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**ETHICAL ISSUES IN USING eHEALTH TECHNOLOGY FOR NURSING IN
PRIMARY CARE**

A LITERATURE REVIEW

Thesis

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ABSTRACT

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<p>Digitalization has revolutionized how certain tasks are carried out. New health technologies has changed the way people think, behave, and interact. Integrating technology into primary healthcare has played a big impact on both healthcare providers and patients. This literature review emphasizes the importance of following ethical guidelines when using eHealth technology for nursing in primary care.</p> <p>The purpose of this thesis was to review ethical concerns surrounding eHealth technology within primary healthcare services. The aim of this thesis is to increase nurses’ knowledge and explore the ethical issues related to eHealth technology in primary healthcare and identify the issues documented in the literature. A narrative literature review method was employed by this thesis. Data was gathered from reputable theoretical databases accessible via Centria university of applied sciences, which included Medline, Sage journals, and Science direct. The thesis research findings were further analysed using the inductive content analysis method.</p> <p>The result from this review shows that the inclusion of eHealth technology in primary health care has been well received but certain ethical concerns such as privacy, consent, nurse-patient relations, accessibility, autonomy, and risk of exclusion needs to be considered. Telemedicine efficiency can be problematic due to patient confidence and unclear procedures. Digital literacy, socio-economic factors, and cultural diversity may lead to exclusion. eHealth can alter nurse-patient relationships and affect care, but this can be managed by creating simplified digital care options. Older adults are in the risk of exclusion from health services due to their limited digital literacy and inability to adapt to eHealth.</p>		
<p>Key words eHealth, Ethics, Health care, Patient, Patient Safety, Primary health care, Technology</p>		

CONCEPT DEFINITIONS

eHealth Electronic health also as known digital health, refers to the use of electronic technologies to support and improve healthcare services.

Telemedicine This involves the use of telecommunications and technology to render clinical services

EHR Electronic health records refers to the electronic health records of patients.

Mhealth Mobile Health refers to the use of mobile devices in medical care.

UAS University of applied sciences.

WHO World Health Organisation

AI Artificial Intelligence

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1 INTRODUCTION

The world is a global village, the discovery of the internet has revolutionised how things are being done. According to Jokinen, Stolt and Suhonen (2021), digitalisation has changed many of the conservative ways of how tasks are being received and executed. Electronic health also known as eHealth or digital health, refers to the use of electronic technologies to support and improve healthcare services. eHealth encompasses the use of technology and other forms of electronic communication within the healthcare sector. eHealth offers a wide range of services that are available to patients which includes patients information, health history, prescriptions, and access to laboratory results. The healthcare sector is constantly looking for ways to implement and apply patient-oriented approach towards administering care. The need for eHealth services has increased over the years and this service has been well received by patients. eHealth gives patients the opportunity to be in control of their health, thus promoting more involvement in their nursing care interventions. (Jokinen et al., 2021.)

According to Finnish Nurses Association (2020), eHealth technology has changed how patients relate to health professionals and has also opened a window where nurses feel like they can communicate better with patients. In Finland, an example of eHealth services is KANTA services. According to Finnish Nurses Association (2020), the introduction of Kanta services gave rise to electronic prescription services and patients' personal data repository, and this has become a very important tool which serves as a mediator between nurses and patients. (Finnish Nurses Association 2020.)

The digitally accessible information system changed many ways in which care is being administered. eHealth services promote patient-oriented care, gives clarity, improves patient participation, and promotes equality. Some of the information that the nurses could generate easily via EHR includes personal data, diagnosis, medication list, and laboratory reports. The barrier between discrimination and segregation due to social status or economic status was broken by these services, this is due to the fact that patients' information is being registered regardless of age, financial status, sexual orientation, and ethnicity. (Jokinen et al., 2021.)

The purpose of this thesis is to review ethical concerns surrounding eHealth technology within primary healthcare services. The aim of this thesis is to increase nurses' knowledge and explore the ethical issues related to eHealth technology in primary healthcare and identify the issues documented in the literature. This thesis topic is relevant because it aligns with the evolving landscape of healthcare. As

nursing students and potential nurses, it is important to be equipped with the knowledge and skills needed to navigate ethical challenges associated with the inclusion of eHealth technology in primary care. Having a clear understanding of the ethical considerations when including eHealth in primary care is thus essential for fostering ethical and patient-centered care in an increasingly digital healthcare environment.

2 THEORETICAL BACKGROUND

eHealth is the use of electronic technologies to support the delivery of healthcare services. According to Finnish Nurses Association (2020), in Finland, eHealth has played a significant role in the development of the country's healthcare system and has helped to improve the efficiency and effectiveness of healthcare services. In Finland, eHealth has been a key focus for the government and healthcare organizations in recent years, as the country is always looking for modern ways to help improve the healthcare system and thus improve access to care for its citizens and offer better care for the citizens. (Finnish Nurses Association 2020.)

One key aspect of eHealth in Finland is the use of electronic medical records (EMR). All residents of Finland, including people that migrated to work, students, asylum seekers, have a personal identification number that is linked to their medical records. This unique personal identification number allows healthcare providers to access and share information about a patient's medical history, diagnoses, medications, and treatment plans. This initiative has helped strengthen the health care system because it helps to improve the quality and coordination of care, as well as reduce the risk of errors and duplication of tests. (Finnish Nurses Association 2020.)

eHealth also includes the use of information and communication technologies in healthcare delivery. These technologies have the potential to promote health literacy and can be accessed through the internet and mobile devices such as smartphones and tablets. eHealth is an exciting field as it can facilitate behaviour change and aid in disease prevention and management. Furthermore, the interventions created using eHealth can be sustained as the costs of maintenance and implementation are relatively low. Multimedia advancements have been suggested as a means to improve patient education dissemination. Over the last decade, technology-enabled health research and care has evolved, holding significant potential to enhance health outcomes for high-risk patients. Another approach to create patients' awareness of their healthcare information involves delivering it through own computers and mobile devices. (Jacobs, Lou, Ownby and Caballero 2016.)

One of the main eHealth initiatives in Finland is the Kanta Services organization. Kanta services is a widely used system in Finnish health care. Kanta provides a range of eHealth and social welfare services to the Finnish population as well as all residents of Finland. The organization was established in 2007 and is owned by the Finnish government. These services include the Kanta PHR (Personal Health

Record), which is an electronic health record system that allows Finnish citizens to access their personal health information and share it with their healthcare providers. Other eHealth services provided by Kanta Services include the Kanta e-prescription service, which allows healthcare providers to send electronic prescriptions to pharmacies, and the Kanta e-referral service, which allows healthcare providers to send electronic referrals to other healthcare providers. Because of this, it has eliminated the risk of errors that may occur from different visits to different health providers. (Kanta Services 2023.)

According to Chan (2021), the advancement of technology has changed the dynamics on how healthcare professionals obtain, access, and deliver health information. eHealth has changed the way doctors, nurses, and other medical professionals assess, support, and give advice to patients. eHealth has strengthened the patient-nurse relationship. According to Kanta Services (2023), in addition to the services provided by Kanta, eHealth in Finland is supported by a number of other initiatives, including the use of electronic medical record systems by healthcare providers, the development of telemedicine services, and the use of electronic health monitoring technologies. (Kanta Services 2023.)

These initiatives have helped to improve the efficiency of the Finnish healthcare system and have made it easier for individuals to access healthcare services. The healthcare professionals use telemedicine, which is a service that allows them render services electronically, they connect with patients remotely through videoconferencing or other digital technologies. Telemedicine can be particularly beneficial for patients who live in rural or remote areas, or for those who have difficulty traveling to a healthcare facility. Telemedicine can also help to reduce the responsibility on traditional healthcare facilities, allowing providers to reach more patients and reduce wait times. (Kanta Services 2023.)

eHealth has played a significant role in the development of the Finnish healthcare system and has helped to improve the efficiency and effectiveness of healthcare services in the country. By using electronic technologies to support the delivery of healthcare services, Finland has been able to create a more modern and efficient healthcare system that is able to meet the needs of its citizens. eHealth in Finland also includes the use of digital tools and apps to support self-care and disease management. For example, patients can use apps to track their health metrics, such as blood pressure or glucose levels, and share the data with their healthcare providers. This can help to identify potential health issues early on and allow for timely interventions. eHealth has the potential to significantly improve the accessibility, efficiency, and effectiveness of healthcare in Finland. By leveraging the latest digital technologies, healthcare providers can offer more personalized and efficient care to patients, while also reducing the burden on the healthcare system as a whole. (Mounir and Ray 2016.)

