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Digital Video Consultation in Health Care

Challenges from a doctor's perspective

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Digital Video Consulting in Health Care: Challenges from a doctor's perspective

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ABSTRACT (MAX. 200 WORDS):

Digitalization has meant changes in the way the Swedish healthcare sector operates. Nowadays, it is common to meet a doctor online. There are several studies examining patients' views on video consultations, but this study examines the challenges faced by doctors which leads to our research question: What are the challenges with digital video consultations from a doctor's perspective? The foundation of the research is based on a literature review and a qualitative research method, using semi-structured interviews. All doctors included in this paper have at least one year of experience with digital video consultations. Based on three different themes: Technical, Communication and Personal our results are that the technical aspect is the main challenge. The conventional challenges historically in the field, such as audio and video lag, are replaced with features and interoperability. If the systems are not compatible with each other and there is a lack of features, it will negatively affect the doctors personally in terms of stress and inferior communication with their patients.

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1 Introduction

1.1 Background

In the 1990s, the rapid spread of information and communication technology (ICT), and wireless networks enabled the increased usage of telehealth (Hurst, 2016). This enabled extended communicating with people remotely. The history of doing remote healthcare can be traced back to the old Greeks, Romans, and Egyptians. They used writing techniques to inform and share information regarding pandemics and health threats. It has also been found that they used bonfires to warn cities nearby of diseases and share health information. The advances in the Industrial Revolution were adapted in new communication techniques. The telegraph and the telephone are such examples (Hurst, 2016).

The effects of digitalization in society are something that we encounter daily, for example the steady presence of computers and smartphones. These new digital platforms create opportunities for meetings via chat, telephone and video calls and can thus replace a large part of physical meetings. According to the E-health authority (2016), Sweden's populace is among the foremost digitally developed in the world and in 2015, over 90 percent of the populace had both computer and Internet, of which 80 percent expressed that they utilized the web daily. Both private and public businesses in Sweden are at the forefront of digitalization compared to other countries. Sweden also has many world-leading businesses within the fields of information and communication which have enabled the digital expansion (Regeringskansliet, 2016). With a society in the digital era, many industries have been compelled to modify. Traditional face-to-face interaction like teaching and healthcare has been forced to adapt and move part of their operation to a digital atmosphere (Nashawaty & DiChristofer, 2021). Other branches such as the travel and bank industry have also changed to a large extent due to the digitalization. Historically, people needed to physically attend to perform errands and make purchases. Today, these activities can be performed from people's homes whenever it suits them (Regeringskansliet, 2016).

In a relatively short time, digitalization has meant changes in the way the healthcare sector operates, and because of digitalization, healthcare has come a long way. Paper receipts are now e-receipts, journal systems are stored digitally, booking of time slots can be done online, and digital healthcare meetings are now possible (eHälsomyndigheten, 2019). According to Fricker, Thummler & Gavras (2015), healthcare is one of the fastest growing industries. The digitalization of healthcare is a major operation since healthcare is one of the most money demanding public sectors, and a sector which is relevant for the whole population. The changes can be seen as a response to the last year's main challenges Swedish healthcare has been facing. These are, increasing lack of availability due to the heavy workload on healthcare, leading to patients having to wait long periods of time, and a lack of space in healthcare facilities (Lindholm & Gustafsson, 2020). Istepanian & Lacal (2004) states that the population will continue to work longer in the future and therefore the demand for better, more flexible healthcare will increase.

The digitalization is an important precondition to be able to offer healthcare that suits the patients needs in the future (Vårdanalys, 2020). However, knowledge about the digitalizations possibilities and consequences on healthcare are not well examined (Regeringskansliet, 2016; Vårdanalys; 2020). The introduction of new ways of communicating and getting consulting from healthcare has happened rapidly. Even though digital healthcare services such as Kry and Doktor.se were established in Sweden in 2014, Jack (2022) & Cederberg (2020) states that the pandemic has accelerated digital health usage and believes it is here to stay (Regeringskansliet, 2016). This new way of visiting healthcare includes patients meeting doctors in realtime using technology. These meetings can include minor treatments, consulting, guidance, evaluation and patients being referred to the non-virtual healthcare (Vårdanalys, 2020).

Technology development is driven by demand from patients, by demand and development power in healthcare, as well as by researchers and commercial actors both globally and locally in IT. Technology development means new opportunities for what type of equipment the patient needs to have access to (Socialstyrelsen, 2018). Nowadays it is more common that information transfer of sound, image, sensor data, measurement data can take place with the help of smartphones with or without additional equipment (Socialstyrelsen, 2018). In Sweden, the use of digital doctor visits increased explosively in 2018, from approximately 200,000 digital doctor visits in 2017 to 2018, which is estimated to reach over 550,000 (Pisoni, 2018). In 2019, digital video consultation increased by 67% compared to the previous year, implying the popularity of the service (Fernemark et al, 2020). Between February and March in 2020, the number of digital consultations increased by 60% in the private sector, and increased rapidly in the public sector as well. Generally, patients seem to be satisfied with the new way of visiting healthcare, and consider it to be part of the future of Swedish healthcare (Internetstiftelsen, 2019; Vårdanalys, 2020).

In Sweden, the aim of health care is to offer all citizens equal and high-quality care (Socialdepartementet, 2016). E-health is a concept that follows the WHO definition of health with the addition of using digital tools and exchanging information digitally to achieve and maintain health (Hofflander & Nilsson, 2020). The Swedish government has a eHealth goal, aiming to offer good, accessible, and equal digital healthcare by utilizing on the opportunities digitalization has to offer, and thereby becoming one of the world leaders in eHealth. By 2025, Sweden shall be the best country in the world when it comes to utilizing digitalization in healthcare according to (Regeringskansliet, 2016). The vision of e-Health 2025 is a joint document in which the government has ideas about the future development of e-Health in Sweden (Socialdepartementet, 2016).

1.2 Problem Area

The Swedish Health and Medical services act states that healthcare should be equal to all population (SFS 2017:30). However, new types of services and user experiences are available in the healthcare sector due to the last couple of years' digital innovations. These innovations enable increased efficiency and availability, but also come with challenges that need to be considered. The digital innovations in healthcare means considerable changes for both patients and doctors. Several fields within the health care sector are expected to be digitalized in the near future, and comprehensive digital innovations including AI, IoT, and Big Data are expected to be implemented (Herbert, 2022). The evolution of healthcare is not for the

healthcare workers to decide. Instead, they are forced to adapt themselves in order to stay relevant in a fast changing field (Ekblom, 2020). Furthermore, digitalization has contributed to an increased usage of visual communication tools such as FaceTime, Skype and Zoom in society in general. Organizations and business fields need to adapt to this phenomena, and the healthcare sector is not an exception (Regeringskansliet, 2020). On top of this, there is an increasing demand from patients of new ways to interact with healthcare workers (Donaghy, Atherton, Hammersley, McNeilly, Bikker, Robbins, Campbell & McKinstry, 2019). Using video consultation is one alternative. In 2015, the first application offering digital video consultations between patients and doctors was launched in Sweden (Stålbröst, 2015). This enabled increased accessibility of healthcare and more generous opening hours (Cision, 2019). During the Covid-19 pandemic, the usage of video consultation accelerated and this trends seems to be here to stay (McKinsey, 2021).

Distance healthcare - in the form of telephone and text consultation (telehealth) - has been available in Sweden and other countries for several years and is a quite well-researched subject (Ledin, Olsen & Josefsson, 2011; McKinstry, Watson, Pinnock, Heaney & Sheikh, 2009; Störm, Marklund & Hildingh, 2006). Due to the limited time video consultation has been available in Sweden, the research is not as extended as the more generic subject of telehealth (Hassel & Lindqvist, 2019; Region Stockholm, 2019) although there are a couple of studies conducted. Vardanalyt (2020) conducted a study regarding population, patient and healthcare workers attitude towards digital healthcare. Even though the study is extensive and thorough, it is not specific in its design since it includes three perspectives. Also, the study was conducted three years ago, although published two years ago. Fernemark, Skagerström, Seing, Ericsson & Nilsen (2020) conducted a study, which is relevant to our topic, but focuses primarily on job control, demand, and support.

Further, the majority of the existing research in the field is also targeting the patient's perspective or the cost-effectiveness of digital consultation (Barsom, Hees, Bemelman & Schijven, 2020; Vårdanalyt, 2020), whereas the doctors' perspective is not as well examined. Thus, there are unanswered questions regarding this new phenomena. Questions regarding doctors' comfort using video consulting, whether or not they are accepting this new way of working, or if their skills and knowledge are used to the same extent as in face-to-face interaction, arise. The increasing demand from patients of more flexibility and effective healthcare are enabled using digital video consultation, but are the doctors able to provide the same quality of care according to themselves? We see a lack of research regarding this field and argue our perspective will shed new light on an unexplored field. We believe that examining the challenges of doctors using video consultation for healthcare is a start and will provide valuable insight.

1.3 Purpose

The digital innovations in healthcare is a self-evident part of future healthcare in Sweden (Sundström, 2021; Cederberg, 2020). Due to the limited time digital video consultation has been available on the market, it is still considered a new phenomena and is not thoroughly examined. From a patient perspective digital video consultation seems to be well accepted and appreciated since it enables flexibility and accessibility for both the patient and the doctor (Region Stockholm, 2019). However, the doctor's perspective is not extensively researched and therefore vague and unknown, even though they need to adapt to the new trend in the

field, and are considered to be the core of the transformation to digital video consultation (Malvey & Slovensky, 2015). Their craft of work is very much affected by the transition to an increased usage of digital video consultation in healthcare. The purpose of this study is therefore to elaborate on the challenges doctors are experiencing when using digital video consultation. We hope to gain a deeper understanding of the challenges doctors are facing when using digital video consultation. To explore this, interviews have been conducted on doctors with experience using digital video consultation. Our study also aims to generate valuable insight for both private and public operators on the market.

1.4 Research Question

- *What are the challenges with digital video consultants from a doctor's perspective?*

1.5 Delimitation

This thesis will focus on exploring challenges in digital video consultation. To narrow it down, we will focus on the doctor's perspective. Studying digital video consultation from their perspective will give an insight into the challenges arising. The study is based in Sweden and all Doctors in this study have a medical degree and have worked with digital video consultation for at least a year. We will only investigate the possible challenges doctors are perceiving, hence healthcare workers, in general, will not be studied. A healthcare worker is anyone who works in a healthcare or social care setting. This also includes healthcare students, frontline healthcare workers, and other healthcare workers not in direct patient contact.

Furthermore, this thesis will not be able to examine all possible challenges that digital video consultation could imply. Due to the fact that this essay is from a doctor's perspective, no patient-related challenges are raised nor organizational challenges. For example personal data, patient confidentiality, data protection, and telehealth regulations will not be covered. Nor will the socioeconomics perspective be included. This includes social science that studies how economic activity affects and is shaped by social processes, which means that this study will not include any economic challenges regarding video consultations.

2 Theoretical Background

To further expand our understanding of the challenges of digital video consultation from a doctor's perspective, a thorough literature review has been done. In this chapter, we will start by presenting a literature review of our subject. This will be followed by explaining theoretical models. We will reflect the current state of digital video consultation and its challenges from a doctor's perspective

The theoretical background consists of previously conducted academic studies in the field, book literature, and public studies from Socialstyrelsen, Regeringskansliet, and Swedish regions. After analyzing our conducted literature, we identified three fields connected to the challenges doctors are facing when using digital video consulting. These can be divided in different sectors which are personal challenges, communicational challenges, and technical challenges. We will present our own conceptual model based on our literature findings.

2.1 Telehealth

Tuckson et al. (2017) define telehealth as the facilitation and delivery of health services using telecommunications and digital communications technologies. Vårdanalys (2020) describes it as “healthcare that occurs through digital distance healthcare, that is through some form of digital communication where an identified patient and healthcare professional are spatially separated”. Telehealth is a broad term that includes a lot of different aspects. Digital video consultation, phone consultation, health apps on mobile phones, storing and sorting health data, and remote patient monitoring. The term is often used interchangeably with the term telemedicine (WHO, 2020), which can cause confusion. A majority of researchers use telehealth as an umbrella term within digital healthcare (The American Telemedicine Association, 2006). Telehealth includes technologies to a broader extent, whereas telemedicine puts more emphasis on medical services provided at distance to the physicians (Weinstein, Lopez, Joseph, Erps, Holcomb, Barker & Krupinski, 2014). Therefore, in this study we will stick to the term telehealth.

2.1.1 The Current State of Telehealth

In the last two years, people have sought to find safely accessed healthcare without taking the risk of being infected. According to Betsenny et al (2021) telehealth has increased 38 times since the Covid-19 outbreak. The numbers of users have been up and down during this time span but Rubinger et al (2020) and Tuckson et al (2017) argue telehealth is here to stay. There are several reasons for this. Consumer willingness to use, more actors to choose from, and better access to the technology, and no geographical hindrances are some examples (Betsenny et al. 2021). A survey showed that prior to Covid-19, only 11 percent of patients could consider using telehealth (Betsenny et al. 2021). Two years later, this number has increased to 40 % and Tuckson et al. (2017) believe telehealth generally, and virtual meetings specifically, will become even more common in the future.

WHO (2020) presented a report due to the Covid-19 pandemic and discussed guidelines for successfully using telehealth. Usability and communication were mentioned as two critical factors. User-interfaces and functionalities should be adapted to the user, which in this case is both the patient and the doctor. In order for the interaction to be successful, the communication between the doctor and the patient should be clear, honest and consistent. Hence, the device used needs to be enabled for such communication. This enables lowering patient anxiety, making more accurate diagnoses, and the doctor being interpreted as more trustworthy.

Looking back in history, rapid changes in healthcare services have been rare. Länsisalmi, Kivimäki, Aalto & Ruoranen (2006) define innovations in the healthcare sector as new services, new working methods, and new technology. However, in the last couple of years, distance healthcare has become a common phenomenon. The implementation of new technology has several benefits. A systematic review indicates that the use of telemedicine could result in more effectiveness, accessibility, and reduced costs (Rogante, Giacomozzi, Grigioni, & Kairy, 2016; Sutherland, Stickland & Wee, 2020). It enables improved access for people living in rural areas (Johansson, Lindberg & Söderberg, 2014), and more consultation can be performed per day (Hedqvist & Svensson, 2019; Sutherland, Stickland & Wee, 2020). One of the most utilized telehealth tools are digital video consultations and phone consultations. Collier et al (2016) state digital video consultation complements phone consultation since it enables a more collaborative medium. However, Herbes, Niess, Bentvelzen & Wozniak (2020) writes that digital video consultations are only efficient if both the patient and the healthcare worker trust the system used during the consultation.

2.1.2 The current state of telehealth in Sweden

The introduction of establishing contact with doctors using telehealth has been rapid in Sweden. The Covid-19 pandemic intensified the population's usage of telehealth, and introduced many new first time users (Läkartidningen, 2021). Even though the usage has increased significantly, the usage of telehealth still only accounts for a small share of the total number of visits (Vårdanalys, 2022). Statistics show the usage of telehealth is unequally distributed throughout society. Younger people with a socioeconomic background are more prone to using telehealth, whereas older people with a less favorable socioeconomic background are stuck in the traditional face-to-face integration with doctors and healthcare professionals. There is also a difference in usage rate between the Swedish regions. Stockholm and Skåne are the most frequently used regions. Private digital care providers are establishing themselves in new regions, and starting collaborations with physical healthcare centers and pharmacies (Läkartidningen, 2019). Further, 1177 Vårdguiden has been developed in the last couple of years, making it more accessible and efficient. The goal of 1177 Vårdguiden in the near future is that the patient should be able to describe its symptoms on the phone, and then be assigned either digital video consultation or to a physical meeting with a doctor. Also, 1177 Vårdguidens online booking, and service that sends out home-testing to patients is developing fast (Regeringen, 2019). However, as of now, this is not possible to the admired extent (Vardanalys, 2022).

