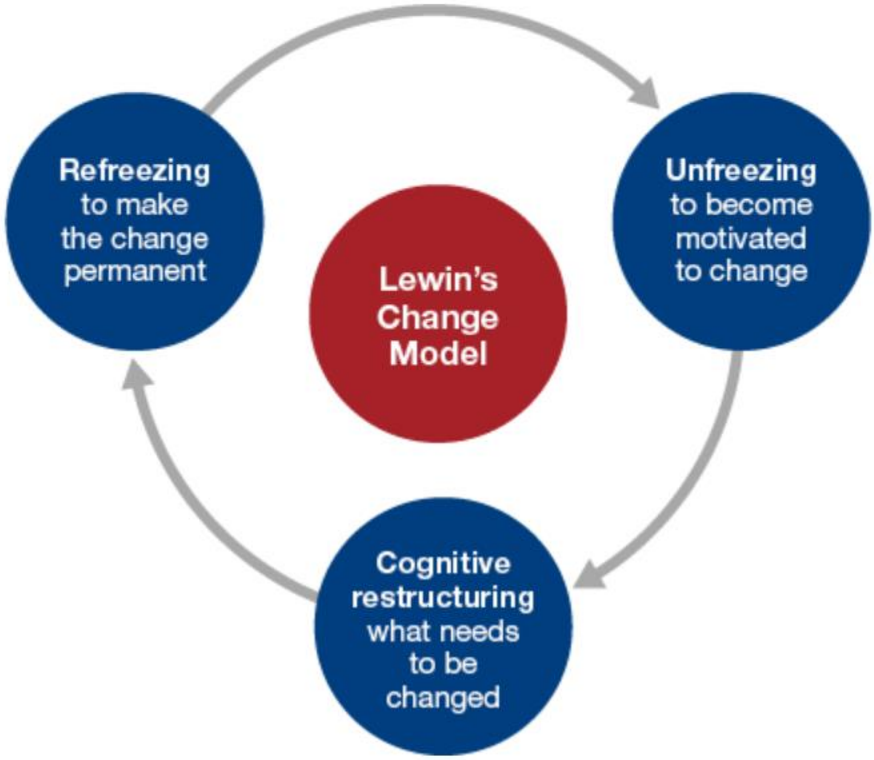
3 Change Theory

Figure 2.0 illustrates Lewin's change theory. This theory, characterized as 'unfreeze–change–refreeze,' has been widely used to analyse and effect change in various circumstances (Burnes & Bargal, 2017). The 'unfreeze–change–refreeze' approach was proposed by Kurt Lewin in the 1940s and is based on the idea that social systems can be thought of as dynamic. Lewin argued that the change process results from the interplay between individual beliefs, the organizational environment in which they are situated, and their behaviour (Burnes, 2020). The application of Lewin's theory in exploring the clinical outcomes of the telemedicine approach in managing chronic illness involves understanding how the forces of change interact in the change process. The 'unfreeze' stage involves recognizing that the current state of clinical care is not optimal, and a need for change or improvement is identified to achieve better outcomes. This can be achieved through various methods, such as increased use of technology, new collaborations, or enhanced patient-provider interactions.

In chronic illness, the change stage implies implementing a telemedicine system that allows for better communication between patient and provider and increased access to medical services. The change may also involve approaches such as developing strategies and protocols to ensure quality care, maximizing clinical outcomes, and identifying possible alternative treatments and resources. The 'refreeze' stage involves embedding the changes into the clinical system. The new system should be regularly

monitored to assess whether it delivers the desired outcomes effectively. This involves evaluating and measuring the effectiveness of the telemedicine system and monitoring patient satisfaction, clinical outcomes, and efficiency.

Figure 2.0: Lewin's Change Model



Source: (Burnes & Bargal, 2017).

Once the desired outcomes have been achieved, the clinicians and patients must work together to sustain the improved system to achieve better outcomes and health care in the long run. Lewin's theory is an effective tool to facilitate Change in the clinical environment, as it allows for a systematic approach to Change (Endrejat & Burnes, 2022). Through the three stages of the process, nurses can identify and address the

barriers to Change and thereby implement Change in a planned and cost-effective manner.

a. Role of change maker

Nurses have always been change-makers in their respective fields of expertise by honing vast knowledge and deep understanding of the healthcare practice in line with the NMC code of conduct (NMC, 2018). The scope of this undertaking includes providing leadership and guidance and advocating for the well-being of their patients. Nurses are expected to play a pivotal role in bridging the gap between the medical team and the patient through innovative personal or professional practice (Toso, Filippon & Giovanella, 2016).