2.1 Need for eHealth

As the population ages, there is an increasing prevalence of chronic diseases that require ongoing management. Telemedicine can provide a way for patients to receive the care they need without having to travel to a physical clinic or hospital. (Svendsen, Tiedemann and Andersen 2021.)

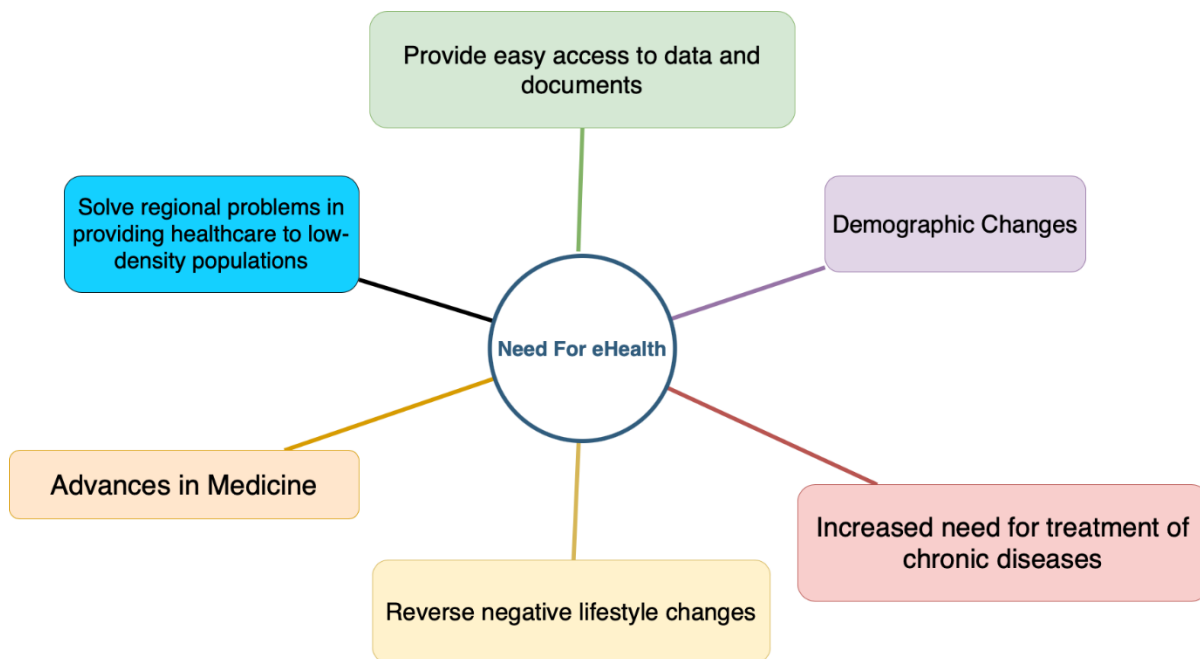


FIGURE 1. The need for eHealth according to Svendsen, Tiedemann and Andersen (2021). Picture made by the authors of this thesis based on the research conducted Svendsen et al. (2021)

According to Svendsen et al., (2021), with the rise in chronic diseases, there is an increased need for effective treatments that can help patients manage their conditions. Telemedicine can provide a way for patients to receive regular monitoring, counseling, and other types of support that can improve their overall health outcomes (Figure 1). Unhealthy lifestyles, such as sedentary behavior and poor nutrition, are contributing to the rise of chronic diseases. Telemedicine can help patients make positive lifestyle changes by providing them with information, education, and support that can help them adopt healthier behaviors. (Svendsen et al. 2021.)

The rapid advances in medical technology and knowledge offer many opportunities to improve healthcare. Telemedicine can help disseminate these advances to more patients, especially those in remote or underserved areas. Rural and remote areas often have limited access to healthcare services. Telemedicine can provide a way for patients in these areas to receive medical care from specialists in

urban or suburban areas. Telemedicine can facilitate the sharing of medical information between healthcare providers and patients. This can help optimize treatment, minimize redundancies in care, and improve overall quality of care for patients. (Svendsen et al. 2021.)

2.2 Key considerations for utilizing eHealth services

According to Svendsen et al., (2021), there are some very important key notes to consider while utilizing eHealth services to achieve the desired results for the patients. (Figure 2)

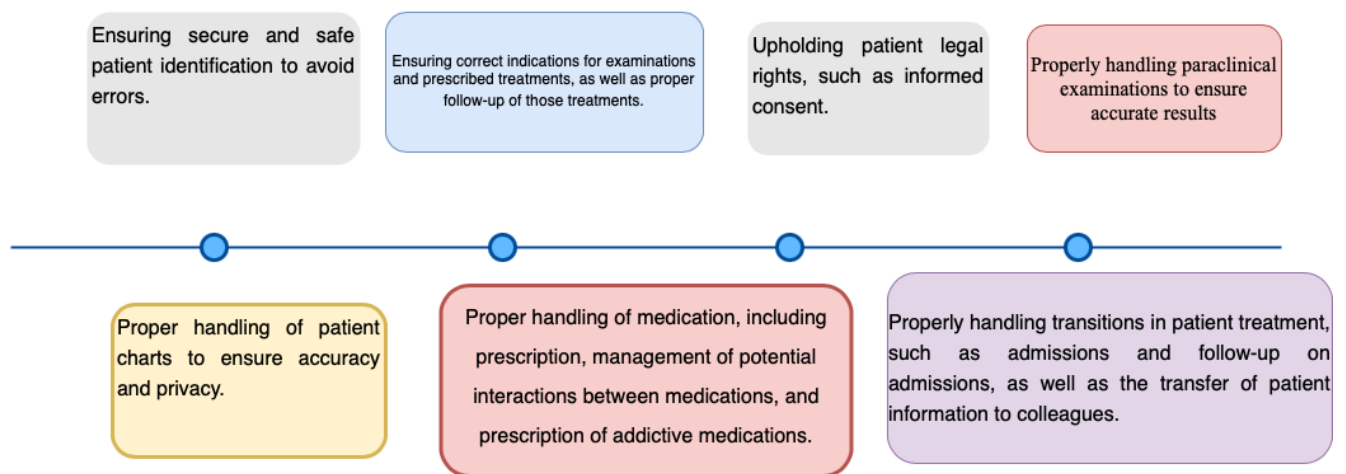


FIGURE 2. Important things to note when using eHealth according to Svendsen et al. (2021). Picture made by the authors of this thesis based on the research conducted Svendsen et al. (2021)

3 ETHICAL ISSUES AND PRIMARY HEALTH CARE SERVICES

According to Haddad and Geiger (2022), ethics and laws are important aspects of healthcare that affect how healthcare professionals make decisions and how they act in various situations. Ethics and laws may sometimes conflict or overlap, but they are not the same thing. Ethics are the moral principles that guide decision making and actions in healthcare, Laws on the other hand are the rules that are enforced by the government to regulate healthcare. (Haddad and Geiger 2022.)

According to Basil (2021), certain moral principles guiding proper behavior are universally inherent to humanity, transcending cultural, geographical, religious point of view. For example, refraining from taking life or causing harm or pain to others, abstaining from theft, avoiding unjust punishment of the innocent, practicing honesty, adhering to legal statutes, supporting the vulnerable and dependent, aiding those in distress, and coming to the rescue of those at risk, makes up part of the human daily practices. There are different ethical theories that can be used to analyze and evaluate healthcare dilemmas. Some of the main ones are deontology, utilitarianism, virtue ethics, and principlism. (Basil 2021.)