The number one reason why patients in Sweden choose to use telehealth are shorter waiting times. Despite the increasing usage of telehealth, the Swedish population still prefers physical

interaction with a doctor when they are forced to choose (Vårdanalys, 2020). There is still uncertainty regarding how the digitization of healthcare will affect Swedish healthcare in the long term. In a report from Vårdanalys (2022), they make some conclusions saying that telehealth has increased productivity and enabled better accessibility for patients and doctors. Although, there are still gaps of knowledge about the efficiency of telehealth. Further, telehealth is described as a vital part of the future of Swedish healthcare, but there needs to be more investigations regarding telehealth since many aspects of it are unexplored and unknown (Vårdanalys, 2022). Furthermore, there is not a nationwide system used for digital video consultation by doctors when consulting patients (Sundström, 2021).

2.2 Computer-Mediated Communication

For two or more people to communicate with the help of technology is called Computer-Mediated Communication (CMC). CMC defining characteristics are usually text-based, such as email, chat rooms, discussion boards and text message sound. However, images, video and emojis is also a communication tool included in CMC (Wainfan & Davis, 2004; Yao & Ling, 2020). The technique is beneficial since it enables two people in different geographical places to communicate. The usage has increased rapidly lately and is used in several different fields. CMC can be divided into two categories; synchronous and asynchronous. The former refers to communication that is dependent on time, the used units are synchronized, or a real-time interaction (i.e phone, video or in person). Whereas the latter refers to communication that is independent of the time aspect and thus the units are not synchronized when communication is being made (i.e email, discussion boards, shared databases). Synchronous communication that is not in person, is described as effective, but there is an underlying risk the connection between the units will cease (Wainfan & Davis, 2004; Yao & Ling, 2019).

Historically, the interaction between healthcare and patients has been dominated by face-to-face interaction (Wagg, Callanan, & Hassett, 2018). Increased availability of computers, phones, and tablets has enabled easier access to gain information and consultation. Text-based asynchronously is described as a comfortable way for people that are seeking information and consultation. This refers to both professional help and unprofessional help. Consequently, it is possible that the healthcare provided using CMC could be more adapted to the patient's needs (Wagg et al, 2018).

Ruppel et al (2017) state there is a difference between face-to-face interaction and virtual interaction. Face to face interaction both have a high presence of nonverbal and paraverbal cues and high degree of synchronization. Email is considered to have the lowest, which means there are low synchronization and non verbal communication. Even though face to face interaction is the highest, video consultation is not far off (Wainfan & Davis, 2004). The main difference is the amount of personal information (self-disclosure) a person is willing to share using computer-mediated communication, and the lack of non-verbal cues one is able to detect. Face-to-face interaction tends to involve more personal information. However, it is also stated that video has benefits in regard to other communication tools since it enables mimicking and gestures and thus provides more information compared to text-based communication. Although, there are some dimensions of video communication that users tend to dislike. Acceptance of constantly being filmed is one, and low quality of sound and picture is another problem raised (Ruppel et al, 2017).

2.3 Digital Video Consultation

A part of telehealth is digital video consultation, which is defined as a technique that enables collaboration between people from anywhere in the world using video, webinars, and audio (Blockmon, 2019). It was popularized in the 2000s, and today it is an established, integrated part of our digitalized society (Marfield, 2018). McGrail, Ahuja & Leaver (2017) describe digital video consultation as a new way of interaction between healthcare workers and patient. It is an alternative way of communicating rather than traditional and conventional face-to-face communication. Business Sweden (2018) writes that digital video consultations are changing the core of primary care and patients' perception of healthcare.

Virtual meetings between patients, doctors and healthcare workers have been present in Sweden since 2014 when private actors such as Kry and Doktor.se were established (Brusewitz, 2021). It has also been established in the Swedish public sector and several regions are now offering digital healthcare meetings for their patients (Cederberg, 2020). WHO (2021) mentions the importance of an easy-to-use system, to enable people - both patients and doctors - with less technical experience to use it. Compared to consulting via telephone, digital video consultation includes the visual dimension as well (WHO, 2021).

The usage of video consultation in healthcare is quite a new phenomenon and thus there is a limited amount of previous studies. Several studies have been conducted on the patient perspective regarding video consultation (Johansson, Lindberg & Söderberg, 2014) whereas the doctor's perspective is less common. Although, a study was made on the perspective of healthcare employees regarding digital video consultation in palliative home care. It showcased enhanced collaboration between patients and healthcare workers since immediate feedback could be given due to video technology. The use of technological devices was not seen as an obstacle for healthcare workers (Funderskov et al., 2019). Additionally, Fernemark et al (2020) study examined the job control, demand and support for physicians and patients using digital consultation.

Virtual meetings in healthcare come with several benefits. The saving of money and time are usually mentioned as the most palpable benefits, but saving resources should also be mentioned according to Rubinger et al. (2020). Further, Rubinger et al. (2020) state that virtual conferences enabled healthcare associations to improve their collaboration with each other during the Covid-19 pandemic. The amount of people who attended the events increased, and a more diverse split between nations as well. All of a sudden foreign colleagues could attend more local healthcare events. The conventional face-to-face interaction was no longer possible which forced alternative communication forms to be established. Prior to the Covid-19 pandemic there was concern within the health-care association regarding the amount of greenhouse gas emission traveling to conferences and meetings meant (Rubinger et al. 2020). The Covid-19 showcased how established and implemented technology is, and that technology is an enabler for society to work when face-to-face communication is restricted. Making virtual meetings more accessible in healthcare has also enabled patients that live far off or have difficulty traveling to get care more efficiently. This has been showcased in Sweden since the number of patients seeking

healthcare via virtual meetings from more distanced areas has multiplied, since the pandemic outbreak (Cederberg, 2020).

Randhawam, Chandan, Thomas & Singh (2017) discuss the acceptance of virtual meetings by general practitioners. Utility, practicality, and the quality of the technology are described as the most urgent factors for successful consultation with patients. People used to technology seem to have an easier time taking advantage of the benefits of video consultation. However, healthcare workers still view face-to-face consultations as valuable, and should not be substituted by technology. According to Vårdanalys (2020), digital video consultation should work as a complement to physical meetings. On a similar note, Sutherland, Stickland & Wee (2020) states that telephone consultation has limitations and thus, video consultation is the better complement since it offers a high level of care, but should not replace face-to-face interaction in total. However, reluctance regarding the adequacy of digital video consultations as a service was discovered among partitioners (Sutherland et al, 2020), which is in line with Funderskov et al (2019) findings.

From a patient perspective, technology barriers were found as a negative, and the patient engagement and expectations of the care was lowered. From a positive side, the efficiency of the care increased since meetings could be conducted online. Improved frequency in meetings, improved rapidity and fewer missed appointments. Also, telehealth is favorable for follow-up meetings when examination is not needed.

2.4 Challenges in Digital Video Consultation

In this chapter, the identified challenges of digital video consultation will be presented. This chapter is divided into three different themes: Technical, Communication and Personal. These three all include several different challenges. Further explanation of how these themes were conducted can be found in chapter 2.6 and 3.2.

2.4.1 *Technical*

Network

Communication technologies are the basis of telehealth since it is the enabler of the usage of telehealth (Istepanian & Lacal, 2004). Barreriro, Coles, Conradt, Hales & Zellmer (2020) describe unstable networks as one of the main issues when it comes to implementing telehealth. Therefore, an established and rigorous infrastructure of telecommunication is needed. Sweden established a nationwide telecommunication infrastructure in 1987. This is not to be taken for granted, since there are still places in Sweden where telehealth and digital video consultation is not possible due to lack of network infrastructure. Historically, Sweden has been in the forefront of telecommunication infrastructure, although there are certain areas in Sweden who have had to face the consequences of it lacking, which has inhibited efficient telehealth (Sundström, 2021). As a result of this and a need to digitize society even more, the Swedish government and SKR (Sveriges Kommuner och Landsting) agreed on a deal in 2021 to expand the infrastructure and make it more safe for digital communication. Istepanian &

Lacal (2004) mention that Internet based healthcare will be established in the future, but will only be effective if the population has access to a network that enables such technologies.

Audio and Video lag

Technical problems are also a challenge due to the frustration that can occur when there are small delays in audio and can cause the ability to reach mutual understandings (Breton et al 2021; Wainfan & Davis, 2004; Fernemark et al, 2020). The main problem does not seem to be the delay in video technologies for good collaboration or communication, it is the audio that is causing the problem (Wainfan & Davis, 2004). Fernemark et al (2020) agrees, and states that the video quality was not a major concern. Despite problems with audio that can cause frustration, there are still problems regarding delays in video (Donaghy et al. 2019). Issues in audio and video during digital video consultations can force the doctor to take own initiatives to solve the situation. In Donaghy et al (2019) study, doctors were forced to call the patient on their personal phone when audio and video were lagging. Poor internet or telephone line can also result in reduced visual quality (Breton et al 2021). When audio or video delays within a video consultation between a patient and a doctor, it can cause a degree of “talking over” effect from the doctor which affects the consultation. There is initial talking over if one part is not used to interacting via video technology. The etiquette of waiting and pausing (a slight delight) until the other part has a chance to speak.

Technical Experience

Working remotely forces the doctors to solve technical issues on their own, which seems to increase the stress for people with a lack of technical experience (Fernemark et al, 2020). Jarvis-Selinger et al. (2008) saw that healthcare professionals had a lack of trust in ICT tools. Further, Koivunen, Niemi & Hupli (2015) showcased employees lacking clear instructions on how to use the technology efficiently, and received poor support regarding IT issues. A study from Region Stockholm (2019) displayed the need for solid developed technology in healthcare to ensure less friction and disturbance in digital video consultation. This could increase both the patients and the doctor's satisfaction level, and make them more comfortable, especially doctors lacking technical experience.

Collier et al (2016) found that healthcare professionals felt personally responsible if the technology is struggling. Issues they can not control, such as Internet connection and generic IT problems contribute to a feeling of stress, since it threatens to harm the relationship and trust with the patient. Donaghy et al (2019) express a similar concern, that doctors tend to feel uncertain before starting a digital consultation session due to the possibility of technical issues. Doctors with less technical skills experience more uncertainty (Donaghy et al, 2019; Fernemark et al, 2020).

Interoperability

Although healthcare is moving in a more digitized direction, we find it difficult to classify healthcare as a technological approach. Healthcare involves people, hence we would classify

healthcare as an interaction between these two, a socio-technical approach. The interaction between people, technology and organization can be seen as social and technical aspects that cannot be separated. The less friction there is between them, the better the system will work. Changing one without making corresponding complementary changes in the other will produce unpredictable and probably undesirable results. From this perspective, it is necessary to ensure that systems are adapted to existing ways of working, while the organization must create ways of working that take advantage of the functions a system provides. Users excluded in both the development and implementation process can result in IT systems that are both non user-unfriendly and inefficient as many tasks, such as administration, become much more burdensome than is actually necessary.

A significant issue has been that technology is seen as a separate activity that is not integrated with other parts of the business. A report by Vårdanalys (2013) shows that a large number of IT systems are not compatible with each other, which has led to IT stress that negatively affects doctors' daily lives. Tuutma (2021) also acknowledged this and expressed concerns regarding the inability for systems to communicate and Fernemark et al (2021) also mention the integration and interoperability of systems to be a challenge. Interoperability has been one of the more important concepts when talking about IT systems in healthcare to achieve higher quality and efficiency (E-delegation, 2013). In healthcare, the exchange of information between different levels of care and different medical record systems is particularly important. Despite this, it has shown that there has been a lack of interoperability between the different IT systems (Holm & Westring, 2015). Interoperability includes not only a technical function, as the term is usually associated with, it also includes syntax, semantics and coordination between systems, making interoperability a very broad concept since it deals not only with technical communication but also with human communication within organizations. The lack of interoperability has been one of the main challenges that needs to be overcome to reduce dissatisfaction with the digital work environment in healthcare (Holm & Westring, 2015). Also, establishing interoperability between healthcare systems is mentioned as one of the main challenges in the future (Holm & Westring, 2015). Socialstyrelsen (2013) said that in order to achieve this, there is a need for the usability of eHealth systems to be improved in order to increase usefulness. So in addition to the lack of interoperability, there is also a lack of usability and these two elements have resulted in administrative work becoming a heavy and time-consuming task for doctors (Kommunal et al., 2013; Holm & Westring, 2015). Kaptelinin and Bannon (2012) argue that the user interface and human computer interaction are only a small part of the whole. It is also important to consider workflows and technology usability.

2.4.2 Communication

Even though digital video consultation comes with several benefits, there are challenges as well. The ability to communicate effectively between a doctor and a patient can be problematic in both digital and face-to-face interaction (Syrrilä, Vehviläinen-Julkunen & Härkänen, 2021), and communication difficulties are considered one of the most frequent challenges for healthcare professionals. Weiner (2012) predicted communication challenges in digital video consultation, claiming the new way of interacting could affect the doctor - patient relationship negatively in the future.

Less personal

Digital video consultations cannot capture everything and this can cause problems. Power and status are harder to detect in video communication because lack of elements like showing seating position, office location, clothing, posture and eye contact are reduced (Dubrovsky, Kiesler & Sethna, 1991; Sproull & Kiesler, 1986). A study conducted on nurses showcased similar results, that the relationship and communication with the patient was affected negatively when using digital video consultation. The face-to-face interaction could not be replaced by digital video consultation, although it is described as a useful complement since it enables flexibility and more frequent consultations and check-ups (Fagerström, Tuveesson, Axelsson & Nilsson, 2017). Donaghy et al (2019) states that both patients and doctors were concerned regarding digital video consultation appropriateness for intimate conversations or when serious news needs to be delivered to the patient. In those circumstances, face-to-face seems to be a more suitable interaction. This is in line with van Gurp et al (2015) who states that doctors tend to avoid sensitive topics with vulnerable patients since the physical distance does not allow them to comfort the patient. To enable efficient communication for digital video consultation, follow-up meetings when the relationship between patient and doctor first has been established in a face-to-face interaction, seems to be the better choice (Donaghy et al. 2019; Fagerström, Tuveesson, Axelsson & Nilsson, 2017). Doctors found themselves slightly more comfortable communicating with a patient they previously met physically (Donaghy et al. 2019).

Trust

Another effect of digital video consultation is the reduction in cohesiveness and trust between the patient and the doctor. This can be explained that there are fewer social remarks and less participation in communication than in face-to-face (Kimball & Morgan, 2021). Another explanation is the effect of trust. Even if the amount of trust can be the same in digital video consultation as in face-to-face, it takes longer to reach trust in video consultation (Bos, Olsson, Gergle & Wright, 2002; Fernemark et al, 2020; Donaghy et al, 2019) and persuasiveness is lower than in face-to-face interaction (Ferran-Urdaneta, 2001). Trust can be accomplished in digital video consultation, albeit more fragile and delayed. To establish a better level of trust between the patient and doctor, the initial meeting should be done face-to-face and not digitally (Donaghy et al, 2019). Greenhalgh et al (2016) found digital video consultation can be risky due to deteriorated trust between patient and doctor. Breton et al (2021) makes a similar claim, saying that meeting a patient digitally for the first time made it considerable more difficult to establish a relationship. According to Vardanalys (2020), approximately 15 percent of all initial meetings are conducted digitally. Further, Fernemark et al (2020) states digital video consultation tends to become more anonymous in the doctor-patient communication, making patients more prone to being rude and questioning the doctor. This is in line with Donaghy et al (2019) finding that patients have different expectations in digital video consultation and tend to be impatient and question the doctor more often. Also, Wainfan & Davis (2004) states that the social discussion in digital video consultation tends to be less social and more task-oriented than in face-to-face interaction, making it more difficult to establish trust. Language and cultural barriers are also more difficult to overcome in digital video consulting (Donaghy et al, 2019).

Non-verbal communication

Communication is a complex, dynamic process that is multi-dimensional, multi-factorial and is closely related to the surrounding environment one operate in (Keutchafo, Kerr & Jarvis, 2020). Communication occur in all meetings between humans even though words are not expressed (Matsumoto, Shibata, Seijim Mori & Shioe, 2010). Information is constantly being received through our five senses, and the non-verbal communication accounts for half of all communication between two people (Matsumoto et al, 2010). Within healthcare, communication is a fundamental aspect since it enables facilitated collaboration between doctor and the patient. Additionally, effective communication increases the chances of a more customized treatment, patient satisfaction and better overall results (Matsumoto et al, 2010). In critical cases, effective communication can be a question of life and death (Keutchafo et al, 2020).