Concerning clinical outcomes of the telemedicine approach, nurses are expected to provide an informed perspective of the latest evidence-based research in managing chronic illness. As central figures of primary care support, the nurse should be aware of the latest policy recommendations on telehealth technology utilization and service delivery (Cooper et al., 2019). This includes offering evidence-based care through the most efficient approach possible. This is in line with the Care Quality Commission's (CQC's) recommendations on continuous nursing development to improve the quality of care (CQC, 2022). This includes the evaluation of clinical evidence, such as the effectiveness and safety of telemedicine practices, as well as ensuring that the correct information and right communication platform are in place to ensure that the health outcomes and patient satisfaction are of the highest standard.

Furthermore, nurses have the task of helping to assess better the cost-effectiveness of the various telehealth services offered to chronically ill patients or other healthcare needs, such as psychological support (Trusson, Rowley& Bramley, 2019). This can be done through an in-depth assessment of possible cost savings related to the long-term cost of primary care, possible improvement in cost efficiency due to digital space, and the time saved due to remote care delivery, as well as through patient satisfaction surveys.

b. Sustaining Change

Sustaining change in healthcare is essential for the success of any health-related initiatives (Willis et al., 2016). Change in healthcare requires the effective implementation of strategies and interventions that can last over time. Achieving sustained change requires a multi-level approach to ensure that the desired change is achieved and maintained. This includes creating an environment that supports the change, identifying the necessary resources and support, and providing adequate training and education to healthcare professionals (Lennox, Maher & Reed, 2018). In addition, healthcare organizations must ensure that the change is monitored and evaluated regularly to ensure that the desired outcomes are achieved. This includes conducting surveys and focus groups to assess the impact of the change, as well as making adjustments as needed to ensure that the change continues to be successful. Furthermore, healthcare organizations must ensure that they have the resources and capacity to maintain the change in the long term. This includes having sufficient personnel, technology, and resources to support the change.

Valencia et al. (2019, p. 21) suggest that Telemedicine services are cost-effective and help improve patient care and quality of life. It is thus critical to consider the clinical outcomes of this approach for people with chronic illnesses, for whom traditional in-person services may not be readily available. In this context, it is essential to explore the ways of sustaining the change in service delivery for this population and evaluate the effectiveness of the change. One of the critical aspects of achieving this objective is to ensure that healthcare professionals are adequately equipped to deliver effective telemedicine services to patients with chronic illnesses. Training and education should be provided to healthcare personnel to develop skills and knowledge in this field to confidently implement the telemedicine approach to managing chronic illnesses (Scott & Mars, 2015).

In addition, there should be clear guidelines and protocols for the healthcare staff to follow, and regular performance monitoring to ensure quality and safety in their practice. It is also essential to consider the technological aspects of the service provision (Kyng, 2015). Depending on the situation, hospital-specific technologies such as teleconferencing, electronic medical records, e-prescribing, and remote home monitoring systems should be selected. Technical assistance and support should be provided to the healthcare personnel for the successful implementation and operation of these technologies. Moreover, there should be periodic reviews of the technologies used to ensure they are up-to-date and reliable.

Valenta, Glanville, and Sederstrom (2020) recommend evaluating stakeholders' feedback to ensure that the telemedicine services effectively meet their needs. This should be done while respecting the patient's autonomy and preferences in treatment in

line with the NMC code (NMC, 2018). The patients must be adequately informed about the telemedicine services beforehand so they are clear about how to use them and what to expect from them. Patient feedback should be obtained regularly to assess the quality of the service provision, and changes or modifications should be made accordingly to ensure the highest levels of care and satisfaction (Ganapathy, 2022).

4 Intended outcomes

The intended outcome of introducing telemedicine in managing chronic illness is to improve patient access and health outcomes, reduce healthcare costs and labour, and increase clinician efficiency.

a. Improved Patient Access

Telemedicine services provide improved access to healthcare services by making them more readily, conveniently, and efficiently available to patients. By removing the barriers and geographical restrictions associated with traditional in-person medical care, telemedicine can reach many more patients, particularly those from remote, rural, or underserved areas.

b. Improved Health Outcomes

Improved access to healthcare, particularly for patients with chronic illnesses, can lead to improved health outcomes. Telemedicine can help to identify, diagnose and treat conditions earlier, enabling clinicians to provide more timely interventions and reduce the risk of exacerbations or complications (Dinesen et al., 2016). This is especially beneficial for chronic illnesses; as early intervention can often prevent or delay the severe progression of the condition.

c. Reduced Healthcare Costs

the adopted approach is projected to reduce healthcare costs (Dorsey & Topol, 2016). By allowing clinicians to diagnose and treat patients remotely, telemedicine will reduce the need for patients to attend in-person clinic appointments. This approach will lead to fewer referrals and clinic visits, reduced hospital admissions, and fewer in-person consultations. This can result in significant savings for both patients and healthcare organizations.

d. Improved Labour and Efficiency

By allowing clinicians to assess and treat patients remotely, telemedicine can shorten the consultation process, reducing the time required for each consultation (Tucson, Edmunds & Hodgkins, 2017). This leads to less time spent on clerical tasks, such as scheduling and paperwork, and more time spent on providing patient care, which can result in improved patient outcomes. The proposed approach will reduce the need for clinicians to travel to patient's homes, which can save time and money and lead to greater clinician satisfaction.