Deontology or duty based ethics emphasizes the importance of following established principles and codes of conduct, regardless of the consequences. In healthcare, this framework encourages professionals to uphold ethical standards and prioritize their duties to patients, such as maintaining confidentiality or providing informed consent. Utilitarianism or consequence-based ethics evaluates the morality of an action based on its consequences. An action is considered morally right if it results in more good than harm for the majority. In healthcare, this approach necessitates weighing the potential benefits and harms of medical interventions or policies. (Haddad and Geiger 2022.)

Virtue ethics or character centred ethics focuses on the character and virtues of the agent rather than specific rules or outcomes. It emphasizes cultivating virtuous qualities, such as empathy, integrity, and compassion, in healthcare professionals. Practitioners strive to embody virtuous traits in their interactions with patients and colleagues based on four universal principles, which are autonomy, beneficence, non-maleficence, and justice. Autonomy respects the right of individuals to make their own decisions and choices. Beneficence is the principle that promotes the well-being and welfare of others. Non-maleficence avoids harming or injuring others. Justice is the principle that treats people fairly and

equally. These principles can help resolve ethical issues in healthcare by providing a framework for balancing the rights and interests of different parties involved. (Haddad and Geiger 2022.)

3.1 Equity in eHealth access and ethical considerations in primary care

According to Boers, Jongasma, Lucivero, and Aardoom (2020), the management of equality and equity among healthcare populations in eHealth is a problem of justice in eHealth. Only 19% of people aged 75 to 89 who were surveyed by Statistics Finland had used the internet to access information from government or public service websites, compared to 35% of the same age group who had done so for banking. There are also issues with access due to age, a reluctance to use digital services, and the price of digital devices and Internet access. It is crucial to ensure that eHealth services in social and healthcare are ethical and do not compromise the quality of care or social interaction. (Jokinen et al. 2021.)

Safeguarding the human aspect of primary care remains very important. This requires careful evaluation of which aspects of care can be transitioned to eHealth methods without compromising quality or safety (triage scenarios ABCDE), as well as exploring effective integration of eHealth and in-person care. The influence of eHealth on shared decision-making also warrants attention. eHealth could also influence trust and confidentiality within the patient- nurse relationship. Numerous eHealth tools are developed by commercial entities whose business models often rely on data collection, utilization, and sale. This dynamic reshapes the concept of confidentiality in primary care. It is vital to discuss the extent to which primary care practices are responsible for assessing the reliability of commercially available applications and guiding patients in the responsible and secure utilization of these tools. (Boers et al. 2020.)

3.2 Ethical dilemmas in health care

According to Boers et al. (2020), the ethical considerations related to eHealth go far beyond concerns about privacy and informed consent. As emerging health technologies influence users' perspectives, principles, social norms, and interactions, the growing integration of digital technologies into primary care have a significant impact on both healthcare providers and patients, both within and outside the confines of the consultation room. (Boers et al. 2020.)

3.2.1 Informed consent

One of the ethical dilemmas in healthcare is informed consent. This is the process of obtaining permission from patients before performing any medical intervention or research on them. Informed consent involves respecting the autonomy of patients by providing them with adequate information about the risks, benefits, alternatives, and consequences of their decision, and ensuring that they understand and agree voluntarily. (Haddad and Geiger 2022.)

Informed consent is very essential in health care practices and give rise to ethical dilemmas that demand careful consideration. However, informed consent may also conflict with other ethical principles, such as beneficence and non-maleficence, if the patient's decision may harm themselves or others, or if the patient is not capable of making an informed decision. In such cases, healthcare professionals may need to weigh the pros and cons of respecting or overriding the patient's autonomy, and consider other factors such as the patient's preferences, values, beliefs, family, culture, and legal status. (Haddad and Geiger 2022.)

3.2.2 Confidentiality

Confidentiality is another example of an ethical dilemma in healthcare. It is the duty of healthcare professionals to protect the privacy and personal information of their patients. Confidentiality involves respecting the autonomy and dignity of patients by keeping their information confidential and secure, and disclosing it only with their consent or when required by law. However, confidentiality may also conflict with other ethical principles, such as beneficence and justice, if disclosing a patient's information may benefit or protect themselves or others from harm, or if withholding the patient's information may violate their rights or interests. In such cases, healthcare professionals may need to balance the need for confidentiality with the need for disclosure, and consider other factors such as the severity, urgency, probability, and scope of harm or benefit involved. (Haddad and Geiger 2022.)

World Health Organization (2012), stated that confidentiality is a key element in the health care profession. Patients feel at ease knowing that their personal discussions and health related issues are treated with utmost respect and secrecy. Some ethical concerns of patients include trust, violation of privacy, and data protection. Even though eHealth has been well received, there are some concerns

about if this service will interfere with the conservative ways of nurse's physical interaction with patients, thereby inhibiting the quality of care services. (World Health Organization 2012.)

The increased use of eHealth due to Covid 19 has brought about legal implications and safety concerns. Patient safety as defined by the World health organization (2012) involves the absence of preventable harm to patients during the process of healthcare and reducing the risk of unnecessary harm associated with healthcare. Concerns regarding the safety of eHealth includes challenges such as the absence of substantial efficacy, reliability in clinical decision-making, safeguarding patient data privacy, and the potential impact on the relationship between patients and healthcare providers. (Saner and Van der Velde 2016.)

3.2.3 Beyond physical injury

According to Basil (2021), most healthcare professionals commonly associate harm with physical injury due to the historical focus of medical practice on addressing bodily ailments. However, harm can manifest in various other ways within the health care context. One significant aspect of harm within the realm of eHealth can emerge through the actions of healthcare managers who fail to provide adequate supervision. This can result in insufficient staffing or outdated equipment that impacts patient care negatively. These situations can lead to unfavourable patient outcomes including death. The integration of eHealth technologies in primary care often requires substantial financial investments. Strategic decisions related to eHealth implementations must be carefully considered, as they can lead to significant financial losses. Improper management of patients' data or inadequate cybersecurity measures can put sensitive information at risk. Data breaches can compromise patients' confidentiality and the integrity of healthcare systems, potentially causing harm to both individuals and the broader community. (Basil 2021.)

3.3 Overcoming challenges and innovating for patient needs

According to Atherton and Ziebland (2016), eHealth has the potential of revolutionizing primary care and improve how the day to day operations are done. However, certain barriers must be overcome before eHealth can be effectively integrated into primary care. These barriers include the complexity of innovation and the overall lack of substantial evidence regarding the effectiveness of eHealth. While

eHealth has the capability to support and potentially transform primary care, it requires a collaborative effect to constantly improve the service and tailor the needs of patients. To tackle these obstacles, primary care professionals need to employ innovative strategies which include the utilization of eHealth technology towards rendering care to meet the needs of the patients. (Atherton et al. 2016.)

eHealth technology has the potential to overcome the difficulties associated with caring for individuals with complex medical and social needs in primary care settings when incorporated in patients' care plans. Primary care is constantly experiencing a simultaneous rise in the number of consultations and a decline in clinical capacity. The aging patient population and the increasing prevalence of multimorbidity further adds to the burden on primary care, creating an ever-growing challenge. There are many platforms online and readily available applications in the Apple & Google app stores that offer varieties of eHealth applications, however, the safety and cost-effectiveness of these applications remain questionable. (Atherton et al. 2016.)

3.4 Implementation consideration of eHealth in primary care

Primary care providers are burdened in the workplace all around the world. The usual components of primary care appointments include taking patient history, physical check-ups, and reviews. The guidelines for online discussions are particularly unclear. As a response to the increasing needs from a population that is aging and the management of long-term ailments, alternative techniques of consultation have been encouraged in several situations. Concerns regarding the long-term viability of primary care and the way it is financed and maintained are related to worries about employing a kind of consultation that may not be dependable. (Atherton et al. 2016.)