Non-verbal communication is described as a silent way of communicating without using any verbal expressions (Phutela, 2015). It is an effective way to express thoughts and feelings without verbally speaking. Creating a feeling of trust and warmth for the patient is an important aspect for doctors. A sense of sympathy and sensitivity need to be established. Therefore, effective communication is a major component to understand a patient's needs, and nurse and treat a patient accordingly (Wanko et al, 2020). An effective way of upbringing such communication is non-verbal communication (Faucett et al, 2017). However, establishing sympathy, empathy, sensitivity and trust is considered to be more difficult in a virtual environment compared to face-to-face interaction (Faucett et al, 2017; McKinstry et al, 2009). Non-verbal communication such as the tone of voice, eye contact, and body posture should not be underestimated, and patients are constantly looking for cues. It is considered to be more difficult to read these cues in a virtual environment, and minor movements or expressions from the health care worker can easily be over-analyzed by the patient (Debra, Roter, Frankel, Hall, & Sluyter, 2006). Doctor's need to pay attention to several aspects when consulting a patient. This does not only include listening but also the non-verbal expressions the patient displays (Faucett et al, 2017; Wanko et al, 2020).

Using non-verbal communication effectively can indicate that the doctor shows emotional support, understanding and respect (Happ, Garrett, Thomas, Tate, George, Houze, Radke & Sereika, 2011). Further, patients are more observant to non-verbal communication if they feel scared, uncertain or anxious. Brubaker, Venoila & Tang (2012) mention that a doctor constantly looking at notes is something that can be perceived as rude and therefore reduce trust. And overall, doctors are less prone to utterances connected to empathy in digital video consultation, which tends to reduce trust in the meeting. Thus, it is important that a patient-centric approach is established even in virtual environments (Faucett et al, 2017). In digital video consultation, the health care worker tends to speak more, and the level of empathy in the meeting is reduced, which potentially can affect patient satisfaction (Faucett et al, 2017). In 2017, the majority of healthcare workers had not gotten education and training in digital video consultation, and thus were not aware of how their non-verbal behavior affected the relationship with the patient (Donaghy et al, 2019).

2.4.3 Personal

Stress

Increased stress is mentioned as a consequence of the considerable change to video consultation. The stress is mainly due to a lack of technical skills. To reduce stress and anxiety, support in the transition is vital (Sutherland, Stickland & Wee, 2020). During the Covid-19 pandemic, video consultation started to be used more frequently and the authors predict this trend to continue (Sutherland, Stickland & Wee, 2020). Vardanalys (2020) also found that Swedish doctors are generally more stressed compared to other countries. The main reason seems to be the number of patients one is expected to consult each day.

Socialstyrelsen (2018) shows that the impact of digitalisation on the work environment can cause technostress. The concept of technostress was conceptualized in the early 1980s as a modern disease caused by the inability to handle new technology in a healthy way. The term techno stress acts as an umbrella encompassing two different but related psychological experiences which is technostrain and technoaddiction (Salanova et al, 2007).

Workers experiencing technostrain can experience and feel a combination of high levels of anxiety, fatigue, skepticism and inefficacy related to the use of ICT (Salanova et al, 2007). However, anxiety and fatigue are the most common experiences. Technostrain is triggered when the use of computers or information and communication technology (ICT) creates fear and anxiety in the user. It includes feelings of insecurity that arise when a person has to perform an action using an ICT. An example of this is when a user presses a button and is scared that the information created will be lost. Computer anxiety is one of the most widely studied techno-strain experiences and it has been used as a term to describe the fear, apprehension, and agitation that individuals experience when interacting with, or thinking about, computers (Gaudron & Vignoli, 2002). This could lead to poor decision-making, difficulty in memorizing and remembering, and a reduced attention span. There is also another component in technostrain experience that is skepticism and distant attitude towards the use of ICT where skepticism is defined as the display of indifferent, detached, and distant attitudes toward the use of ICT. The last component is the feeling of inefficacy in the use of ICT and refers to the perceived level of inefficacy. Users who perform overwhelming demands that contribute to anxiety and skepticism will probably affect the efficacy (Schaufeli & Salanova, 2007). Breton et al (2021) found that doctors starting working remotely experience a change in their role as a doctor. The doctors need to adapt to the new role of working digitally, and thus new skills are required. This new role seems to increase the stress level of doctors that are not fully comfortable with the transition. Breton et al (2021) mention training and guidelines as a way to decline this stressful event.

Appearance of less professionalism and competence

Doctors that can not understand their patients fully experience stress, anxiety, and feeling less competence (Vardanalys, 2020). The usage of the doctor's medical competence in digital video consultation is also questioned. The majority of patients are young and healthy and seek

consultation for minor issues (Cederberg, 2019), making some doctors experience a feeling of ambivalence (Fernemark et al, 2020). The majority of tasks for doctors performing digital video consultations were considered simple and not very challenging. This is in accordance with (Socialstyrelsen, 2018) who claim that the most common issues were allergies, renewal of prescription, and minor infections. Only working with digital video consultation is described as concerning due to the limited amount of challenging issues, therefore making it difficult to maintain competence (Ferenemark, et al 2020; Socialstyrelsen, 2020). Breton et al (2021) also mention that the lack of physical evaluation can negatively impact doctors' self-image. Evaluation is a fundamental part of being a doctor, and everyone is not comfortable removing that aspect from their profession. Hence, this was especially a challenge during the pandemic since many doctors were forced to work digitally (Breton et al, 2021).

Another challenge regarding digital video consultation and using a system, in general, is computer self-efficacy (Celuch & Taylor, 2004; Ong & Lai, 2006; Tung & Chang, 2008). The construct of computer self-efficacy was proposed by Compeau and Higgins (1995). It emerged from the general concept of self-efficacy, which was founded on the social cognitive theory developed by Bandura (1986). Bandura contended that perceived self-efficacy plays an important role in affecting motivation and behavior. Doctors will be more motivated if they feel that they have technical experience. A doctor may be more likely to undertake behaviors that he or she believes will result in valued outcomes than those perceived as having unfavorable consequences. In the context of using technology, computer self-efficacy represents a person's perception of his or her ability to use a computer to accomplish a task (Compeau & Higgins, 1995). Failing to understand and make sense of technology can affect doctors' self-perceived professionalism and make them feel less competent (Socialstyrelsen, 2020; Breton et al, 2021).

Purdy and Nye (2000) argue that digital video consultation is less time efficient than face-to-face interaction due to Doctors' difficulty in understanding each other and regulating conversations. However, more recent studies (Fernemark et al, 2020; Vårdanalys, 2020) do not agree with this and state that both patients and doctors experience digital video consultations as time efficient. This is not surprising due to the last decades' technological innovative advancements within telehealth (Thimberly, 2013). The workload is described as lower when using digital video consultation, but as the number of digital patients increases, the workload seems to follow, which is described as challenging (Fernemark et al, 2020).

Evaluation

Historically, the evaluation of patients has been conducted by face-to-face interaction consisting of two parts. The first one is the patient describing their symptoms and the doctor performing a clinical examination. The first one is considered subjective, whereas the medical examination shall strive to be objective and reproductive, based on the doctor's senses. These two parts can empower each other toward the same diagnosis, or pull them in two different directions. However, the combination of these two parts is the foundation of all healthcare (Tegelberg, Olsson, Ahlzen, Metsini, Holmgren & Bejerstrand, 2018). Usually, once the examination is conducted, there are only a few possible diagnoses left to be considered. Once mobile phones became an integrated part of people's lives, audio and video could be shared which reduced geographical hindrances. This technology can now be used as a tool to connect patients and the healthcare and is an integrated part of the Swedish healthcare system,

enabling guidance, referencing, follow-ups, evaluation, and time scheduling for patients (Tegelberg et al, 2018).

According to Tegelberg et al (2018), the degree of difficulty in evaluating a patient digitally can not be definite due to a limited amount of studies. However, in more recent studies Breton, Sullivan, Stoetzel, McKinstry, DePuccio, Sriharan, Deslauriers, Dong & McAlearney (2021) found that the evaluation of patients became more difficult and non-verbal cues were more difficult to notice in a virtual environment. Remote evaluation of a patient is described as difficult due to the lack of physical examination, and non-verbal information. Additionally, there are natural limitations to what a doctor actually can perform on a patient using telehealth (Ekman, Thulesius, Wilkens, Lindgren, Cronberg & Arvidsson, 2019). Further, making accurate diagnoses is also described as an obstacle in telehealth, which is in line with Husebo & Storm (2014) saying that all diagnoses can not be made digitally. The lack of visual information makes telephone consultation less efficient compared to video consultation (Breton et al, 2021; Tegelberg et al, 2018). However, face-to-face interaction enables more properly conducted diagnoses overall. In a study, Vardanalys (2020) asked doctors regarding evaluation efficiency in digital video consultation and it seems to depend on the case. 35 percent felt confident making a simpler evaluation as urinary tract infection. For psychological diseases and respiratory tract infection, only 15 percent claimed they were able to make accurate diagnoses of the patient. For additional ailments, only 7 percent considered themselves able to diagnose and evaluate patients correctly.

Isolation

Another challenge is connected to the isolation that many of the doctors using telehealth experience. Applying telehealth reduces sharing competencies and knowledge among colleagues since more work is performed remotely (Breton et al, 2021; Vardanalys 2020). Furthermore, feelings of loneliness and lack of assistance in medical questions arise, even though the doctors have the ability to interact with colleagues remotely (Vardanalys, 2020; Breton et al, 2021). Doctors that are used to working digitally do not experience the lack of colleagues and isolation as a challenge. Vardanalys (2020) mentions that this could be due to the fact that these doctors actively have chosen to work with digital video consultation. During the Covid-19 pandemic, several doctors were forced to work from home and could no longer meet their patients physically. Breton et al (2021) found that these doctors express the isolation and lack of colleagues as challenging.

2.5 Summary of the literature

The theoretical background is the foundation of our conceptual framework. Additionally, we also present a literature review summary matrix below. The summary will enable better readability, increase transparency, and make our conceptual framework presented in chapter 2.6 more understandable since one can see how the three different themes are connected. We believe this is in accordance with Webster & Watson's (2002) & Weick's (1995) statement saying that the review needs to make sense and be clearly presented. However, we want to acknowledge that based on our literature review, these challenges are overlapping and are affected by each other. This is illustrated in our literature summary and presented in our conceptual model in chapter 2.6.

In accordance with Webster & Watson (2002), we have created a literature review with the categorization of our literature into the three different themes. We wanted to make the transition from author-centric to concept-centric, and Webster & Watson (2002) and Salipante et al (1982) recommend that a concept matrix is a useful approach. Tables and figures are described as effective tools for communication. However, they can not only consist of articles but need to be categorized (Webster & Watson, 2002). A successful review enables the reader to make sense of the assembled literature. The review should be structured in a logical way and clearly present key findings and how these are related.

Table 1. *Concept Matrix*

Theme	Challenge	References
Personal	Evaluation	(Tegelberg et al, 2018; Breton et al, 2021; Ekman et al, 2019; Husebo & Storm, 2014; Vardanalys, 2020)
Personal	Isolation	(Breton et al, 2021; Vardanalys, 2020)
Personal	Stress	(Sutherland, Stickland & Wee, 2020; Vardanalys, 2020; Salanova et al., 2007; Gaudron & Vignoli, 2002; Breton et al, 2021; Schaufeli & Salanova, 2007)
Personal	Appearance of less professionalism	(Vardanalys, 2020; Fernemark et al, 2020; Socialstyrelsen, 2018; Socialstyrelsen, 2020; Breton et al, 2021)
Communication	Less Personal	(Dubrovsky, Kiesler & Sethna, 1991; Sproull & Kiesler, 1986; Fagerström et al, 2017; Donaghy et al, 2019; Gurp et al, 2015)
Communication	Trust	(Kimball & Morgan, 2021; Bos et al, 2002; Fernemark et al, 2020; Donaghy et al, 2019; Ferran-Urdaneta, 2001; Greenhalgh et al, 2016; Vardanalys, 2020; Wainfan & Davis, 2004)
Communication	Non-Verbal Communication	(Keutchafo et al, 2020; Matsumoto et al, 2010; Phutela, 2015; Wanko et al, 2020; Faucet et al, 2017; McKinstry et al, 2009; Debra et al, 2006; Happ et al, 2011; Brubaker et al, 2012; Donaghy et al, 2019)
Technical	Network	(Istepanian & Lacal, 2004; Sundström, 2021; Sveriges Kommuner och Landsting; Barreiro, Coles, Conradt, Hales, Zellmer, 2020; Yao & Ling, 2019)

Theme	Challenge	References
Technical	Audio and Video lag	(Breton et al, 2021; Wainfan & Davis, 2004; Fernemark et al, 2020; Donaghy et al, 2019)
Technical	Technical Experience	(Fernemark et al, 2020; Jarvis-Selinger et al, 2008; Koivunen et al, 2015; Region Stockholm, 2019; Collier et al, 2016; Donaghy et al, 2019)
Technical	Interoperability	(Vardanalys, 2013; E-delegation, 2013; Holm & Westring, 2015; Socialstyrelsen, 2013; Kommunal et al, 2013; Kaptelinin & Bannon, 2012; Fernemark et al, 2020)

2.6 Conceptual Framework

Based on the three identified themes mentioned above, the conceptual model (see Figure 1) has been developed and is the basis for our thesis. Technical, Communication, and Personal can be described as themes, and each theme includes several different minor challenges which are presented below. The goal of the study is to explore the challenges of digital video consultation from a doctor's perspective and thus, it is important to acknowledge that there are several additional challenges that are not mentioned in this framework. As mentioned in the delimitations, challenges regarding patients, organization, development of the technology, and legal issues are not considered since they are not in line with our research question. The first challenge is Technical which is a crucial aspect since it is the enabler for digital video consultation. The second challenge is Communication which is significant since communication with patients is one of the most considerable parts of being a doctor (Socialstyrelsen, 2018). The third challenge is Personal. In the Personal theme, we include more personal challenges that are mentioned in the literature regarding digital video consultation. We found this theme important since Technical and Communication include more specific challenges, whereas Personal includes more vague and abstract challenges that seem more subjective, but are still important. We found that presenting the challenges in this way makes it more readable and gives a better overview (Webster & Watson, 2002).

In the process of conducting relevant literature for our study, we aimed to find theoretical models that could be applied to support our research. Although, this was more difficult than we expected. Established IS theories such as the technology acceptance model (TAM) (Chau, 1996; David, 1989), and Media Richness Theory (Suh, 1999), and also the Productivity Paradox (Brynjolfsson, 1993) were considered, but we did not find them to be as applicable as anticipated. The Productivity Paradox is targeting a more organizational point of view, whereas Media Richness Theory was considered to be too narrow in its design, and TAM is used to explain acceptance and use of technology and related research are quantitative-based. We did not find any of these fitting into our research. Hence, after getting feedback in seminars from classmates, and discussing the issue with our supervisor, we decided to create

our own conceptual model. The conceptual model is based on the conducted literature review presented in chapter 2.5 (Webster & Watson, 2002), which aims to reflect the current state of digital video consultation and its challenges from a doctor's perspective. The process of creating the conceptual framework will be described more thoroughly in chapter 3.2. Since we did not manage to find a theory that matched our field of study to the extent we wished for, we found that creating our own conceptual model would enrich our study even more, rather than forcing an existing conceptual model to fit our research question.

Initially, we were not sure how to create our conceptual framework in an appropriate way based on our literature review. However, after looking at the existing literature, we found that labeling our challenges in themes would be beneficial. Studies conducted on similar topics have used this approach (Donaghy et al, 2019; Breton et al, 2021; Fernemark et al, 2020). Also, Webster & Watson (2002) states that dividing the literature into different sections can make the communication more effective for the reader. We considered using the Breton et al (2021) framework for themes, but since their study also includes the patient perspective and focuses primarily on the Covid-19 aspect, we did not find it suitably for our thesis. Albeit, we were influenced by these studies and found this way of structuring our conceptual model as advantageous due to increased readability. Also, since there are a number of potential challenges, dividing them into themes makes the presentation more lucid.