5 Estimated Duration of Change

Implementing the proposed Change will require six months to achieve a change in practice and service delivery. The duration of this change process considers the size and complexity of the organization, the resources available, and the willingness of all stakeholders to embrace and accept the Change.

The first step in the change process will be the planning stage. An assessment will be needed of the current service delivery, the resources available, and the likely burden on

these resources following the Change (Snoswell et al., 2017). This will allow for a timeline for implementation to be created. Once the plan has been created, the next step will be communication. Dinesen et al. (2016) recommend communicating with all stakeholders to avert resistance leading to delay or project failure. It is crucial to ensure that all parties involved are aware of the plan and their roles in implementing it. This could include medical staff, administrative personnel, nurses, and patients.

Valencia et al. (2019) contend that healthcare improvement projects are prone to failure due to failure to monitor progress and evaluate areas of improvement. It is thus essential to monitor the outcomes and measure the new system's success after implementing change. This will involve collecting data on the number of visits and treatments provided, patient satisfaction, and hospital readmission frequency. Regular meetings will also be held with clinical staff, stakeholders, and other relevant personnel to discuss the outcomes and ensure that the desired outcomes are being achieved.

6 Implementation to practice

In-House Training

Implementing telemedicine to manage chronic illnesses will require a comprehensive in-house training program for relevant clinicians and staff (Chuo, Macy& Lorch, 2020). This training will cover the principles of telemedicine, which include the ability to use digital technology for medical assessments, diagnoses, and treatments. Additionally, the training will focus on the ethical and legal principles of delivering healthcare remotely and through remote means such as videos and audio calls.

Staff Requirement

The personnel trained in its operation and implementation will be essential to make telemedicine effective. This will include nurses, doctors, and IT professionals who can support users when required. The number of staff required to ensure that telemedicine is successfully implemented in healthcare settings depends on the size of the patient population and the services they require. Gajarawala and Pelkowski (2020) recommend a ratio of one IT professional to every ten clinicians. This can vary depending on the complexity of the system and the number of users.

Technology

Implementing the telemedicine approach will require adequate technological infrastructure to support the system. This will include video conferencing equipment, digital healthcare data, and systems to store clinical records securely.

Cost

The cost of implementing telemedicine in any given healthcare setting will depend on the technologies and other resources required (Lin, 2018). The cost-effectiveness of telemedicine should be carefully considered before a decision to invest in the technology is taken to ensure that it is a financially responsible decision.

Final Considerations

An evaluation of its effectiveness will accompany the implementation of this project. This will include a cost-benefit analysis to ensure that the cost to the healthcare setting is outweighed by the potential benefits and a gradual observation of the quality of care provided by clinicians using the technology. Telemedicine is an invaluable tool in the management of chronic illnesses. However, its implementation must be carefully

considered concerning cost and quality of care to ensure it is both a cost-effective and clinically beneficial service. This is possible through a combination of appropriate staffing, training, and technology to ensure a quality service is delivered. The potential value of the technology must be assessed in terms of patient and clinical outcomes to ensure its effective integration into the healthcare setting.

Additional factors

Digital technology is one of the critical pillars of innovation and quality of care (NHS, 2019). Therefore, setting the path of providing telemedicine solutions is part of the NHS's commitment to delivering improved quality healthcare (Alderwick & Dixon, 2019). For the introduction of a telemedicine approach to be successful, several additional factors must be considered. Firstly, the appropriate policies and procedures must be developed to ensure patient safety and effectiveness of the system. Appropriate training must be provided to the relevant staff, and all stakeholders must be fully on board. A significant element of telemedicine is the use of technology. It is, therefore, essential to ensure that all the necessary technical infrastructure is adopted, such as high-speed internet connectivity, secure video conferencing protocols, and secure platforms for data storage and transfer. It is also essential to consider the patient experience and that the system is easy to use and accessible to all (Cooper et al., 2019).

7 Conclusion

Adopting innovative approaches to healthcare delivery will be an invaluable aspect of facilitating change in service delivery. The telemedicine approach will be invaluable in improving clinical outcomes and patient satisfaction due to increased access to

healthcare and immediate follow-up care. The proposed changes to the delivery of telemedicine services will focus on improving the effectiveness of existing services and providing new approaches that are more cost-effective and more suited to individual patients' needs. Adopting these changes will ensure that the most appropriate and effective form of care is provided to all patients with access to telemedicine.

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