The introduction of technology base primary care consultation strategies is especially unlikely to be effective if the technology cannot be incorporated into the work schedules of front-line members of the healthcare team. It is crucial to think about if the technology in question is well-known and simple for the parties involved to utilize or whether it demands new abilities. Even though there is a scarcity of information on the use of alternate forms of consultation in primary care, an abundance of research supports the demand for new mechanisms that takes the team's beliefs and practices into consideration. (Atherton et al. 2016.). The transition from in-person interactions to eHealth methods prompts a need to reassess the role, significance, and essence of human engagement in primary care. Conversely, it may lead to a supplementary approach to human interaction. (Boers et al. 2020.)

3.5 Navigating uncertainty and empowering patients

According to Boers et al. (2020), one of the core responsibilities within primary care practice is the direct engagement with patients, offering assistance, early-stage illness diagnosis, swift treatment administration, early prediction, and prevention of diseases. However, the execution of these obligations demands skillful navigation through significant uncertainty. In the initial stages of illnesses, symptoms frequently lack clear distinctions, leaving primary care practitioners with limited predictive and diagnostic avenues, some of which exhibit constrained accuracy. The fundamental role of primary care emphasizes a focus on human-centred aspects and a holistic approach. This interaction does not only profoundly shape attitudes but also holds the potential to impact a patient's response to illness and treatment. Additionally, this direct engagement is vital for specific elements of accurate diagnosis and appropriate triage, such as forming a comprehensive sensory impression (e.g., smell) and conducting physical examinations. (Boers et al. 2020.)

The partial or complete replacement of direct human interaction with eHealth solutions may jeopardize the human aspect of primary care. A diverse range of applications, smartwatches, and online platforms are dedicated to enhancing own management of care. For instance, these tools enable the monitoring of medication adherence and the remote tracking of patients dealing with intricate medical and societal challenges within the familiarity of their homes rather than hospitals. Patients might find it more comfortable to discuss sensitive topics like psychological or sexual concerns through digital interfaces, since they are in a familiar environment. (Boers et al. 2020.)

3.6 Challenges and conflicting attitudes among nurses regarding the implementation of eHealth systems

Song, Zhu, and Xiang (2022) stated that several nurses have conflicting attitudes about using technology in treatments, despite the many advantages that eHealth offers. The introduction of eHealth systems, according to some nurses, resulted in increased time commitments during the deployment phase in particular because of the organizational process uncertainty. The absence of proper support for eHealth systems during their initial phases and lack of fundamental technological knowledge were frequently the causes of this response. (Song et al. 2022.)

The incompatibility of eHealth systems with already existing digital applications, login issues with applications that necessitate frequent logins, and the hasty introduction of new programs without adequate lead time were among the other issues that were reported. Another difficulty with the use of ehealth is the potential impracticality of eHealth. The habits of some patients make eHealth application unsuitable for them, as a result, the symptoms and how well patients manage their condition may not improve. (Song et al. 2022.)

4 PURPOSE, AIM AND RESEARCH QUESTIONS

The purpose of this thesis is to review ethical concerns surrounding eHealth technology within primary healthcare services. The aim of this thesis is to increase nurses' knowledge and explore the ethical issues related to eHealth technology in primary healthcare and identify the issues documented in the literature. This thesis topic is relevant because it aligns with the evolving landscape of healthcare. As nursing students and potential nurses, it is important to be equipped with the knowledge and skills needed to navigate ethical challenges associated with the inclusion of eHealth technology in primary care. Having a clear understanding of the ethical considerations when including eHealth in primary care is essential for fostering ethical and patient-centered care in an increasingly digital healthcare environment.

The study addresses the following research question:

1. What are the key ethical considerations when integrating eHealth Technology in primary health care practices?
2. How does eHealth technology impact the nurse-patient relationship in primary health care, what ethical aspects need to be addressed?

5 METHODOLOGY

This chapter describes the methods and processes in which this thesis was conducted. In this case, being a literature review, how the data was collected and analysed. This literature review examines articles which have been conducted scientifically and conform to the rules and regulations governing the health care field on studies which are done to ascertain the ethical issues of eHealth technology in nursing with focus on primary health care. Literatures considered for this thesis includes journal articles, academic publications which are accessible via Centria University of applied sciences e-resources services, using these databases: E-book central, Medline, Cinahl, Sage journals, and Science direct.

5.1 Literature review

Grant (2009) defines literature review as an evidence-based practice type of research, it encompasses a compilation of series of research whether previous or current, which have been done about a particular study to give further insight into a particular subject. (Grant 2009.). Winchester and Salji (2016) states that literature review is a useful tool used in research work since it helps researcher to be able to collect, analyse and interpret data from previously done studies, it is a collection of studies that have already been done. A literature review is undertaken to give the researcher an insight into the given subject that he or she has chosen, provides clarity and overall better understanding of subject and development of a hypothesis. (Winchester and Salji 2016.)

The authors chose to utilize a literature review as their preferred method due to its suitability and essential utility in the comprehensive identification of crucial articles related to the thesis topic. This method greatly aided in both gaining an extensive grasp of the subject matter and enhancing their capacity to create more effective summaries on related topics. It was confirmed that this method is a dependable means of avoiding any preconceived author bias. A thorough examination of evidence-based articles from previous relevant studies played a vital role in ensuring the availability of sufficient knowledge for this thesis.

5.2 Data collection

Collection of data is an essential step in the research process, as it determines the quality and validity of the findings of a research study. Literature review involves a series of process from identifying materials for potential inclusion into the future research work, to selecting included materials combining them in textual, tabular, or graphical form, data analysis and data interpretation. This would further aid the author towards answering the research questions that the author has formulated. (Grant 2009.)

A narrative literature review was used because it is more straightforward and does not demand extensive time and resources. Its main aim is to gather relevant evidence that supports the author's argument. The process itself includes steps such as setting up the review, searching for literature, deciding what to include, evaluating quality, getting data, analyzing it, and finally, writing up the results. Narrative reviews are susceptible to biases stemming from the reviewer's personal experiences, preexisting beliefs, and inherent subjectivity. (Xiao and Watson 2019.)

5.3 Data retrieval process

This thesis was conducted using the literature review method. The articles reviewed enlighten more on the ethical issues which may arise from using the eHealth in primary care. The literature considered for this thesis includes national and international journal articles. The data was collected using search terms such as “eHealth and primary care”, “Ethics and eHealth”, “Ethical consideration and eHealth”, “Ethical consideration eHealth in primary care”, and “ethical issues of eHealth in primary care”. The use of these search terms was used to help reduce the search and thus use the inclusion and exclusion technique to be able to derive relevant articles needed for this research.

TABLE 1. Initial search results from databases

Search Terms	SAGE JOURNALS	SCIENCE DIRECT	MEDLINE
eHealth and primary care	1272	3104	3812
Ethics and eHealth	928	1173	893
Ethical consideration and eHealth	825	701	80
Ethical consideration eHealth in primary care	591	109	9040
Ethical issues of eHealth in primary care	648	734	9043

The table above displays the preliminary search outcomes from three academic databases. A total of 32,953 articles were extracted from the initial search hits, specifically targeting evidence-based and highly relevant data pertaining to the research topic. These search results were without application of any of the inclusion and exclusion criterias. It was based on the search words listed on the table 1.

5.4 Inclusion and exclusion criteria

The inclusion and exclusion criterias were carefully defined for this thesis to ensure the relevance and quality of the selected literature. These criterias were used as a guideline for identifying suitable sources that would contribute to the review of ethical considerations involving the use of eHealth technology in primary healthcare.

TABLE 2. Inclusion & exclusion criteria for data collection

Inclusion	Exclusion
Publications from 2013 - 2023	Publications before 2013
Research-based findings and information	Speculative based content
Publications from reputable sources	Non-credible sources
Focus on eHealth ethics in primary healthcare	Irrelevant topic
Materials available in English	Materials available in other languages
Free articles	Payable articles
Peer Reviewed Articles	Articles that were not peer reviewed
Answered the research questions	Did not answer research questions

The inclusion and exclusion process adopted in this thesis followed the steps listed in (Table 2) above.