The literature review is presented below through a conceptual model which explains the relations between the three themes. In the middle, we have Digital video consultation which has three identified themes of challenges. The solid arrows illustrate this. The themes are connected, and the severity of the challenges depends on the relationship with each other. The dotted arrows illustrate this.

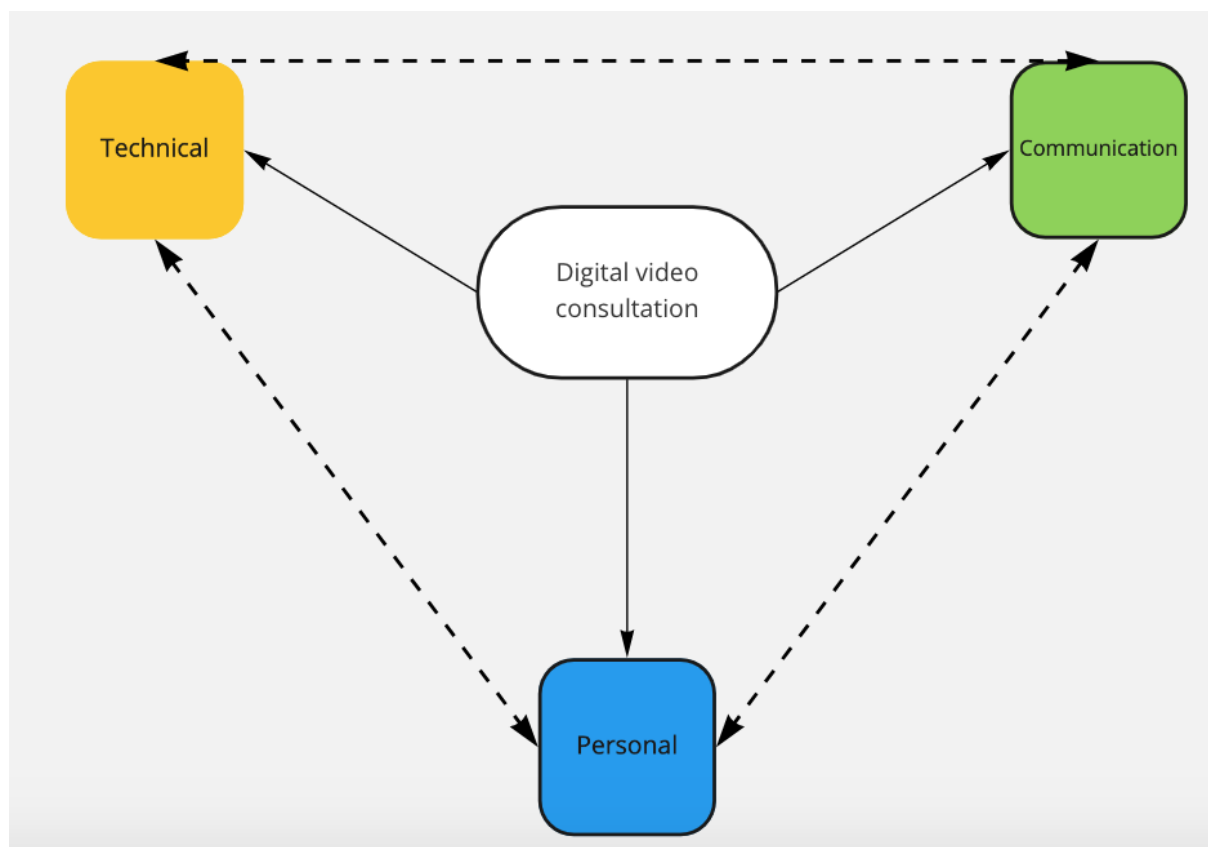


Figure 1. *Conceptual model.*

Table 2. *Conceptual model*

Technical	Communication	Personal
<ul style="list-style-type: none"> • Audio and Video lag • Technical experience • Network • Interoperability 	<ul style="list-style-type: none"> • Lack of non-verbal communication • Less personal • Trust 	<ul style="list-style-type: none"> • Appearance of less professionalism • Evaluation • Stress • Isolation

When we think of these three different themes, we want to investigate how they may or may not be related. It is important that we can see connections with the different terms to understand how we should develop our model. Once we have understood what the previous research says about our created terms, we can then draw conclusions about parallels. This is how we look at them and understand the different terms. According to Webster & Watson (2002), it is important to explain to the reader what we have learned. Explicitly, the identified patterns from the literature should be presented. Daft (1985) states that one should not be overly critical of the previous literature since prior work is inevitably vulnerable, especially

within emerging fields. Rather, our aim is to explain how the research presented adds value to our research (Webster & Watson, 2002).

Technical is connected with Communication in several ways. Lagging audio and video, and unstable networks will affect communication negatively for obvious reasons. Also, audio delays can cause a degree of talking over, and the etiquette and unwritten rule of waiting and pausing until the other party has a chance to speak can become a major communication problem. It is more difficult to establish trust in a digital video consultation. It can be accomplished but it takes more time and effort. It is easier to establish trust face to face since social remarks and non-verbal communication is easier noticed. Communication is also connected with Technical. To communicate digitally, one is dependent on technology, without technology it is not possible to communicate using digital video consultation. Intimate conversations are less prone to occur in digital video consultation, and insufficient technology will enhance this phenomenon, reduce the level of trust, and prevent relationship building.

Technology affects Personal aspects in many dimensions. First and foremost, technology can cause personal stress and anxiety called technostrain. Technostrain can lead to actual fear of computers or technology and can lead to poor decision-making and difficulty in memorizing.

The Personal theme can also have an impact on Technical. If a person's personal attitude towards a system is negative even before the start of using technology, it will have a huge impact on how the person handles the system. It could lead to resistance and irritation towards the system. Complex systems, lack of interoperability, and limited technical experience can increase the level of stress, reduce the quality of the consultation and prohibit evaluation. Consequently, such technical concerns can affect Personal, since it can decrease doctors' perception of competence and be perceived as less competent by patients. Further, Technical obstacles also increase the feeling of being isolated and lonely.

Communication and Personal are also connected. Failing in establishing relationships with patients can make one feel less competent as a doctor. Also, struggles in Communication can limit the evaluation of a patient, and thus make the skills and competence of the doctor stagger over time. Further, patients tend to be less patient, communicate more directly, and question doctors to a larger extent in a digital environment. This can be perceived as stressful and thus make the working environment less attractive.

3 Research Methodology

In this chapter we will explain our approach and the methods that will be used in this research. Research approach, data collection, data analysis will all be described, followed by ethical considerations and scientific quality.

3.1 Research Approach

A qualitative method was chosen to answer our research question. The interest for qualitative research in information systems has grown for several years (Goldkuhl, 2012). The qualitative method is effective when studying the social and cultural contexts of people (Recker, 2013). Compared to quantitative - which “has the tendency to isolate specific aspects of phenomena by measuring only these” - qualitative methods explore why the phenomena occur and investigate them from a “real-life” context (Recker, 2013). A qualitative research method focuses on people’s beliefs and experiences (Haradhan, Kumar & Mohajan, 2018), and is appropriate when a field is not widely explored and still developing. Another benefit of qualitative research is examining phenomena more deeply (Recker, 2013). Since we want to examine the challenges regarding digital video consultation for doctors - which is a relatively new and emerging field - we argue that a qualitative method is the better option. Furthermore, Schultze & Avital (2011) states that qualitative research describes and clarifies people’s experiential life, and how they understand and interpret these experiences. Hence, the qualitative method enables us to examine the doctors’ own understandings, which are connected to our research question. Our collection of data will not provide numerical data but instead consist of experiences, values, and ethical approaches. Hopefully, the provided data will be rich, meaning the interviewees are thick in their descriptions. A thick description considers both the social and physical context and the interviewee’s intentions. This is important since the meaning behind actions or events is shown (Schultze & Avital (2011). Rich data is considered as a label of credibility within qualitative research, and - unlike quantitative research - includes details, motivations, the social context, and intentions within the event or action the interviewee participated in. A thick description in addition to a high research quality overall can make the data more valid and avoid misinterpretations (Schultze & Avital, 2011). However, Alvesson (2003) criticizes simply using qualitative research as a tool for producing rich data because it does not consider the number of social challenges connected to an interview. For example, an interviewee could have an agenda and therefore adapt their answers to benefit their interests. Such challenges will be considered by applying a combination of the romantic and localist interview perspectives (Schultz & Avital, 2011). The interviews will be grounded on the doctor’s perspective, and how they understand and experience the subject. Focusing on lived events enables the interviewer to understand the interviewee’s world and seek deeper understanding. This will make it more difficult for the interviewee to express prepared, well thought out answers without it being too obvious for the interviewer (Schultz & Avital, 2011). Also, unspecific and generic answers will be reduced and more rich data will be generated. According to Schultz & Avital (2011), a romantic and localist interview perspective also needs to consider the data to be narratives. Hence, the data should not be considered established facts. The narratives given in an interview are variations of the social world in which they are constructed and people make sense of the world in

different ways. In addition, an interview guide that guides and urges the interviewees to express their experiences needs to be provided.

3.2 Data Collection

Finding Literature

The foundation of the research is based on a literature review and a qualitative research method, using semi-structured interviews. To get an overview and understanding of the current state of the field, the problem area, and relevant theories, a literature review was conducted (Recker, 2013). A literature review can help the researcher avert pointless information, and help gain new perspectives. Shedding light on new perspectives is considered the most important aspect of literature review (Randolph, 2009). According to Webster & Watson (2002), reviewing prior and relevant literature is a fundamental part of academic papers. Conducting an effective review constitutes a solid foundation for contributing new knowledge within the field. Collecting the literature review was challenging since it required lots of time and comprehensive work. Although it was time-consuming and challenging it was worth the struggle. It enabled us to develop our conceptual model. The majority of our literature was collected from Google Scholar and the University library - LUBSearch. However, we found relevant studies conducted by Regeringskansliet and Socialstyrelsen by simply using the Google search engine. Due to digital video consultation only being a few years old, it was at first difficult to find relevant literature. The majority of the initial research was targeting telehealth in general, whereas digital video consultation was rare. There are several different names used for digital video consultation, for example telemedicine, eHealth, virtual visits, virtual meetings, virtual consultation, and remote consultation. However, by using different queries we managed to find relevant literature. Examples of queries we used: (“digital” OR “virtual”) AND (“consultations” OR “visits”), (“remote” OR “digital”) AND (“consultations” OR “visits”). We also combined these queries with (“challenges” OR “limitations”). Using the technique of queries was helpful and made it easier for us to sort within the existing literature. We first studied the title of the articles to get a better understanding of their content. Many articles only targeted an audience related to healthcare, these were removed, as well as duplicates. Secondly, we read the abstracts in detail which gave us helpful information regarding the relevance of the articles for our study. As mentioned in the literature review, many articles focus on the patient perspective and hence, needed to be removed. Once the screening was done, we had several articles which we considered to be relevant. Both researchers read the remaining articles, looking for new perspectives, disagreements between authors, and new insights. Randolph (2009) states it is beneficial to look for disagreements and conflicting ideas between authors during this stage of the research process. Further explanation of our process of conducting literature for our literature review is described in the following section.

Conceptual Model

IS has a relatively short history and is an interdisciplinary field, which is one of the reasons why the amount of IS theories are quite few. However, the literature review is described as the foundation for further research within the field of IS (Webster & Watson, 2002).

The conceptual model is based on the literature review we have conducted, and after exploring the literature using Webster & Watson's (2002) three steps structured approach, three major challenges in digital video consultation from a doctor's perspective were found. The challenges are Technical, Communication, and Personal. The process of identifying these themes was comprehensive and the process of creating our conceptual framework is described in the following section.

Webster & Watson (2002) argue there are two different reviews that can be conducted. One is within fields that are considered mature where there is a robust amount of research available. The second one is where the authors explore an emerging issue or field that is lacking research and would benefit by exploring new theoretical foundations. This thesis is in accordance with Webster & Watson's (2002) second type of review. When creating our conceptual model, we have acknowledged Webster & Watson's (2002) statement saying that there is no specific formula for composing a successful model. Bem (1995) & Daft (1985) argue that this can be compensated by having several independent people evaluate the model. Hence, the model has been adjusted and changed multiple times during the process after receiving feedback from supervisors and classmates.

The initial stage is to provide the reader with motivation for the chosen topic and state the contributions of the paper (Webster & Watson, 2002). This is done in the introduction chapter. Also, the limitations of the paper need to be presented in order to set the boundaries. In our limitations, we present that our empirical findings are mainly relevant for the Swedish audience since the conducted interviews are done with Swedish doctors and thus conclusions should be cautiously used in other regions, which is in accordance with Webster & Watson (2002). Although, we have also acknowledged Webster & Watson's (2002) statement that a review should not limit itself to one specific research methodology, region, or a few research journals. Therefore, the literature review can be considered to be more generic and has not limited itself to the literature regarding Sweden.

To determine the source material we have used Webster & Watson's (2002) three-step structured approach. The first step is starting out by looking at the papers in the leading journals within the field. This work was extensive, and therefore reading the table of content and looking for keywords in the journals was advantageous since it facilitated the scanning process. Initially, we started looking for papers in the literature on telehealth since it is a more generic term than digital video consultation and covers a wider scope (WHO, 2021). We were not sure to what extent the telehealth literature would be useful, but we found this approach beneficial since it gave us an extensive understanding of the field. Also, the approach forced us to widen our search for challenges. Additionally, we only focused on challenges in telehealth that could affect doctors. Therefore, organizational, societal, and economic challenges were ignored. Challenges regarding unstable networks, evaluation of patients, and feeling isolated are examples of challenges frequently mentioned in both telehealth and digital video consultation literature. However, since digital video consultation is a part of telehealth, these challenges are very much relevant for doctors working with digital video consultation, but could also be applied to challenges in telehealth in general.

During the first step of Webster & Watson's (2002) structured approach we saw that several articles use technology as one of their themes (Fernemark et al, 2020; Donaghy et al, 2019). Compared to Fernemark et al (2020), Donaghy et al (2019) is more specific in the naming of themes, but technological challenges are identified throughout the study's empirical findings. This is in accordance with Vardanalys (2020), Breton et al (2021) & Greenhalgh et al (2016)

who all present challenges related to technology. Additionally, several other sources were found mentioning technical challenges regarding digital video consultation and telehealth, which can be seen in the literature summary. Hence, we argue naming one of our themes Technological is valid and well grounded in literature. In our conceptual framework, we define technology challenges as challenges directly related to technical flaws. We argue technical experience should be included in Technology since Vardanalys (2020) labels it as a technical issue, and Collier et al (2016) argue it is vital in to reduce disturbances in a digital video consultation.

Additionally, in the first step, we also identified that Challenges related to communication are frequently occurring in the literature. These challenges are presented in different ways, and could potentially be labeled as other challenges. However, looking at the literature we identified a recurrent theme of challenges closely linked to communication. Breton et al (2021) and Fernemark et al (2020) mention difficulties in establishing trust and building relationships with patients due to the limitations of digital video consultation as a medium compared to face-to-face interaction. Donaghy et al (2019) and Vardanalys (2020) mention similar concerns, and further describe it as more difficult to discuss personal issues when using digital video consultation. Further, the lack of non-verbal communication is mentioned as a challenge by Breton et al (2021), Donaghy et al (2019), and Vardanalys (2020). One could argue the challenges mentioned above could be due to technical issues as well. This is not wrong and could be the case since these limitations can become worse due to technical flaws. However, in our conceptual framework, we argue that technical challenges can affect communication negatively, whereas digital video consultation as a stand-alone medium has communication limitations and therefore should be considered as a theme in our conceptual model (Ruppel et al, 2017). Additionally, several other literatures mentions communication as a challenge, which is shown in our literature summary.