TABLE 3. Selection of articles

Search Terms	SAGE JOURNALS	SCIENCE DIRECT	MEDLINE
eHealth and primary care	1082	2810	3293
Ethics and eHealth	821	1086	723
Ethical consideration and eHealth	749	660	67

Ethical consideration eHealth in primary care	539	457	8252
Ethical issues of eHealth in primary care	583	685	8254

The authors conducted searches across three databases, Sage journals, Science direct, and Medline using specific search terms. These data bases were chosen specifically from the Centria UAS databases because they provided articles which were relevant to the thesis research questions. After applying the inclusion and exclusion criteria based on the year of publication from 2013-2023, the table above shows that Sage Journals yielded 3774 articles, while Science Direct provided 5698 articles, and Medline yielded 20,589 articles to the research. The articles were screened further for duplicate articles, excluding the ones that required payment, their titles and abstracts, as they did not align with the thesis topic. This extensive screening process was necessary to ensure the relevance of the selected articles.

After screening for full articles contents, duplicates and removing articles that required payment, 60 articles were selected. The authors of this thesis wanted to investigate what the key ethical considerations were when integrating eHealth technology in primary health care practices, how eHealth technology impacted the nurse-patient relationship in primary health care, and what ethical aspects need to be addressed. Therefore, the articles to be selected must have a deeper connection with the aims and objectives of the thesis. 25 articles were selected for in-depth screening and analysis.

Following a systematic analysis and thorough reading, 16 articles were excluded due to their context and nine (n=9) articles were chosen for inclusion in this thesis. These selected articles were deemed most relevant to the research objectives and criteria outlined in Table 2. The information gathered from the three databases, namely Sage Journals, Science Direct, and Medline, was carefully examined and categorized based on the specific search terms used during the searches. This process helped organize and structure the research findings for further analysis and discussion.

5.5 Data analysis

Content analysis is an integral part of research work. Content analysis involves examining and interpreting the data that has been collected in order to answer the research question and draw meaningful conclusions. In a literature review thesis, the analysis of data is typically a careful and systematic process that follows a specific set of guidelines and procedures. When employing qualitative content analysis, a primary focus is placed on ensuring trustworthiness. Qualitative content analysis serves as a common approach for analyzing qualitative data, and it relies heavily on terms like transferability, authenticity, and credibility to establish its trustworthiness. The core objective is to engage in a verbal examination of documents while qualitatively categorizing their content. Content analysis facilitates the articulation of precise verbal descriptions regarding a given phenomenon. An essential goal is to generate information that can be effectively represented in a lucid and comprehensible manner. (Elo, Kääriäinen, Kanste, Pölkki, Utriainen and Kyngäs 2014.)

In the process of content analysis, information is deconstructed and reconfigured using relevant themes identified within the dataset. Content analysis can adopt either an inductive or deductive approach. Both content analysis methods consist of three distinct phases: preparation, organization, and reporting of results. Inductive content analysis involves processing the content of the data, including category development and abstraction. In contrast, deductive content analysis, within the organization phase, entails the creation of a categorization matrix aligned with the research objectives. (Elo et al. 2014.). Qualitative content analysis can either be inductive or deductive and this reflects on how the data is prepared, organised, and interpreted. The inductive content analysis approach was further employed in this thesis work as it is frequently used in qualitative research. This technique involves dissemination of information from previous works which are substantial and credible towards answering a proposed research aim. (Elo et al. 2014.)

The authors employed the content analysis method to effectively examine articles that addressed their research inquiries. The content analysis of this thesis was done by reading, examining and summarizing the selected nine articles (n=9), the articles were examined and then classified into two main categories. The main categories consisted of the thesis research questions, the sub categories summarize the articles and reoccurring subheadings being used under ethical considerations when using eHealth in primary care from the articles read. Table 4 shows the selected articles (n=9) in alphabetical order,

authors' names, publication years, purpose of the study, methods and materials, and findings of the articles.

TABLE 4. Articles selected for analysis

Authors & Year of Publication	Purpose of Study	Materials and Method	Findings
Afzal, S. & Arshad, A. 2021	The aim of the study is to classify all possible ethical concerns of healthcare professionals who are engaged in research, and service provision and to understand how they integrate the EMR into their workflow and whether specific ethical questions arise while sharing medical information both with other practitioners and with patients.	A systematic literature review	The findings show that most of the ethical issues related to EMR are consistent with the ethical challenges that digital technologies introduce in healthcare, such as privacy, anonymity, security, and informed consent. Despite some evidence, more efforts need to promote ethical technology use and analysis of the ethical difficulties.
Kleinpeter, E. 2017	This communication aims at introducing four ethical issues raised by e-health		The development of e-health brings its batch of new hopes and interrogations. The role of the necessary ethical reflection in this context shall not be to hinder, but rather to accompany innovation, to build prospective

			scenarios that empower us with the ability to choose how we evolve in medicine and as a society
Laflammi, F., Chipps J., Fangerau, H., Juthe, N., Légaréf, R., Sawe, H. & Wallis, J. 2019	To achieve consensus among stakeholders on how to address concerns pertaining to autonomy, safety, and justice among mHealth developers and users in low-resource settings, in particular for the application of image-based consultation for diagnostic support.	A consensus approach	Several types of actions were recommended; key ones among them included building in risk mitigation measures from the development stage, establishing inclusive consultation processes, using open sources platform whenever possible, training all clinical users, and bearing in mind that the gold standard of care is face-to-face consultation with the patient. Recommendations of patient, community and health system participation and of governance were identified as cutting across the mHealth lifecycle.
Lindberg, J., Bhatt, R., Fern, A. 2021	To describe older people's perceptions of caring relations in the	Semi-structured interviews with 19 individuals aged 61-85 were	From the perspective of the presented study, eHealth remains a

	<p>context of rural eHealth, as well as to explore how such relations can facilitate engagement in digital primary health care.</p>	<p>conducted. Qualitative content analysis was used.</p>	<p>source of opportunity for primary health care as well as rural communities. Importantly though, our results provide insights into matters of quality, access, and equality in rural primary health care, specifically in relation to older people.</p>
<p>Miesperä, A., Aho- nen, S.-M., & Repo- nen, J. 2013</p>	<p>The aim of this review is to describe different ethical aspects of eHealth applications.</p>	<p>Relevant literature was searched from databases and 18 chosen articles were analyzed by using a data based qualitative content analysis</p>	<p>Even though there are a lot of questions that challenge the usefulness of eHealth applications, they will likely be a significant help for conventional health care. In the best scenario eHealth applications allow patients to become more involved in their own health care and they also improve equal access to health care services.</p>
<p>Pär, E., Tora, H., Ste- fan, L., Evalill N. 2022</p>	<p>To explore the experiences of healthcare staff working and being part of the implementation of a digital platform for patient-provider consultation</p>	<p>The study uses qualitative design to investigate experiences and the views of healthcare professionals. Data collection combined semi-structured</p>	<p>The findings suggest that text-based e-consultation platforms may bring important quality improvements to primary healthcare service in terms of</p>

	across quality dimensions of access, efficiency, and patient safety	individual and focus-group interviews. Content analysis was used to identify categories within the content areas ‘access’, ‘efficiency’, and ‘patient safety’	access, efficiency, and patient safety. Yet, areas where e-consultation does not contribute to quality improvements puts important quality gains at risk.
Rianne, M., Van, K., Marise, J. 2019	To critically appraise five widely used eHealth applications, in relation to safe, evidence-based and high-quality eHealth.	Qualitative study	eHealth holds great potential for primary care. However, several barriers, such as innovation complexity and lack of evidence on eHealth effectivity, need to be addressed before eHealth can be implemented in primary care routines. Moreover, awareness of the benefits and downsides of eHealth needs to improve to enable primary care providers to make informed decisions
Skär, L. & Söderberg, S. 2018	The aim of this paper was to discuss the importance of ethical aspects when implementing eHealth services in health care	Discussion paper	To preserve patients’ integrity, dignity and autonomy, healthcare professionals must include ethical aspects when implementing and using eHealth