The second step of the three-step structured approach consists of going backward and scanning the references used in step 1 (Webster & Watson, 2002). We found this step to be effective since it enabled us to get a comprehensive view of the field and ensured that significant literature was not missed. In this step, we found that personal challenges are mentioned in the literature (Fernemark et al, 2021; Vardanalys, 2020; Donaghy et al, 2019; Breton et al, 2021). To clarify, in our conceptual framework personal challenges are referred to as challenges that affect the doctor personally. One could make the case that the challenges in Technology and Communication should or could be considered as personal challenges as well. Since our conceptual framework implies that the three themes are all connected, we do not disagree totally. However, we argue that the challenges in Personal are more related to concerns regarding the doctor on a personal level. Appearance of less professionalism, stress and isolation are such examples. Since this thesis focuses on the challenges from a doctor's perspective, we argue that challenges in evaluation of patients can be seen as a personal challenge as well, which is mentioned by Breton et al (2021), Vardanalys (2020) & Fernemark et al (2020).

The third step of Webster & Watson's (2002) three-step structured approach includes using the Web of Sciences to get access to articles that are cited in step 2. However, since we do not have access to this tool, this step could not be performed. To make up for this, we focused more explicitly on steps 1 and 2. Webster & Watson (2002) state that the review is starting to be finalized when new concepts and findings do not present themselves, which occurred to us after thoroughly conducting steps 1 and 2. To ensure the review was in its concluding phase, both authors performed 1 and 2 separately throughout the process and then shared our

findings. When either of us managed to find new concepts we started structuring the review, which is in accordance with Webster & Watson (2002). Evaluating the conceptual model is a challenging task (Webster & Watson, 2002). Weick (1995) states that the model should “explain, predict and delight” and Davis (1971) says it also should be interesting.

Semi-Structured Interviews

In order to collect data for this research proposal, we used semi-structured interviews as our method. To get a more comprehensive and complete understanding of the topic, qualitative research with an interpretive approach has been used. According to (Klein & Myers, 2001) a qualitative method with an interpretive approach is considered valid and accepted in the Information Systems field. Further, Bhattacharjee (2012) states that the combination of qualitative research and an interpretive approach makes interviews an applicable technique for collecting data. Our research seeks to identify and analyze the challenges for doctors regarding digital video consultation. Hence, gathering respondents' subjective understanding of the topic was key. According to Bryman (2016), interviews are effective since they enable one to get detailed, contextual, and rich information regarding subjective opinions, feelings, emotions, and thoughts. Therefore, we found interviews to be an appropriate approach in this study.

When doing interviews, semi-structured interviews are one of the most commonly used approaches (Recker, 2013). Since we wanted the interviewees to express their subjective thoughts and feel free to express themselves and not be limited by our predetermined questions. Also, semi-structured interviews made it easier for follow-up questions. Semi-structured interviews enabled us to ask questions that were not formulated in advance but are related to the topic and issues (Reckler, 2013). It also offers flexibility for the interviewee and enables a more free discussion regarding their experiences, thoughts, and perspectives. Usually, semi-structured interviews are not as intrusive due to their encouragement of two-way communication. For example, the interviewee has the opportunity to ask questions to the one interviewing which enables a more dynamic interview (Recker, 2013). Semi-structured interviews also provide not only answers but explanations for the answers. Further, in a more conversational instead of structured dimension, individuals are more prone to discussing personal topics (Recker, 2013).

Initially, we aimed to conduct the interviews face-to-face with our respondents. However, finding people with experience in digital video consultation that was willing to participate in our research was more difficult than expected. This will further be discussed in chapter 3.4. Our responders are located in different parts of Sweden, and therefore all interviews were conducted online using Zoom as our communication tool. Conducting the interview online has its advantages and disadvantages. The beneficial part was that the responders were in a familiar environment and in a comfortable place. Additionally, it was more time-efficient. However, - as this paper implies - doing the interview face-to-face could have added dimensions to the responder's answers, and given us further insight (Wilson, 2012).

Interviews also come with several weaknesses and challenges which need to be considered. Reflexivity, when the interviewee is affected by the situation and therefore responds in a way that satisfies the interviewer, is one example (Recker, 2013). Further, inaccuracy in answers, and the fact that the doctor is a stranger to the one interviewing, which could lead to artificiality, are other. Despite these weaknesses and challenges we still argue the advantages

exceed the disadvantages, and that a qualitative study with semi-structured interviews is the most suitable method for our research. To avoid reflexivity from the interviewee, our aim was to present questions that are neutral and unbiased (Bryman, 2016). By recording and transcribing, we limited the risk of misinterpretation.

According to Walsham (2006), an interview can provide rich answers if the interviewers possess a high level of social skills. We believe this is in accordance with us. Therefore, we aimed to do our interviews in Swedish since we wanted to examine doctors in Sweden. If their mother tongue language was another language, we would have suggested performing the interview in English, depending on what the doctors feel most comfortable in. We believe the interviewees are more confident and comfortable in expressing themselves in their mother tongue language, and hence the answers will be of higher quality. Albeit, if the respondent would have been more comfortable in English, we were open to conducting the interview in English as well. Ideally, we wanted to do our interviews face-to-face because it could create a setting that is more prone to openness and honest answers (Walsham, 2006). Nevertheless, this was not possible due to logistic factors.

Interview Guide

We assembled a document with relevant questions which was the start of our interview guide. A predefined semi-structured is one of the most utilized types in qualitative research within IS (Recker, 2013). Therefore, in accordance with (Myers & Newman, 2007) we found that a structured script would be beneficial as a guideline for our interviews. After further discussion and additional work, a script for the interview was developed. We found it important to have a script during our interviews since it enabled us to prepare for the interviews and not ask random questions (Recker, 2013). This also diminished the risk of having to go back and ask additional questions to the interviewees because we were not properly prepared, which according to Myers & Newman (2007) is not appropriate. The interview guide was based on the main themes in the literature review which constituted the structure of the script, although we left room for flexibility to ensure rich answers (Recker, 2013). Hence, the established questions in the interview guide were followed by follow-up questions depending on the answer, enabling more freedom and improvisation.

When structuring our interviews we used Myers & Newmans (2007) four steps. These steps include preparing the opening, the introduction, the key questions, and the close.

The first step - preparing the opening - includes general information about our research topic and the purpose of the study. Furthermore, information regarding privacy was given to the responders to make sure they felt comfortable (Myers & Newman, 2007). We decided to explain the purpose of the interview before recording since it enables the interviewee to make a decision whether or not they want to participate. Myers & Newman (2007) does not mention this, but Bhattacharjee (2012) argues it is beneficial. Moreover, we also asked the responders for permission to record the interview (Bhattacharjee, 2012).

In the second step - the introduction - it is important to start off patiently. The most urging questions should not be asked initially, since they can be perceived as threatening. Therefore, the interview should start off with straightforward questions like name and how long he or she has been working with digital video consultation, to establish comfort (Bhattacharjee, 2012).

Since we wanted to perform semi-structured interviews, in the third step - preparing key questions - our goal was to ask questions that enabled follow-up questions. This section was split up into three main themes Technical, Communication, and Personal which is in line with our conceptual model. As is shown in Table 2, the themes in our model include several minor challenges, which were taken into consideration when constructing the questions.

The fourth and final step - the close - included thanking them for their participation and asking whether they wanted to add something additional that had not been acknowledged during the interview. In accordance with Myers & Newman (2017), we also asked whether or not it would be possible to contact them again if additional questions needed to be asked.

Table 3. *Interview guide*

Technical	<ul style="list-style-type: none"> • Have you experienced any technical issues when working with digital video consultation? In what way? • Have technical issues affected your work? In what way? • Have you had any training or education in digital video consultation?
Communication	<ul style="list-style-type: none"> • Are you aware of your non-verbal-communication? • Do you actively think of your NVC when consulting a patient? • In your opinion, how do you find digital video consultation when it comes to creating an environment of trust? • Do you feel like you understand the patient when using digital video consultation?
Personal	<ul style="list-style-type: none"> • How is it working alone? • Do you feel like you have support in your work? • Do you believe your full potential as a doctor is being explored when working with digital video consultation? • How is it evaluating a patient using digital video consultation? • Do you feel stressed working digitally?

Data Transcription

Once the interviews were collected, we needed to transform the data from oral into written form. Kvale (1996) states the importance of transcribing as soon as possible. Since we conducted three interviews during two intense days, this was quite difficult to manage. However, we managed to transcribe each interview within 24 hours after finalizing them. We used the software Trint, which assisted us greatly in transcribing. The software was helpful but not perfect, and therefore we had to manually fix errors made by Trint. Since our responders are anonymous, certain data needed to be anonymized to not reveal their identity. This is further elaborated in section 3.5.

3.3 Main Interview

We have chosen a purposive selection where, according to Bryman (2002), the aim is not to select Doctors randomly but rather a controlled selection. This is because our study targets doctors who work with video consultations and have a minimum of one year's experience in this field. Since our study targets doctors, interviewing stakeholders of telehealth companies or patients was not considered. Even though the selection of participants had some prerequisites, we applied convenience sampling and snowball sampling (Myers & Newman, 2007). As digital video consultations are a relatively new concept, we knew that there would be a limited number of doctors with 10+ years of experience, but we wanted to see that all Doctors had worked with it for at least one year. The target range for finding potential interviewees was relatively narrow, so it required extensive research to find suitable informants. Through personal contacts, and with the help of our supervisor, we were able to find suitable doctors. To start, we presented everyone we knew to each other that possibly could know someone that would be suitable for our thesis. We found a few leads and contacted them to explore our options. By using our personal contacts we managed to get two interviews. However, we quite soon realized that this approach would not be enough, and therefore we started to reach out to telehealth companies such as Kry, Doktor.se, and MinDoktor. The companies answered quickly but were reluctant to participate in our study. Although, after a while, we managed to get an interview which consequently led us to two more interviews via snowball sampling (Myers & Newman, 2007). We argue the people we interviewed can be considered experts within the scope of this thesis, which is in accordance with Bhattacharjee (2012) who claims informants should have in-depth knowledge and expertise within the field.

All Doctors have experienced virtual consultations. Two of the Doctors (B and C) started with video consultations as a part-time job outside their official workplace. Nowadays, Doctor C works with video consulting full-time and is the only one working full-time with digital video consultation, without seeing any patient physically. All doctors work in different places around Sweden and for different companies and hospitals.

Table 4. *Summary of respondent details*

Doctor	Years of experience	Digital hybrid or full time	Length of interview
A	4	hybrid	33:31
B	2	hybrid	25:48
C	4	fulltime	29:06
D	4	hybrid	38:55
E	3	hybrid	28:22

3.4 Data Analys

After finalizing our interviews we wanted to create a condition in which our research question could be answered. Therefore, the collected data needed to be documented, transcribed, and analyzed. Analyzing the data is essential for finding the relevant parts and making sense of the material (Patton, 2015). Collecting data using a qualitative method is an advantage due to the large amount of data you collect, even though it is time-consuming to handle all the data (Recker, 2013). Since we use semi-structured interviews, every interview could potentially be different from one another, which makes it even more essential to effectively handle the data.

According to Recker (2013) “coding is the most useful technique” for reducing large amounts of data into useful and meaningful information. Miles & Huberman (1984) also mention the importance of data reduction to transform unstructured data into organized data and enable valid conclusions to be made. Coding helped us organize and categorize our data collection by using tags and labels (Recker, 2013; Miles & Huberman, 1984). Bhattacharjee (2012) and Recker (2013) mention three coding techniques (open, axial, and selective) for analyzing data in text. Open coding refers to the process of identifying and naming ideas, patterns, and concepts that are related to the interest of the thesis. Some parts were obvious, whereas other parts were more difficult to identify. Further, axial coding refers to identifying relationships and connections from the open code and organizing these. The third part - selective - implies identifying one or several core variables or categories and systematically relating these to other categories (Recker, 2013). In our thesis, we believe open coding was the most useful technique since we want to examine the challenges with digital video consultation from a doctor’s perspective. These experiences and perspectives might not be clearly stated and therefore we need to uncover what they truly imply with their answers. We also combined the

open coding with Rennstam & Wastfors (2018) color-coding system - where every category is given a color - to distinguish and separate the different categories. Additionally, Mai & Steffen (2019) argue several rounds of coding can be necessary to reduce the identified categories into a smaller amount. Also, we strived to have a high quality in our coding process. Since we are two researchers for this thesis, we analyzed the collected data separately and then compared our findings. Mai & Steffen (2019) argue this enhances quality and consistency.

To remember how the interview was perceived when it happened is called memoing and is a useful tool. It facilitates the future work of analyzing the data (Bhattacharjee, 2012). It can be described as a subjective reflection of what happened when the data was collected (Recker, 2013). In our case, we found it important to remember how we interpreted the interview when they happened. Thus, writing down thoughts and impressions right after finalizing the interview was an important tool.

3.5 Ethical Considerations

In this study, neither people nor the environment were harmed. The study has also followed personal ethics in the pursuit of research (Booth et al, 2008). This includes reliability, honesty, respect, and accountability. By this, we as researchers are responsible for the quality of the research. We are honest when we develop and implement, and report and inform others about research in an open, objective, and fair way. We respect our colleagues and our doctors but also the society, culture, and environment. We are responsible for the entire research study, from beginning to end. This is a fundamental principle on which good research practice is based (Vetenskapsrådet, 2021). The principles have given us as researchers good guidelines on practical and ethical problems associated with the research.

For the reason that the interviews have been in a type of meeting room, face-to-face, where we have met the doctors in one way or another, the anonymity is hard to preserve. We, as researchers, have taken appropriate actions to ensure that the confidentiality of the data has been maintained (Patton, 2014). However, all doctors were asked if they wanted to be anonymous or not. Two responders wanted to be anonymous whereas the others did not have any preferences. Despite this, we decided to make all responders anonymous to limit the risk of the responders being harmed, which is in line with Bhattacharjee (2012). The Doctors of the research involve voluntary participation which gives the respondents the freedom to choose whether they want to participate or not without further consequences (Patton, 2014; Recker, 2013). Also, disclosure was provided to the responders, meaning they were given information prior to the data collection and hence could make a decision whether to participate or not (Bhattacharjee, 2012). By informing the respondents about the purpose of the study and their task in the study, their participation was voluntary and all of the doctors had the right to withdraw from the study prior to concluding the study. An informed consent form has been assigned to all doctors to ensure their rights in the study. Because the study could potentially deal with sensitive information about the doctors' vulnerability, it was especially important to make it clear to all doctors that all the information they shared would not be able to be linked back to them. The doctors were verbally informed about the researchers, the university that was included, and also about the study, and how the study was aimed to be used and conducted. This was done by contacting the respondents using email or telephone, which is in line with (Bhattacharjee, 2012). With confirmation from each doctor,

the interview was conducted and recorded. However, to minimize the risk of getting biased answers, and still offering disclosure, we decided not to send our entire interview guide in advance. Instead, we sent a brief email with the most vital information regarding our study (Bhattacharjee, 2012). After the interviews were conducted, the interviews were transcribed. Since the interviews were conducted in Swedish we had to transform them into English. This was a time-consuming and difficult task. First, we used the software tool Trint to create the first transcript of the interview in Swedish. This tool was helpful and gave us a better overview of the interview, but unfortunately, Trint was not able to translate the interviews into Swedish in an accurate way. Also, the transcript from Trint needed to be edited since the software missed a few words or misinterpreted what was actually said. This was done by both researchers to ensure better quality (Kvale & Brinkermann, 2009). Then, the edited Swedish transcript provided by Trint was translated to English on our own by studying the transcript closely and listening to the recording. This was done by both researchers. The results were then compared and changes were made accordingly and merged into one single transcript. If we disagreed on how to accurately translate, we made a note and then went back and listened to the tape again. In most cases, we then ended up agreeing. We decided to translate the transcript into English to increase the readability and accessibility of our paper. This gives the reader the possibility to study the original data, which Nikander (2008) stresses the importance of. It is also important to acknowledge that minor changes in the original data was made for better readability. Hence, laughing, coughing, and fill-out words such as “ah” and “ehm” has been removed. The finalized transcripts were sent to the doctors, allowing them to validate the data and express if certain statements should be removed or edited. This was done to avoid possible misinterpretations or misstatements and to allow the doctors to delete statements that they do not wish to be included in order to preserve their anonymity. To secure the information, personal data, and contact information. audio and the transcribed manual were stored on an additional offline hard drive. Since this study has its main focus on healthcare and primarily on doctors. Working with patients within the healthcare system demands extra attention to ethics (Corrigan, 2003). However, this study has no intention to include patients as doctors. Because of this, no patient-related ethical concerns were raised.

3.6 Scientific Quality

As this research has a qualitative research approach, certain actions have been done to ensure the quality of the research. The study has the main focus to ensure as much objectivity in the research as possible. This study includes several principles of the scientific method. We, as researchers, have worked with documents, archivad and shared our findings and methodologies in return to give them the opportunity to verify the results. In our study, there has not been any manipulation of data, processes, or changing in results such that the research is not accurately responding to the research record. For a study to have high scientific quality, the parameters reliability and validity need to be established (Jacobsen, 2002). Reliability is concerned with consistency, stability, and repeatability to collect and record information accurately. The result of good reliability is for the researcher to yield consistently the same results over repeated testing periods (Brink, 1993; Bhattacharjee, 2012). To enhance reliability we have used recording devices in our interviews and then we have transcribed the digital files. A factor that affects the reliability is where the study is conducted and takes place. It is favorable to be in a natural context for the respondent, for example at their home or at their workplace. Our goal was to conduct the interviews face-to-face, but due to geographical hinders and a short amount of time, we found it more efficient to conduct the

interviews via Zoom. This increased the flexibility of the responders, enabling them to choose the time and a suitable location for the interview.

Validity in research is concerned with the truthfulness and accuracy of scientific findings (Brink, 1993; Jacobsen, 2002), to make sure that the data collection is relevant to what the study aims to explore. To ensure that the research is validated we have chosen to include a moderator. With help from a moderator, we can ensure that the data is genuine and is not influenced by what we as researchers want to hear. The themes created in our study are in line with previous studies and constitute the basis for the interview guide. Validity can be established by having credible responders (Seale, 1999). Since all of our respondents are working full-time/part-time with digital video consultation, we argue this is ensured.

Due to the fact that this research is qualitative research with semi-structured interviews with our doctors, one could criticize the lack of generalizability. Generalizability is the definition of how the findings can be generalized from the study sample to the entire population (Polit & Hunger, 1991). We would not argue the opposite, our study can not be generalized to all doctor's opinions. However, the goal of this study is not to generalize but to have redeeming qualities that set above the requirement. In this situation, we want to be focused on a selected phenomenon where in-depth description is an essential component of the process. The result of this will be a qualitative study with more personal understandings and perspectives to contribute valuable knowledge to the community and future researchers. The respondents to our study may communicate openly to us, despite that the results might differ depending on how openly they would answer to a different researcher. The outcome of this is that this study is difficult to duplicate with an equal outcome. Despite this, our research will inform and enhance the reader's understanding.

4 Empirical Findings

In this chapter we will present the doctors' answers. The chapter is organized according to our conceptual model where each heading represents one of the three themes. We have also discovered other challenges outside our conceptual model that will also be presented. Under each heading, responses from different doctors are presented with quotes included. Since the interview was conducted in the doctors' native language, Swedish, a detailed and accurate translation has been made into English. The quotes are available in the transcription under the appendix.

4.1 Technical

Technical experience

Due to doctors' professionalism not including any technical knowledge, we asked the doctors if they have gotten any education or training in digital video consultation. All Doctors acknowledge that they have received some kind of introduction, but the quality varies. Doctors A, B, and C have had some kind of formal introduction but everyone says it was not that technical. Doctor B says that the introduction was more about routines and did not include any kind of detailed system review. Instead, Doctor B states that being computer literate has been very helpful. Doctor C has a similar experience and says it was more about a briefing on patient encounters and record-keeping rather than purely technical training. Doctor A explains that the technical knowledge comes as you go along, and explains that if you are afraid of technology you should not work with digital video consultations. Doctor D and E have not got any formal introduction or training on video consultation. However, they both received a written manual that also includes pictures and explanations. They both agree that the manual is well written and helpful, in spite of that Doctor E admits that if the system is not used for a few days, one does not remember everything in the manual, and since no proper training has been given, one has to go back and check the manual. Doctor D, who has not had a formal technical education except a manual explains what the internal training is supposed to consist of:

“The idea is that you teach a few and then you teach each other. That's the way the system is set up, so there's no formal training that you can take, you have to get help from a colleague.” (Doctor D)

Both Doctors D and E still agree that the manual is helpful and self-exploring. With or without technical training, we wondered what would happen if a problem arises that doctors cannot solve themselves. Is there someone they can turn to for quick advice or guidance? Doctors A, B, and C say that they all have technical support to help them at all times. Doctors B and C also say that they have various digital channels where other doctors are connected to whom they can turn too if there is a problem. In the digital channels, they get answers from other doctors who can help. Doctor A who also has good technical support describes:

“As for the technology, we have received very good support. I find that the system has few breakdowns and then we have a very quick response through our support system if there is a problem. The support system can make the priority more urgent. Seems the net effect is that the support is good and solves the problems and they can go in and remotely control the computer if there is any problem that you can't solve in a conversation or other communication.” (Doctor A)

Doctors A, B and C find the technical support to be effective so that the doctors' performance in their daily work is not affected. For Doctors D and E, the conditions are not the same. They have neither digital support nor digital communication with other doctors. If there is a technical problem, they have to call up a colleague and ask for help. Doctor D puts it this way:

“You have to call a colleague, we don't have access to any technical support... If you can't solve the problem yourself, you have to call the patient without video. That's not good. The point is that we should see each other and at some point I have to admit that we have had to use other systems that we shouldn't or aren't allowed to use.” (Doctor D)

Doctor E explains that the system makes it very inefficient in daily work when the technology is not working. This has a huge impact and since there is no one to help, Doctor E has to try to solve the problem without support. This takes a lot of time, doctor E:

“It affects a lot. It makes me always have to worry that something could go wrong. I have to make myself available 5-10 minutes prior to the meeting, sometimes I have to call the patients and guide them how to log in to the system, which is time-consuming. It takes a lot of time.” (Doctor E)

To summarize, the majority of doctors have digital support and can therefore be helped to solve the technical challenges they face in their daily work. For the two doctors who do not have the resources, patience is required and they may be able to get help from a colleague.

Audio and Video lag

Previous studies show that a technical problem that occurs and can cause frustration is when there are small delays in audio or video. When we asked our Doctors if this is something they have experienced themselves, no one could say that this is a big problem. Doctor A, B, and C announces that it has happened a few times, but that it is not something significant to discuss.

“No, not to any extent that is worth mentioning. It may be some occasional mishap, so it feels like they have developed this part of the company over so many years that today they have a solid video and audio solution.” (Doctor A)

Doctors B, C, and E all argue and agree that this is a problem that arises when the patient has poor signal, for example, if the patient is out in the countryside and has poor network connection or lagging wi-fi. It is not the doctor's technology that has been the problem in most cases.

“Some patients have a tendency to participate in a digital consultation when they are on a train or a bus out on the road. There is generally poorer connectivity there and it is usually this that disturbs the video call, as well as the audio.” (Doctor C)

Doctor D explains that this is not a problem that can be announced. However, there are several times when the system cannot start the video call at all. Doctor E also agrees with this. The fact that a video consultation is not feasible due to a technical error has been experienced by both Doctors several times. However, if it does work, Doctor E thinks that the video and audio resolution are quite good. When the system does not allow doctors to proceed with their video consultation, there will be negative consequences. For Doctor E, it will lead to the video consultation becoming a phone consultation instead, which does not have the same quality. Doctor A also agrees that a phone call has the same quality as a video consultation. Doctors A, B, and C have not experienced many times that their system does not allow them to have a video consultation. For Doctors D and E, this has occurred more times:

“It is quite common, if I have a full day with digital consultation then there is always one consultation that fails.” (Doctor E)

Overall, there was no Doctor who would admit that video or audio delays were a major problem that affected their work. There have been other explanations raised by Doctors D and E, as well as other explanations from the other Doctors that we will address later in the chapter.

Interoperability

Previous studies show that one of the biggest challenges with IT in healthcare is that the systems are not compatible with each other, which has led to IT stress that negatively affects doctors' daily lives. Interoperability has been one of the more important concepts when talking about IT systems in healthcare. Even though this problem was faced many years ago, we wanted to know if this problem still exists. We asked the doctors if they thought this was still a problem today and all of them answered accordingly. Doctor A explains the workflow:

“It's our own portal as a kind of entry point into video meetings and then a medical record system is running in the background where all the patient data and medical records are stored. So there are two systems you work in and it's a bit unflattering you could say.” (Doctor A)

Doctor A is not alone in working this way. Doctor E also has to use two different systems to interact with patients and have a separate journal system. Doctor E describes that this is not a new problem but not much has happened to change the problem.

“ I have worked with the same system since two years back and there are still the same problems today... It is sad, but the truth is that we could have been so much better. It should be an integrated part of our journal system.” (Doctor E)

What seems to be challenging is that the system used for digital video consultation is not integrated with the journal system. Doctor B works digitally on the side as an additional job and says it's just luck that they use the same journal record system at the different employers. However, it is not integrated with the digital portal where they receive their patients, resulting in a similar situation to the other doctors. Doctor C and D also use systems that are not integrated.

“We have been trying to become more and more independent and should have our own systems that we use. Now we are a bit dependent on a medical record system which means we have to jump in and out of different systems. “ - Doctor C

It becomes problematic for all doctors to work as the systems do not work together and then cannot communicate with each other. Interoperability, which is the ability of different systems to communicate, is lacking in all doctors' experiences. It is important to acknowledge that we only asked questions related to the interoperability between the technical system used for communicating with patients and the journal systems. If Doctors had experienced a lack of interoperability when working with physical interaction with patients, we did not find it relevant.

Features

The lack of technological features in the consultation system is something frequently mentioned by the doctors. Doctor B mentions the lack of appropriate features as the main challenge of digital video consultation. The lack of features increases the difficulty of making accurate predictions, assessments, and examinations of patients' issues. Doctor B misses a zoom in function, where the patient could zoom in on a rash for example. The current technology does not enable such tools, making it more difficult to examine patients.

“One challenge for the industry to be able to skyrocket and grow tremendously is to somehow make it so that you can examine patients, and I don't mean reach your hand through the screen But, some kind...like you can tap on a button on your iPhone and you can zoom in on a change or some other little thing and press your phone in or hold your phone to your ear. These features could expand the digital world a lot and make assessment better” - (Doctor B)

Doctor C mentions a similar concern, stating that it sometimes is difficult to give the patient clear directions on rash issues, even though a zoom in function is not explicitly mentioned by Doctor C. According to Doctors B and C, these limitations often force them to refer the patient to a physical doctor. The fact that Doctor C requests additional features for the examination and assessment of patients is not shocking since Doctor C exclusively works digitally.

Doctor A states that the biggest difference between physical meetings and digital meetings is the physical evaluation and that some issues require a physical examination. However, Doctor A wishes more assessments could be done in digital video consultation and indicate that enhanced technology could be the enabler. In accordance with Doctors A, B and C, Doctor E mentions technology as the most challenging aspect of digital video consultation. The current technology is described as too complicated and complex which affects the work efficiency negatively. Doctor D also mentions technology as the biggest challenge but refers to audio and video lag as the main components. Doctor E seeks features integrated into the journal system, where you simply click on the person and get connected with them right away. Doctor E's and D's concerns seem to be on a thorough level, asking for features that makes the system easy to use and more smoothly operated.

“We could have been so much better. It should be an integrated part of our journalsystem. Where you simply push one button and it connects you with the patient and it works.” - (Doctor E)

Doctor E's and D's concerns are in contrast with the other doctors. Doctor A, and especially B and C are asking for more specific features which potentially could enable better examination and evaluation by the doctors. Doctor E and D wish for features that would make the work more efficient and frictionless. According to Doctor E, two to three additional digital consultation meetings would be enabled on a daily basis if the technology worked more frictionlessly.

4.2 Communication

Non-verbal communication

Another challenge that the respondents mentioned was communication. A concern within communication seems to be the lack of non-verbal communication that occurs in digital video consultation. All Doctors describe the lack of non-verbal communication from the patients as challenging since you can not only listen to a patient to understand their situation. Doctors C is not as concerned about the lack of non-verbal communication as A, B, D, and E are even though C mentions it as a challenge. The lack of non-verbal communication seems to be extra challenging when it comes to children. Doctor D explains it in the follow way:

“When you are talking to a child or teenager, you can not only listen to what they say. You also need to read between the lines to see how they appear. There are a lot of things we need to consider. They way they move, how they interact with their parents or siblings. There are a lot of nuances” (Doctor D).

Doctor E elaborates on a similar note as Doctor D, saying it is more difficult to get closer contact with children using digital video consultation due to the lack of non-verbal communication. In a physical meeting, E usually lowers the position towards the child while looking at them, which encourages the child to answer, and not their parents. These types of approaches are simply not possible due to limitations in digital video consultation. According to Doctor E, it is usually the parents taking the initiative of talking when it would be preferred that the child explained their own issue. Doctor D also agrees that it is often a parent who “takes over” the conversation in the digital environment as it is more difficult for a doctor to connect with the child digitally. However, both doctors agree that talking to a parent is something to be avoided and that it is always the patient who is sick who should be the focus - if the patient is old enough to verbally communicate its issue. Doctor E and D argue that avoiding this and connecting with the child directly is much easier physically. Doctors A and C state that the physical meeting adds an extra dimension which is difficult to replicate in digital video consultation, but does not explicitly mention that it is the non-verbal communication that is the missing piece. Doctor B also mentions the lack of non-verbal communication as a limitation, but says it depends on the case.

“This (*points at head and shoulders*) you just see the upper body and a face. But there's so much else that goes on in the body really, like other gestures and clothing in general whether you're well-groomed or unkempt and details that you might not see. It's a half-baked video with poor resolution and yes, that does have an impact. But it depends on the case.” - (Doctor B).

Neither of the Doctors state that they have received training or information regarding the importance of non-verbal communication in digital video consultation. Although, learning from experience, Doctor E understands that non-verbal communication does matter and therefore tries to create an environment reflecting that.

“I try to look at them in the camera, and try to zoom out a little bit so they can see more of my body and my body movement. I believe it adds something to the conversation.” - (Doctor E).

Doctor D tries to actively think about the body language to make the patient more comfortable but describes it as more difficult than in a physical meeting. D also says it is more difficult to know how your body language affects the patients since less feedback is given via video. Doctors B, E, and C agree with Doctor D but add that it is easy to forget to pay attention to your own non-verbal communication when multiple digital video consultations are performed during a day.

Doctors B and D also mention they try to be aware of their non-verbal communication and create an environment accordingly. Doctor A agrees that it is an important aspect, but does not actively make adjustments to reduce the effects of lacking non-verbal communication. Doctor C states that there can be a challenge not being able to see the patient's non-verbal communication as clear, but does not express the lack of the doctor's non-verbal communication as a big problem due to the wide screen which displays a large part of the doctor.

To summarize, all doctors found the lack of non-verbal communication from patients - especially children - to be a challenge, but Doctor C does not find it to be as severe a challenge as the rest. The lack of non-verbal communication seems to be a reason why

physical consultations add an extra dimension, and neither of them has received training. All of the doctors, except A, actively try to be aware of their non-verbal communication.

First meeting

Doctors A, B, D, and E mention that the first meeting preferably should be physical in order to create a better foundation for building trust between the patient and the doctor. Meeting a patient for the first time in a digital environment is not ideal according to them and is considered a challenge for doctors working digitally. This is in contrast with doctor C who does not express concern regarding having the initial meeting digital. When asked whether the first consultation should be digital or not, Doctors A, E, and B answered in the following way.