			<p>services in health care. Healthcare professionals have to take responsibility for the eHealth services introduced, explaining why and how they are implemented based on a person-centred approach. More knowledge is needed about ethical aspects when implementing eHealth services to improve the quality of care.</p>
<p>Öberg, U., Orre, CJ., Isaksson, U., Schimmer, R., Larsson, H., Hörnsten, Å. 2018</p>	<p>The aim of this study was to describe Swedish primary healthcare nurses' perceptions of using digital eHealth systems and services to support patient self-management</p>	<p>Focus group interviews were conducted with primary healthcare nurses (n = 20). The interview transcripts were analysed using qualitative content analysis.</p>	<p>The results of this study provide insight into a number of concerns that stand in the way of success when it comes to the implementation and use of digital technology. If nurses are to adapt to the new policies and practices that accompany the current digitalised development in Swedish primary health care, the concept of a nurse's traditional work role needs</p>

to be amended in terms of the scope of work tasks and established views of traditional nursing. The study also highlights the need for more research to enable eHealth systems/services to be designed to fulfil multiple requirements. The digitised systems should be a tool for achieving good quality self-management support as well as giving the primary healthcare nurses adequate resources to support patients' self-management while still maintaining the values associated with person-centred care.

6 RESULTS

This chapter presents the results of the literature review, which involved the examination of nine (n=9) selected published articles using the inductive content analysis method. The results were presented according to main category and sub category based on content analysis. The main category consists of the research questions that need to be addressed. The summary of the results that answers the research questions falls under the subcategory.

6.1 Ethical considerations when integrating ehealth technology in primary care practices

Four out of the nine selected articles explained the ethical considerations that should be noted when integrating eHealth in primary care. (TABLE 5)

TABLE 5. Content analysis on ethical concerns when utilizing eHealth in primary care.

Main category	Sub category
Key ethical considerations when integrating eHealth Technology in primary health care practices	<ul style="list-style-type: none"> • Confidentiality and patient safety • Transparency • Informed consent • Autonomy

6.1.1 Confidentiality and patient safety

Privacy and confidentiality concerns are often linked to the technology employed, with issues such as information breaches posing threats to patient privacy. The safeguarding of patients' identifiable information is deemed imperative and should follow certain rules and regulations in the given region. The review acknowledges the significance of providing patients with access to all information, including their health records, to facilitate informed consent. Patients should retain the option to choose between in-person or technology-mediated interactions, with professionals ensuring that the quality of care remains unaffected by technological implementation. To keep information private, only authorized

people should access it. This starts by giving permission to users based on their roles. (Miesperä et al. 2013.)

The automated medical history-taking feature, which included standardized questions, was seen as enhancing patient safety. Standardized questions ensured comprehensive coverage of the patient's situation, leaving no important aspects omitted. Allowing patients to describe their complaints in their own words was also considered safer, as it prevented editing or misinterpretation of the medical history. Patients emphasized that this approach avoided potential bias from healthcare staff. (Pär, Tora, Stefan and Evalill 2022.)

The integrity of the information generated by the automated medical history function was maintained. Patient information remained unaltered when transferred between staff within the Primary Healthcare Center. This ensured consistency and accuracy in patient records. For effective use of eHealth interventions, positive use of technology, excellent content, and patients' acknowledgment, the inclusiveness of patients in the development process, plays an important role in achieving success. (Pär et al. 2022.)

6.1.2 Transparency and informed consent

Nurses possess a significant ethical obligation to maintain transparency in their interactions with patients. This conduct is also adhered to when dealing with the use of eHealth. In the realm of telemedicine, it is imperative that patients receive comprehensive information not only pertaining to medical conditions and treatment alternatives but should be briefed in entirety about the use of eHealth if they do wish to use the service. Patients must possess a fundamental understanding of the credentials of the physicians and healthcare professionals providing telehealth and telemedicine services. Patients need to understand how eHealth works and its limitations. Nurses must check if patients and their families can handle the inclusion of eHealth into their nursing interventions, especially when there's no prior relationship or expected follow-up care with the patient. (Laflammi, Chipps, Fangerau, Juthe, Légaréf, Sawe and Wallis 2019.)

Patient participation implies a collaborative exchange of knowledge between patients and healthcare providers, with the patient actively engaged in planning and implementing their care and treatment. Nevertheless, viewed from the patient's standpoint, participation also encompasses the need for the

patient to be well-informed about their health, actively involved in preventive health measures, and willing to take responsibility for self-care. (Laflammi et al. 2019.)

6.1.3 Autonomy

The concept of patient autonomy signifies an individual's right to make self-determined decisions regarding information about their healthcare, and this is a very important ethical aspect. The ethical principles in healthcare are greatly influenced by society's changes. In today's digital age, patients often have a lot of information about their health and what kind of care they can get. However, not all this information is reliable. As we increasingly use digital technology in our daily lives and in healthcare, it raises new ethical questions. The healthcare industry has evolved alongside technology, and due to this, patients may encounter decision-making challenges. Healthcare professionals should learn about how to design services that put the user in control, and technicians should understand the importance of focusing on the individual patient. This is essential to make sure we respect the values and dignity of patients when using eHealth services. It is a patient's privilege to approach their records themselves and approve other people who may need to have access to their records. Health professionals will undoubtedly reveal data, guarantee complete agreement, and permit patients to make independent choices. (Afzal et al. 2021.)

6.2 eHealth technology dynamics on the nurse-patient relationship in primary healthcare

The remaining five selected articles explained the dynamics of eHealth on the nurse-patient relationship on primary health care. (TABLE 6)

TABLE 6. Content analysis on the impact of eHealth on nurse-patient relationship.

Main category	Sub category
eHealth technology dynamics on the nurse-patient relationship in primary health care	<ul style="list-style-type: none"> • Trustworthiness • Older adults and the risk of exclusion • Concerns related to nurse-patient relationship • Efficiency

6.2.1 Trustworthiness

The advent of eHealth has raised questions about the evolving concept of medicine. In light of the ongoing advancements in eHealth technologies and the evolving landscape of healthcare delivery models, it remains crucial to recognize that the core ethical responsibilities of nurses remain unwavering. At the heart of nursing lies a foundational principle rooted in trust, the bedrock upon which the patient-provider relationship is built. Therefore, irrespective of the specific healthcare delivery approach in practice, it is the responsibility of patients and their authorized representatives to maintain the assurance that nurses will consistently prioritize the well-being of the patient above any conflicting interests. This steadfast commitment to the principle of fidelity underlines the essence of nursing ethics. Nurses are entrusted with the task of consistently providing competent care, ensuring that patients receive the highest standard of care in line with their needs and conditions. This proficiency is deeply intertwined with the principle of beneficence, which is dedicated to promoting and advancing the welfare of the patient. (Kleinpeter 2017.)

Transparency in communication emerges as an imperative ethical obligation, where nurses must ensure that patients and their authorized representatives have access to comprehensive and relevant information. This transparency empowers patients to engage in well-informed decision-making regarding their healthcare, thus upholding the principle of autonomy and respecting patients' rights to make choices about their own well-being. The ethical compass guiding nursing practice extends to the preservation of patient privacy and the maintenance of strict confidentiality. These safeguards are

critical not only for protecting patients' dignity but also for nurturing the trust essential for effective healthcare delivery. (Kleinpeter 2017.)

6.2.2 Older adults and the risk of exclusion

To address pressing issues such as access, quality, and equity in rural primary healthcare, eHealth must adapt to the preferences and requirements of older individuals. The obstacles encountered in the adoption of digital care, particularly among older populations and rural communities, have sparked interest in understanding how caregiving relationships can influence engagement with eHealth services. (Lindberg et al. 2021.)