“Yes, totally. Then you can really speak much more on a basic level. So the first meeting I prefer to have physically. I would not choose a digital meeting as the first. You have to establish a comprehensive picture of the situation. Maybe regarding the relationship between the patient and their parents, which is easier physically. And then we almost always want to examine them physically on the first meeting. So the optimal is to have every other meeting online. But sometimes you don’t have a choice” - (Doctor E)

“That first impression, the first physical impression when you meet someone, it says extremely much about that person. Everything from the way someone is dressed, to how clean they are, to how they move in the corridors and how they talk. All these things together form a perception that is difficult to get digitally, I would say.” - (Doctor B)

“There is something a little extra about the physical meeting, especially the first contact with the patient. The following meeting usually goes pretty smooth, but if there is a patient you haven’t met before. Then it can feel as something additional could be added by having it physically. That is a problem when working digitally” - (Doctor A)

In contrast to the answers above, Doctor C answered in the following way.

“I don’t really see a problem in having a first meeting online. I have had several patients like that. I understand some find it easier to have the initial meeting physically, but for me it has not been a problem” - (Doctor C)

The answers above indicate the importance of the first meeting with a patient. C agrees that the first meeting is important but states that having it in a digital setting is not considered a problem. However, Doctor C has an understanding for other doctors that do not feel the same way. Doctors A, B, D, and E do find having the first meeting online to be a problem. From the

answers, we interpret that building trust, creating a relationship, and getting a comprehensive picture of the current state of the patient is more difficult when using digital video consultation at the first meeting. There seems to be a risk that something valuable goes missing if the initial consultation occurs digitally. The doctor's answers are not very specific regarding this, but that could potentially be due to the fact that each case is different and therefore difficult to be definitive. For example, Doctor A's answer above indicates that something goes missing if the first meeting occurs digitally, but struggles to be exact. Doctor B expresses the benefits of getting a more comprehensive understanding of the patient, which goes in line with Doctor E's answers. Doctor A believes the follow-up meetings are better suited to be done in a digital environment, which Doctor E agrees on. However, Doctor A seems more comfortable having all follow-up meetings online, whereas Doctor E suggests only every other meeting to be digital. Doctor D expresses a similar thing as Doctor E, stating that at least every third meeting should be physical.

To summarize, all doctors except Doctor C find not having the initial meeting physically to be a challenge in digital video consultation. Doctor C agrees that it can be challenging, but does not consider it to be significant. The doctors have different opinions regarding to what extent follow-up meetings should occur digitally.

Depends on the case

All Doctors seem to agree that the context of the digital video consultation matters. Doctor B and A state - as a contrast to their previous answers - that in some cases, the need to build a relationship, create a trustful environment, and have clear communication with the patient is not as important. One such example mentioned is if the patient is looking for updating prescriptions. Whereas, if there is a patient seeking consultation for mental illness, it is important that trust is established, the communication is clear and a relationship is built from the start. Doctor A mentions that some cases are more difficult to establish good communication and trust with the patient. Certain issues can not be resolved using digital video consultation and then there is not much to be done but assign them to physical healthcare. Doctor B agrees with A regarding this. As previously mentioned, Doctor E seems to find it difficult getting contact with children using digital video consultation. However, there are benefits to using it when it comes to meeting teenagers. Teenagers are generally used to and more comfortable with the digital environment and therefore tend to be more prone to asking questions and opening up about concerns - according to Doctor E - implying that it depends on the context. Doctor B also states that it depends on the case and describes it in the following way.

“It is hard to put your finger on that feeling of not being in the same room as your patient. It is still something that occurs in human contact that you can't get through video. Then how big a role does it play? It is very different. It depends on what problem the patient has.” - (Doctor B)

“If I meet a 15-16 year old who is shy, then they won't be as open physically. They do not want eye contact or so. Then they do not ask the same amount of questions, but that can come behind the screen. This is a major win in my opinion.”- (Doctor E)

Doctor B's answer above illustrates that the physical interactions enable a more solid foundation for communicating with the patient. However, the last part of the quote indicates that all cases do not require the same level of communication as others do. It depends on the problem. Doctor E indicates that face-to-face interaction is more beneficial for effective communication overall, but certain patients are more prone to communicate using digital video consultation. The process of deciding which patients to meet physically and digitally seems to be lacking.

Building trust

Building patient trust is a vital part of being a doctor and is related to communication. From the conducted interviews we found that this is a challenge for doctors working with digital video consultation. All doctors except Doctor C, expressed concerns regarding building trust. As seen below, Doctor B describes it as a major difference compared to physical meetings that need to be considered but also mentions the benefits of solving something using digital video consultation since it is more efficient and that all cases do not require the same level of trust as other cases do. Doctor A states that communication struggles with the patient likely affect the trust negatively, and believes trust is more difficult to be established digitally. Doctor D agrees with Doctor B and A, but mentions technical issues as a concern as well when it comes to building trust, and refers to the risk of either part disappearing from the screen. Doctor D is the only one mentioning technical issues as something that potentially could affect the trust between the patient and the doctor. Below are answers from B, D, and E regarding building trust in digital video consultation.

“I think it's more difficult to build trust and build a relationship digitally or over the phone. It is a major difference.” - (Doctor B)

“It is easier to capture someone and kind of build trust when meeting someone face-to-face, of course. You can't disappear from the picture when you have a physical meeting”. - (Doctor D)

“Yes, maybe sometimes. But the other way around sometimes as well. Some teenagers are more used to meeting in the digital room. That's how their every-day look, look everyday. And then I can feel they are even more open digitally, than physically.” - (Doctor E)

Doctor E indicates trust could be affected negatively when using digital video consultation. But, Doctor E also says it depends on the case, and that it sometimes is easier to establish trust digitally - especially for teenagers - since they are used to that environment and are more prone to asking questions and expressing themselves verbally. This is in line with Doctor D and A's answer, saying that communication struggles lead to less trust. Although, in previous answers, Doctor E stresses the importance of having the initial meeting face-to-face in order to speak on a more basic level, which could be interpreted as a way of establishing trust. Hence, if the initial meeting is done physically, Doctor E sees benefits with digital video consultation for certain patients.

Doctor C does not see that building trust and creating a relationship with the patient is more difficult in digital video consultation. Before starting working digitally full-time, Doctor C thought it would be more difficult, but seems to have changed her opinion.

“I think that this is a little more relaxed because patients usually call when they are in the home environment, safer environment and then it might as well de-dramatize that I sit at home and work, as I do not sit in a white coat. Before, we wore white shirts. Now we have got blue, as even if it is not necessary, as well as sterile. Maybe you've heard of this “white coat' high blood pressure”. Where you get high blood pressure, just by seeing healthcare professionals. That sort of thing disappears a bit with this digital. I actually thought at the beginning that this would be difficult to create trust, but precisely this, you have more one on one time. I have less time to do the administration, so I think this actually works better.” - (Doctor C)

The answer from Doctor C can be connected to Doctor E and Doctor D, stating that teenagers can be more receptive in digital video consultation. The safer environment and the less dramatic experience of receiving consultation from a doctor at home, Doctor C argues, is beneficial when it comes to building trust. Further, Doctor C mentions the choice of outfit as something that could increase the level of trust. Doctor E and Doctor D mention this as well, saying that the outfit is something they use in order to make the patients more comfortable, increase the level of trust, and enable better consultation. Even though “hospital clothes” is not necessary in digital video consultations, the doctors seem to use this as a way to appear more trustworthy towards the patients. Although, there is a difference in the choice of clothing between Doctor E and D, compared to E. Doctor E chooses to use a blue coat instead of a white to create a more comfortable environment. Whereas Doctor E and D wear a white coat to establish a more serious environment. Doctor C’s answer also indicates how context based each case is. Having a digital video consultation might be less effective for some patients, whereas others might find it more comforting and less stressful.

Rude/small-talk

Studies show there is a difference in the way doctors are approached in digital video consultation compared to physical meetings. Patients are more prone to being impatient, questioning, more stressful, and disrespectful towards the doctor. Our responders have different experiences regarding this. Doctor A does not experience the patients significantly having this approach. Doctor B describes the patients as being more goal-oriented and thus less small talk is done. Further, patients seem to be more outspoken in the negative direction, according to Doctor B. Albeit, the communication is more effective and straight to the point, and patients are less patient and understanding. This enables for more meetings to be conducted, but Doctor B expresses a concern since the small talk sometimes can give interesting information and enable for a better relationship.

“When it's done (the meeting), they finish pretty quickly. Instead of starting to talk about a lot of other things, you get time for one more visit. But, sometimes I wish we could talk a little bit more because sometimes small talk gives you useful information and enables better relationships.” - (Doctor B)

Doctor C has a similar experience, claiming that patients have higher expectations when it comes to resolving their issues quickly. For example, if they do not get a prescription, they tend to start questioning and express their disappointment. Something which rarely occurs in a physical meeting, according to Doctor C. With society becoming more digitized, patients seem less patient and want instant quick fixes, which Doctor C describes as challenging. This can be connected to the answers from B and E, saying that patients are more goal-oriented. Some patients seem to think they know better than the doctor, simply because the consultation is done digitally. Even though the amount of aggressive people are more frequently occurring digitally, the doctor is safer compared to if the same situation occurred to a physical doctor.

“They call and want to order antibiotics or call and order cortisone, and we try to explain to them that it does not work that way. And then you notice a slight disrespect starting to show, since many have already googled their symptoms and know exactly what they have for diagnosis. And when I say I can not make that assessment digitally, then they get impatient and you get questioned” - (Doctor C)

Doctor D does not share the experiences of Doctor B and C. Although, this could be due to the fact that Doctor D's patients are more frequently returning patients, whereas A, B, and C are facing new patients to a larger extent. Doctor E agrees with Doctor B and E, and describes the patients as definitely more goal-oriented and less personal in digital video consultation, leading to less small talk. Patients that are aggressive or questioning are however rare, according to Doctor E. Doctor E mentions that the reduction of cold talk harms the connection with the patient, something is lost, which is in line with the answers from Doctor A, B, and C. The answer from Doctor E below illustrates this.

“The cold talk goes away. But, when there are younger children, there is a challenge. You try to establish some sort of connection with them. If they are wearing a football jersey, you might ask them some questions regarding that. Try to invite them by talking about something completely different to make them feel comfortable. It makes them feel included. This is much harder in the digital room since there is less of that cold talk” - (Doctor E)

To summarize, all doctors except D find the patient being goal-oriented and less patient, leading to less small talk which seems to negatively affect the doctor - patient relationship. Doctor B, C, and E have experienced goal-oriented patients the most. B and C mention that they perceive patients' rudeness to increase, and being questioned as doctors more frequently.

4.3 Personal

Stress

A good prerequisite for using a system and exploiting it to the full is a positive attitude towards the system. Our Doctors had a different opinions regarding if they were positive about the system or not before they started working with digital video consultation. Doctors A and B were positive to the system, and D and E were negative. Doctor C said that at the beginning of the use of the system, C was negative, but over time it has changed to the positive. The similarity between A and B is that both mention that they had good technical knowledge before they started using the system. Technostrain and technostress were experienced by Doctors D and E. Technostrain is triggered when the use of computers or information and communication technology (ICT) creates fear and anxiety in the user. Doctors A and B, who have had a positive attitude toward the system, did not experience any stress towards the system. Doctor B states that they can choose how much they work, and therefore do not experience stress regarding workload. Doctor C explained again that at the beginning of the use of the technical system it was stressful, nerve-wracking, and frustrating but it got better over time. Doctors D and E agreed that they both experienced stress and frustration towards the system, what they both had in common was that they felt this way when the technical aspects of the system failed to work. The stress was triggered when the technology did not work and that led to that they could not perform their daily work because the technology was not working, hence they became stressed and frustrated.

“ I have been stressed when I plan to have my meetings at home, and it does not work. I have prepared everything, I have my journal system at home, and then I log in and it does not work.... We offer patients a digital alternative and it does not work, then it feels like our professionalism and quality decrease.” (Doctor E)

Isolation

We asked our candidates if working digitally makes them feel lonely or isolated. Doctors A, B, and E agreed that working digitally is considered feeling more isolated, however, it does not affect any Doctor negatively. Doctors A, B, C, and E agreed that they would never exclusively work digitally. All Doctors, except C, work hybrid and explain that the feeling of being lonely is not affecting them. However, Doctor C who only works digitally does not feel isolated or lonely since Doctor C meets their colleagues online on a daily basis through different communication channels and feels satisfied with such interactions. Doctor D who works hybrid has not reflected on whether is isolated or not since the Doctors meet colleagues and patients physically on a daily basis. Both Doctors B and D explain that the physical work is kind of lonely also and do not think that digital meetings are excessively more lonely. To summarize, all those who have chosen to work hybrid feel that they could not work exclusively with digital video consultation. However, the person who has voluntarily chosen

to work exclusively with digital video consultation does not necessarily feel lonely or isolated.

Appearance of less professionalism and competence

Working digitally is described as concerning due to the limited amount of challenging issues and therefore making it difficult to maintain competence and reach full potential as a doctor. When we asked our Doctors whether they felt their full potential radiated in their digital meeting room, all responded that it did not, except Doctor C. Doctor C, who only works digitally, argues that the full potential is possible in the digital meeting room except all the physical parts that the doctor can not do through the screen, like touching the patient is practically not feasible. Otherwise, Doctor C felt that their full potential as a doctor was feasible. The rest of the Doctors, A, B, D, and E, who all work hybrid, argued that if they would only work digitally they would never reach their full potential as a doctor.

“We can't do practical sessions, which is a relatively big part of my specialty. In a digital session, that falls away, which is a huge part of me. If I had worked digitally full time, I would not have reached my full potential as a doctor.” (Doctor B)

Doctor B and Doctor C also claim that patients behave differently in digital meetings and that they sometimes are being questioned as doctors. If the patient does not get what they seek, they can become irritated and disrespect the doctor. Doctor C also expresses that one of the main issues is people's opinions regarding doctors working digitally.

“Of course you get frustrated if you think you're not being treated with respect. Patients are more, like, outspoken in the negative direction and can question me more. That rarely happens in a physical meeting and I believe it affects us. Maybe not me personally, but definitely my colleagues, even though they don't admit it.” (Doctor C)

When we asked whether the Doctors who worked hybrid would consider to only work digitally, the answer was no. Doctor E has never had the first meeting with a new patient digitally and Doctor A also agrees that all the meetings should not be digital, but the digital consultation is still efficient in some cases.

“When a digital revisit generates the same quality of patient encounter as a physical visit, then physical visits may not add any value. The physical encounter might consume travel time from the patient or working time from the physician to no purpose.” (Doctor A)

Both Doctors D and E only meet patients digitally that whom they have had physical contact or know from previous physical consultations. Doctor D thinks that you have to see the patient physically when you establish a diagnosis and Doctor B is in general positive towards digital consultations but still thinks the physical meetings are necessary. The majority of all doctors feel that their full potential as doctors is fulfilled because they also work physically.

Evaluation

Previous studies show that remote evaluation of a patient is described as difficult due to the lack of physical examination. All doctors agree on this to various extents. Doctor A describes that not all diagnostic consultations can be done digitally, but that the digital consultations work best as follow-up appointments to reduce the workload.

“Where a physical assessment is required, I think there is limited extent to how diagnoses are made. Being able to do assessments more widely would be preferable. Then there is the Digi-physical where digital is part of the workload where you can take your revisits digitally rather than having them physically.” (Doctor A)

Doctor D agrees with Doctor A and argues that evaluation can never be done only with a digital meeting. Doctor D rarely makes an evaluation during digital consultations. Doctor D uses digital consultations for return visits the majority of the time and should an evaluation be urgent, Doctor D books a physical appointment with the patient.

Doctors B and C agree with each other when they say that practical skills are disappearing in the digital space. Both doctors want to squeeze and feel the patients sometimes, which is physically impossible in the digital meeting room, but claim that it depends on the case. Doctor B also says that the practical parts are a big part of the profession that is disappearing, which also makes it difficult to make evaluations.