Rianne, Van and Marise (2019) stated that the usage of eHealth requires patients to have access to digital devices and also be digital literates. However, it didn't necessarily exclude patients without these capabilities, as other access options remained available. Maintaining these options was crucial. For healthcare professionals, the inclusion of eHealth added to their workload, becoming an additional inbox to monitor and contributing to stress. It also disrupted workflow and reduced efficiency due to limited confidence in the digital tool and lack of control. (Rianne et al. 2019.)

One significant concern of eHealth in primary care in Finland is closely related to socio-economic status and eHealth literacy of users. eHealth is readily used by younger generations who are technology inclined, individuals who have attained a certain level of education, individuals who are technologically inclined and more highly educated individuals. As a result of this, there is a genuine concern that eHealth only caters for and suits individuals within a certain range, thereby neglecting the non-literate ones. One way to solve the problem of ehealth technology in primary health care is to offer services for low literacy individuals and make the use of eHealth easy and feasible. (Rianne et al. 2019.)

The transformation of healthcare through eHealth is reshaping the dynamics of caregiving. In contrast to traditional healthcare, digital care often places greater emphasis on self-care and reduces direct interactions with healthcare professionals. Digital care can sometimes prioritize medical conditions over individuals' holistic well-being. The diminishing physical aspects of caregiving relationships can potentially lead to unintended consequences in digital care. The exploration of caregiving relationships and their impact within the context of digital healthcare has been relatively limited. (Lindberg, Bhatt and Fern 2021.)

6.2.3 Concerns related to nurse-patient relationship in primary health care

The Inclusion of eHealth in primary healthcare has improved access to information through diverse websites, the ability to schedule appointments and receive reminders, and the option to renew medication prescriptions. Individuals dealing with chronic conditions like diabetes, asthma, cardiovascular diseases, or cancer can access peer support via online forums, social media platforms, and patient portals. These technological resources empowers self-care and self-management, enhance individuals' access to care, facilitate their communication with healthcare providers. (Öberg, Orre, Isaksson, Schimmer, Larsson and Hörnsten 2018.)

Person-centered care is defined as an approach to daily responsibilities that emerges from relationships involving care providers, patients, and other key stakeholders. Its foundational principles embrace values such as acknowledging individuals, upholding their right to self-determination, cultivating mutual respect, and fostering understanding. However, the rapid evolution of eHealth is introducing new demands for healthcare professionals in primary healthcare positions. Ongoing technological advancements are reshaping conventional aspects of care, such as the nurse-patient relationship, support for self-management, care protocols, and healthcare management. (Öberg et al. 2018.)

Öberg et al. (2018) stated in their findings that nurses expressed a preference for the traditional face to face interactions with their patients, as opposed to relying on internet-based form of communication. Some nurses argued that the digitalization of primary healthcare could potentially compromise the safety of healthcare delivery. Concerns were also raised about the loss of the personal connections they had previously established with their patients. For some, the evolving role of nurses using digitalisation seemed more administrative than nursing intervention. eHealth might depersonalize the patient-nurse relationship and potentially alter their holistic approach to patient care. Some nurses had a strong conviction that patients were the primary recipients of the challenges posed by a progressively digitized healthcare system, due to the heightened sense of impersonality in the delivery of healthcare services. The inherent drawback of the use of eHealth in primary care, namely the absence of human touch, suggesting that these applications should complement rather than replace traditional face-to-face patient-professional relationships. (Öberg et al. 2018.)

6.2.4 Efficiency

The functionality of using eHealth and its impact on case handling arises efficiency concerns among patients. Many patients lacked confidence in the accuracy and delivering of care using telemedicine, particularly when using the automated medical history-taking tool, which often struggled to interpret patient complaints accurately due to imprecise patient language. As a result, healthcare professionals had to engage in extensive back-and-forth conversations with patients, sometimes resorting to telephone calls to clarify issues, rather than reducing case closure time. (Pär et al. 2022.)

There was frustration among staffs regarding unclear work processes associated with the eHealth. Disagreements and lack of consensus among team members regarding case closure criteria and post-closure procedures led to unintentional neglect of cases, further diminishing efficiency. This resulted in a perception among staff that cases generated by the platform took longer to resolve than others. (Pär et al. 2022.)

7 ETHICAL CONSIDERATIONS AND TRUSTWORTHINESS

Ethical considerations serve as a regulatory framework, guiding authors in their endeavors to maintain ethical integrity and ensure that he/she is acting in accordance with the rules and regulations of the given body in which the work is intended for. It is important for one to ensure that the findings are from reliable sources, and that the information being provided is not fabricated. Research work usually begins with the formulation of the topic which is selected by a researcher, what questions or the end goal that the researcher intends to achieve from the given topic, clearly explaining what methodology in which the data has been collected, good data analysis, and thus interpretation of the given study. It is important to note that fabrication of information or carelessly putting out work forward which have not been thoroughly analysed could make a research work void. (Carol 2006.)

In Centria University of Applied Sciences, plagiarism is taken very seriously, hence the reason students are being taught and encouraged in the early stage of their studies to develop essential academic writing skills. The authors of this thesis have made sure that they present their findings as authentic as possible. The materials used for this thesis are free articles readily available via the Centria UAS E-resources channel, as such, most of the information presented are from already done previous studies. In accordance with the rules and regulations of Centria UAS, students are granted access rights to use the books and electronic books found in the library as well as online, by logging in with their Centria ID and password, the authors agreed to the terms and conditions of the university. According to Carol (2006), plagiarism has become an integral part amongst university students nowadays, students have become dependent on “copy & paste”, rather than putting in effort towards achieving their given task. It is very unethical to use texts and contexts without given credit to the original writer.

The Finnish National Board on Research Integrity (2021) stated that to ensure the ethical reliability of a research, the researcher must adhere to responsible conduct guidelines. When addressing scientific misconduct, two primary approaches are employed, one based on legal regulations and another relying on self regulation within the scientific community. (Finnish National Board on Research Integrity 2021)

The authors of this thesis made sure that the appropriate research methods were used along with the right technique for gathering information which was mainly via the Centria library systems. The right principles and procedures were followed towards generating the topic and having it approved. The

conduct of the thesis clearly aligned and announced, the final texts produced are authentic, and non-fabricated. The authors also acknowledged the ethics of the given university regarding academic writing, making sure that every resource used were relevant scientific based articles and ensured that they were referenced in accordance with Centria UAS guidelines.

8 DISCUSSION

The purpose of this thesis is to review ethical concerns surrounding eHealth technology within primary healthcare services. The aim of this thesis is to increase nurses' knowledge and explore the ethical issues related to eHealth technology in primary healthcare and identify the issues documented in the literature. This thesis topic is relevant because it aligns with the evolving landscape of healthcare. As nursing students and potential nurses, it is important to be equipped with the knowledge and skills needed to navigate ethical challenges associated with the inclusion of eHealth technology in primary care. Having a clear understanding of the ethical considerations when including eHealth in primary care is thus essential for fostering ethical and patient-centered care in an increasingly digital healthcare environment.

The two research questions that this thesis hoped to answer were the key ethical considerations when integrating eHealth technology in primary health care practices, and how eHealth technology impact the nurse-patient relationship in primary health care. Ethics in healthcare are the moral principles that guides and influence decision making and actions in healthcare. (Haddad and Geiger 2022.). According to Basil (2021), different ethical theories can be used to analyze and evaluate healthcare dilemmas, the commonly used ones are deontology, utilitarianism, virtue ethics, and principlism.

The thesis was conducted with a narrative literature review, and articles were analyzed by content analysis. Nine (n=9) studies were summarized and analyzed. The literature search was conducted using Centria University of applied sciences e-resources services, using these databases: E-book central, Medline, Cinahl, Sage journals and Science direct., and all the references are used appropriately in the thesis. This literature review focused on the ethical considerations surrounding the integration of eHealth technology in primary care. It highlights the ethical dilemma arising from the potential concentration of healthcare professionals in urban areas due to the increased dependance on eHealth applications, a scenario that warrants resolution. The review articles (n=9) acknowledges the inherent drawback of the use of eHealth in primary care, namely the absence of human touch, suggesting that these applications should complement rather than replace traditional face-to-face patient-professional relationships.

The integration of eHealth technologies is transforming the way services are delivered, accessed, and experienced. According to Boers et al. (2020) , recognising the ethical dimensions of eHealth in

healthcare and ensuring that eHealth services maintain the quality of care and social interaction is very important. One of the ethical considerations found was achieving equitable access to eHealth, particularly among elderly individuals with limited digital literacy. The issues of access, reluctance to adopt digital services, and the cost of digital devices and internet access underscore the need for addressing justice concerns in eHealth. The introduction of eHealth technologies also impacts healthcare professionals. It increases their workload, adds stress, disrupts workflow, and may reduce efficiency. This arises from a limited confidence in digital tools and a sense of reduced control. At the same time, the incorporation of eHealth should not compromise the human aspect of primary care. (Boers et al. 2020.)

From the results, Rianne et al. (2019), also focuses on the challenges related to digital literacy and socio-economic factors in the adoption of eHealth, particularly in the context of primary care in Finland. It emphasizes the importance of digital literacy and the potential exclusion of those who lack the necessary skills. eHealth is more readily embraced by younger, technologically inclined individuals, as well as those with higher levels of education and socio-economic status. There is a genuine risk that eHealth solutions may cater primarily to a specific demographic, potentially leaving those with lower digital literacy behind. Further recommendations were made to propose a solution to bridge this gap by making eHealth services more accessible and user-friendly for individuals with low digital skills. (Rianne et al. 2019.)

Traditionally, healthcare primarily relied on direct interactions between patients and healthcare professionals, but the advent of digital care introduces a different contact channel. It emphasizes self-care and often reduces the need for frequent face-to-face encounters with healthcare providers. According to Lindberg et al. (2021), digitalisation has raised questions about the impact of eHealth in caregiving relationships and the holistic well-being of patients. The concept of caregiving relationships within the context of digital healthcare is an area that has received relatively limited attention in research. (Lindberg et al. 2021.). As digital care prioritizes medical conditions, there is a risk of neglecting the individual's overall well-being. The diminishing physical aspects of caregiving relationships may have unintended consequences, warranting in-depth exploration.

Older populations and rural communities often encounter obstacles in adopting digital care. Understanding the influence of caregiving relationships on the engagement with eHealth services becomes crucial in addressing these issues (Lindberg et al. 2021.). It is important to acknowledge that while eHealth services offer numerous advantages, they cannot entirely replace the essential human connection in healthcare. Face-to-face interactions in primary healthcare play a pivotal role in building trust,

fostering a personal connection, and establishing a sense of mutual responsibility. The direct eye contact and physical presence in these encounters contribute to a unique bond that cannot be replicated by technology. This mutual relationship is characterized by shared responsibility, consideration, and a commitment to mutual assistance.

Healthcare professionals, particularly nurses, must adopt a human-centered approach when implementing eHealth services. In the pursuit of optimizing algorithms through data collection, there is a risk of reducing patients to mere data or information, thus eroding the personal touch. Instead, patients should be actively encouraged to participate in the decision-making process regarding their information sharing and be given agency in determining with whom they are comfortable sharing their data. (Atherton et al. 2016.)

Confidentiality and privacy in healthcare are very important ethical considerations in primary care. Haddad and Geiger (2022) identifies the duty of healthcare professionals to safeguard patient information, while Miesperä et al. (2013), highlights the significance of privacy concerns linked to technology, particularly the risk of information breaches. Haddad and Geiger (2022), emphasize the importance of respecting patient autonomy and dignity by allowing them to access their health records. Miesperä et al. (2013), stress the need to grant authorized individuals access to information based on their roles.

According to Haddad and Geiger (2022), the ethical dilemmas associated with confidentiality, particularly the potential conflicts with principles such as beneficence and justice. Miesperä et al. (2013), primarily addresses privacy concerns related to technology and the rules and regulations that should govern the safeguarding of patient identifiable information. Patients should have autonomy of choice, allowing them to opt for in-person or technology-mediated interactions. If patients do choose eHealth related services, healthcare professionals should ensure that the quality of care remains uncompromised by technological implementation. The authorization and access control of information should be clear and any doubts eradicated from the patients' mind about data safety.

In the authors' opinion, this research results shows that eHealth technology can enhance healthcare delivery, but it must not compromise the quality of care. Ethical use of eHealth requires ongoing monitoring and assessment to ensure that technology supports rather than hinders healthcare providers in delivering safe and effective care. The inclusion of eHealth technology in primary care is regarded as a potentially welcome complement to traditional healthcare, facilitating patient empowerment and

ensuring equitable access to healthcare services. eHealth introduces complex ethical challenges, particularly within the context of the patient encounter. eHealth technologies have expanded the horizons of healthcare by enabling remote consultations, telemedicine, and digital communication between patients and healthcare professionals. Critical ethical questions such as maintaining patients privacy in the digital age is essential. eHealth can sometimes alter the traditional nurse-patient relationship. Patients may feel disconnected during virtual consultations. Ethical challenges arise in preserving the therapeutic alliance and trust, as well as in managing patient expectations and emotions.

8.1 Reliability and validity

Reliability and validity serve as essential ways to determine the delivery of research methodologies and the credibility of research outcomes. In order for research to be deemed valuable, it must therefore provide a clear and non-misleading information to the readers of the research. The reliability of research depends on various factors, such as including the formulation of the initial research question, the methods employed for the collection of data, the articles used, the analytical procedure and the findings of the research. It is crucial to address concerns related to reliability and validity right from the beginning of the research. (Roberts and Priest 2006.)

The authors of this thesis believes that the validity of this literature review lies on the fact that the articles that were chosen for this thesis were screened properly using the inclusion and exclusion method in TABLE 2. The articles used were relevant to the thesis research questions, with limitations of the year of publication from 2013 – 2023, this ensured that the most recently peer reviewed articles were used and the findings non fabricated.

8.2 Limitations

One major setback the authors of this thesis encountered was the limited quality of articles that fit the thesis topic and the subsequent formulated thesis research question. Most of the articles found focused on eHealth in general, and studies focusing on ethical issues on eHealth in primary health care were quite limited. As a result of this, it was quite difficult to narrow down the findings and select the most appropriate articles needed for evaluation. The authors of this thesis used only materials which were free, some of the other materials found whose abstract were well detailed required payment, these

articles would have provided a deeper insight into the topic. The authors mainly focused and used articles available in English language, this is because the authors do not speak fluent Finnish, thus, it was difficult to find materials in Finnish which would have been relevant to the thesis topic.

8.3 Personal learning and professional growth

During this thesis process, we learnt that regardless of the sector, ethics is a very important key element that should be reviewed while using technology. Technology has changed the way we live currently, the health care industry has benefitted from this in many ways. Electronic health has gradually replaced some practices in the health care sector, we believe that it is still evolving. During the break of Covid 19 pandemic, every sector in the world took out time to re-strategise on how to render services. We learnt from this thesis process that even though eHealth has been readily incorporated into primary health care, there are still a lot of uncertainties and concerns. Most nurses do welcome this development as it helps to reach a wider audience faster, but others feared that they may lack the necessary skills and knowledge on how to use this technology. From the patients perspective, people of older generation may have some skepticism about using this technology because they feared that they are not literate enough to comprehend it.

The authors have acquired a significant amount of knowledge about ethics and eHealth in general while reading through the searched articles. The authors gained a more clearer insight in data search and developed more summarizing skills. We gained research skills, critical thinking abilities, and efficient ways of communication of complicated concepts via writing this thesis. It also improved our organisational and time management abilities while cultivating a thorough comprehension of our subject. This thesis writing process even though a bachelor's thesis has equipped the authors with the necessary writing skills needed to write a masters thesis if they both wish to further their studies. The authors of this thesis also wish to continue to study and practice more on how content analysis is done.

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