Doctor E finds it difficult to do some evaluations online, so a face-to-face meeting has to be scheduled. This results in two similar appointments with a patient where the first appointment did not achieve the goal. When the patient is not reached at the first appointment and an assessment cannot be made, doctor E needs to find a new time for the patient, which can be problematic in a hectic schedule. Doctor E describes the emotions as follows:

“Sometimes you have to be satisfied with good enough. And sometimes you have to finish up by saying “I want a physical meeting”. Then you book a new time. Which is negative, because it is a waste of time. Then one appointment becomes two. In reality this is quite rare since I don’t have any appointments available. So if the meetings are not good enough, the next meeting will be in September, which is problematic. So that is only when I truly need to meet them.” (Doctor E)

Previous studies show that it is more time-efficient for patients to complete a consultation digitally as they, in part, do not have to travel back and forth from the hospital. We were interested to know if it is time-efficient for the doctors as well or whether it is more of a convenience and benefit to patients than to doctors. 4 out of 5 Doctors agreed that it is more time-efficient to have digital consultations than physical consultations. Doctor B explains that there is a lot of downtime between consultations in the physical environment that disappears

in the digital environment. An example of dead time according to the Doctors is pure transfer, going to pick up a patient in the waiting room and bringing the patient into the room. There is often a lot more time spent when the patient has to take off and put on outerwear in the physical room that is not experienced digitally. The Doctor also feels that patients are more time efficient in the digital encounter resulting in the entire encounter being more goal oriented. Doctor A also agrees that it's more time-efficient, especially for those meetings that are revisited. The Doctor explains that writing a letter or making a phone call also takes time, and replacing some administrative steps with a video meeting is better quality and more time-saving compared to physical return visits. Doctor A, however, disagrees with Doctor B, with that the time saving is not in going to pick up a patient in a waiting room but believes that the time saving is due to less administration work and less time spent for each effort made in a video meeting as it is more contained. Doctors C and E find that digital video consultations are more time-efficient than meeting patients physically. They both state that they get a greater amount of work done when they work digitally, but Doctor E acknowledges that this is only true when the technology works properly.

The only Doctor who thought there was no significant time saving with digital consultations was Doctor D. The Doctors explain that from a doctor's point of view, they are not more time-efficient but say that there will be less workload on the clinics. Doctor D also agrees with Doctor E, if the technology is not working properly, it will become highly more inefficient than the physical consultation.

“I spend the same amount of time talking to a patient, so from a doctor's point of view, it takes the same amount of time digitally as it does in person. ... As far as the administrative side is concerned, there's not much difference either, because it's done afterwards. My own time is more or less the same, possibly a few minutes shorter. It depends on how much the system hassles.” (Doctor D)

Doctors A, B and E felt that all digital consultations were more goal-oriented where everyone mentioned that the small talk that often occurs in the physical room disappeared in a digital room and therefore digital meetings became more effective. Doctor A explains that it is easier to limit a meeting digitally. In a face-to-face meeting, the consultation can easily lead to the patient raising other concerns that are not part of the main purpose of the consultation. Doctor B, who also shares the view that there are more goal-oriented conversations digitally, feels that patients are also more goal-oriented.

“I don't know why it has become that way from the patients' side necessarily. But I get the feeling that patients are also trying to be more efficient and get straight to the point in the conversation. When it's done, they finish pretty quickly instead of starting to talk about the masses, which results in me having time for another appointment. “
(Doctor B)

The majority of doctors think it's more time efficient with digital video consultation but all doctors disagree on which types of meetings should be digital and which should be physical and also disagree on where it saves you time. All doctors agree to various extents that remote evaluation of a patient is described as difficult due to the lack of physical evaluation.

5 Discussion

In this chapter, we will analyze our empirical findings and try to relate them to the literature in the literature review. Accordingly, we will elaborate our empirical findings and relate to our conceptual model.

5.1 Technical

Previous studies show that one challenge in video consultation is the bad audio and video connection. Fernemark et al (2020) state that the video quality was not a major concern but delays in audio was. Despite problems with the audio that can cause frustration, there are still problems regarding delays in video (Donaghy et al. 2019). Poor internet or telephone lines can also result in reduced visual quality (Breton et al 2021). Doctors in our study agree that there have been incidents where this has occurred. However, this has not affected the meeting significantly. It has happened on occasion and usually, it is the patients who are calling from inappropriate locations where the network has been unstable. No doctor considers this to be a serious problem today. Having audio and video techniques working frictionlessly seems to be presumed by the doctors. Instead, the problem has been for doctors D and E who have had problems connecting with the system. Donaghy et al (2019) study show that audio and video lagging forced doctors to call the patient on their personal phones. This has happened to both doctors D and E, not because of the video or audio lagging, but because the system did not start or struggled to connect with the patient. The fact that the Doctors have limited experience regarding lagging video and audio could be due to Sweden being at the forefront of network infrastructure. However, Sundström (2021) claims there are certain areas in Sweden where digital video consultation is not possible due to limited network. Since network is required for audio and video connection to be stable, we argue that having a solid network is a foundation of digital video consultation to work sufficiently. This is illustrated in our conceptual model since it indicates that *Technology* affects both *Communication* and *Personal* challenges. The Doctors we interviewed seem to take the network for granted, which is understandable. Although, failing in connecting to the network would have severe negative effects on the challenges in both *Communication* and *Personal*.

Based on our results and previous studies, we can conclude that it is important what kind of attitude doctors have before using the system and that doctors feel confident in their technical experience. From our own conceptual model, *Personal* affects *Technical*. If a person feels that they do not have any technical experience, they will not handle the system as well. As it is not a formal requirement for doctors working with digital video consultation to have any thorough technical knowledge, we believe it is important that all doctors receive good technical training before use of the system. Otherwise, the *Personal* challenges presented in the conceptual model seem to increase, which will be discussed further below. Three out of five doctors have had some kind of education and the rest only have a paper-written manual. Further, Koivunen, Niemi & Hupli (2015) showcased employees lacking clear instructions on how to use technology and received poor support regarding IT issues, and our study showed similar results. Three out of five doctors in our study have solid technical support that helps the doctors with any technical question so it does not affect their daily work. For doctors D and E,

the conditions are not the same. They have no digital support and when there is a technical problem, they have to call up a colleague and ask for help. The challenge is not new and it is still not solved. Even though previous studies show that it can increase for people with a lack of technical experience, we believe, based on doctors' responses and previous studies, that many problems can be avoided if good education is provided and technical support is available.

We did not identify a lack of technical training as a challenge in our literature review, and hence it is not part of our conceptual model. Nevertheless, our empirical findings imply that the Doctors would appreciate technical training and that it potentially could lead to an overall better experience. The lack of technical training seems to be a challenge. Not a single doctor told us that they had received extensive training on the technical elements of digital video consultations which are considered as a challenge. All doctors have received some sort of introduction, but the quality varies. The introduction was more on a basic level and did not include any detailed technical training. Instead, the doctors seem to be self-learned and pick up knowledge as their work proceeds. A printed manual was given to Doctors D and E, which they found useful even though it did not include information on how to solve technical issues. As of now, the doctor's existing knowledge seems to be expected to be enough for them to conduct their work when working digitally. We see a similarity with *Communication* in our conceptual model since training in non-verbal communication has not been given to the doctors either. Lack of technical training can also be connected with *Personal* since it can make the doctor experience less competence and increase the stress level. Further, an interesting quote was made by Doctor D, stating that you cannot be working with digital video consultation if you do not feel comfortable working with technology. On a similar note, Donaghy et al (2019) and Fernemark et al (2020) remark that doctors lacking technical skills experience more uncertainty. Since the future of healthcare seems to include increased usage of digital video consultation (Vardanaly, 2020; Regeringskansliet, 2016), we argue that the lack of technical training needs to be resolved for the field's progress to continue at the same pace. Otherwise, there is a risk that doctors not feeling confident using technology will disengage from digital video consultation. The fact that technical training was not identified as a challenge in the literature review indicates that our conceptual model has limitations. Due to the rapid speed the field of digital video consultation has emerged during the last couple of years, it is not surprising that the literature is not evolving accordingly. Therefore, we need to acknowledge that our conceptual model can not be considered constant and should be open to adjustments. However, one could also consider those additional findings add construct to the conceptual model.

Another known problem that has been found for many is interoperability with other systems. This problem is still not one that the doctors acknowledge has been solved, and is still a big challenge today. Historically, interoperability has been a challenge in healthcare and still is (Tuuma, 2021; Holm & Westring, 2015). Previous studies show that technology is seen as a separate activity and is not integrated with other parts of the business. Vardanaly (2013) shows that a large number of IT systems are not compatible with each other. Interoperability has been one of the more important concepts when talking about IT systems in healthcare to achieve higher quality and efficiency in an operation (E-delegation, 2013). All doctors who participated in our study acknowledged that this problem still exists. Older studies done almost 10 years ago (Vardanaly, 2013; E-delegation, 2013; Holm & Westring, 2015) show that the same problems still exist today and that it affects doctors' daily work. Doctor A has been working with the same system for two years, but still experiences the same kind of

problems regarding interoperability. Further, our empirical findings indicate that the Doctors experience the lack of interoperability between systems as a challenge. Neither of the Doctors is working with a system that is integrated with the journal system, forcing them to jump in and out of different systems. This is affecting their work negatively since it is considered time-consuming, less efficient, and can increase stress if one of the systems fails. Also, the Doctors do not seem to find the systems compatible with each other. Vardanly (2013) states that non-compatible systems can increase doctors' stress-level. Further, the lack of interoperability could potentially make the doctor appear to be less professional. Hence, looking at our conceptual model, we see a connection between the lack of interoperability in *Technical* and the *Personal* theme in our conceptual model. Technological obstacles force doctors to focus more on handling these challenges instead of exercising their proficiency. This can be applied to both doctors working with digital video consultation and physical interaction. Albeit, looking at *Communication* in our conceptual model, the doctors working digitally are more vulnerable since the patients are more goal-oriented and less impatient (Donaghy et al, 2019). Also, if the doctors struggle to communicate with the patients due to a lack of interoperability it could affect the ability to establish trust, which is one of the challenges in *Communication*. Our empirical findings do not explicitly suggest this, but based on our conceptual model we found it to be a plausible outcome. Thus, one could argue that the lack of interoperability is more concerning for doctors with digital video consultation. However, we need to take into consideration that interoperability is one of the main challenges for doctors working with physical patient interaction. Since all but one of the Doctors we interviewed are working hybrid, the Doctor's answers regarding digital video consultation could be characterized by this. Moreover, we did not find the lack of interoperability affecting the evaluation of patients. And overall our interpretation is that the lack of interoperability is considered a challenge, but the doctors seem to be used to working under these conditions. All the Doctors we interviewed find it to be a challenge but are somehow kind of accustomed to the issue. They are used to the healthcare systems not being well integrated and lacking in interoperability. Albeit, we argue that the need for better interoperability will expand in the future due to increased usage of digital video consultation. We also believe recent doctor graduates will require higher demands regarding efficient technology. If Sweden is to meet its goal of becoming the most proficient digital healthcare country in the world (Regeringskansliet, 2016), the challenge needs to be managed.

When conducting literature for our theoretical background we did not find a lack of technical features as a challenge. Previous studies refer to video lag (Donaghy et al 2019) and audio lag to be some of the biggest challenges in digital video consultation (Breton et al 2021; Wainfan & Davis, 2004; Fernemark et al, 2020). The Doctors we interviewed did mention these challenges as palpable but did not consider them as the primary challenge to handle within technology. Our interviews indicate a shift in what challenges related to technology are the biggest concerns. Doctor A, B and C are specific in their concerns, asking for features that would enable a more efficient evaluation of patients. An zoom in function is mentioned as an example of such a feature. This is in line with our conceptual framework since evaluation is part of *Personal* and *Technology* and *Personal* affects each other. An zoom in function would enable enhanced accuracy and empower evaluation of more challenging patient issues. However, since we did not identify a lack of features as a challenge in the literature, this connection is not absolute which indicates that our model is not complete and has limitations. Due to digitalization, the health care sector is not as constant or predictable as it has been historically (Cederberg, 2020), which emphasizes the importance of updating our conceptual framework as new challenges arise. It seems inevitable that the challenges in the

conceptual framework will change over time. Historically, audio and video lag have been presented as one of the major challenges, our empirical findings do not agree but present additional challenges. Even though audio and video lag can be a challenge today it is not severe, indicating that the boundaries of the challenges expand.

The current technology used for digital video consultation is limited in its design, which causes challenges for the doctors. Doctors E and D are also asking for additional features but do not mention the same kind of features as A, B, and C. In contrast, they are asking for thorough features which would make the interaction with the patient more efficient overall. They are not as specific as Doctor A, B, and C, but express that the features should make the technology easier to use and be operated more smoothly than the current. The answers from Doctor E and D do not indicate that additional features enabling better examination and evaluation would not be preferred. Rather features enabling less complexity and lag are prioritized. Even though the Doctors are not homogeneous in their specific answers regarding features, they all express a lack of features as a challenge. Looking at the increased digitization and usage of digital video consultations in the last few years (Cederberg, 2020; Vardanally, 2020; Jack, 2022), this is not surprising. As doctors are gaining more experience and becoming more comfortable with the new way of working, their expectations seem to advance. In the initial stage of digital video consultation, doctors seemed to be satisfied with simply consulting patients digitally (Regeringskansliet, 2016). Today, digital video consultation demonstrably works to some extent even though it still includes several challenges for the doctors. Expanding the technology of digital video consultation and adding additional features could solve some of these challenges. However, the specific case seems to determine whether or not new additional features would be useful. Looking at the *Communication* part in our discussion, we make a similar argument, claiming that some cases are in a bigger need for efficient communication to enable trust building. We argue this is similar to adding new technical features since the specific case determines whether or not new features would reduce the challenges. Expanding on the connection between *Technical* and *Communication* in our conceptual model, new technological features could enable enhanced communication and palliate current challenges in *Communication*. For example, Kimball & Morgan (2021), Fernemark et al (2020), and Donaghy et al (2019) all mention establishing trust as a challenge in communication, which additional technological features enabling intimacy could reduce. It could also reduce the anonymity mentioned by Fernemark et al (2020) and thus make the consultation more personal than it currently is. As a consequence, this could also help the challenges in *Personal*. Since doctors that can not understand their patients fully experience stress and less competence, additional technical features could make these challenges less tangible. Breton et al (2021) mention deficient communication as potentially leading to a negative self-image as a doctor, which could be reduced with enhanced communication via better technical features. Also, new technical features that enable doctors to better evaluate patients would decrease the challenge of remaining competence mentioned by Fernemark et al (2020) & Socialstyrelsen (2020). Especially during the Covid-19 pandemic, it became clear that doctors that were forced to work with digital video consultation were not comfortable removing evaluation since it is a fundamental part of being a doctor (Breton et al, 2021). As Sweden is aiming to become the best in the world in utilizing digitalization in healthcare by 2025 (Regeringskansliet, 2016), the usage of digital video consultation will increase and more doctors will be forced to start conducting consultations digitally. Additionally, Istepanian & Lacal (2004) states the need for additional healthcare due to an increasing population. Hence, it is vital that doctors feel comfortable and that their competence is being enforced. We argue that solving the lack of features and thus meeting the needs of doctors is a critical part of the Regeringskansliet goal to be possible.

Even though the traditional *Technical* challenges seem to be extinguished, new challenges arise. We found that the lack of technical features is the most urgent challenge today for the doctors we interviewed.

5.2 Communication

Communication is one of the most critical aspects of being a doctor, and both digital and face-to-face communication can be problematic (Syrriälä, Vehviläinen-Julkunen & Härkänen, 2021; Weiner, 2012). The doctor's job is to inhale information by listening to and observing the patient, and thereafter make a decision based on their knowledge (Wanko et al, 2020). The lack of non-verbal communication makes digital video consultation even more challenging. All doctors that we interviewed considered the lack of non-verbal communication in digital video consultation as a challenge. This is in line with Faucet et al (2017) statement that the lack of non-verbal communication makes the patient-doctor interaction more difficult. However, Doctor C does not find it to be as challenging as the other doctors. The reason for this could be that Doctor C explicitly works with digital video consultations and therefore can not reflect on the differences compared to face-to-face interaction.

Overall, the doctors have a positive attitude towards digital video consultation. However, a recurrent answer is that there is a missing piece compared to face-to-face interaction. The Doctors have a difficult time specifying, but our findings suggest that the lack of non-verbal communication could be one of the reasons. Non-verbal communication is an effective way to silently and latent express thoughts and feelings (Phuteka, 2015), and is, therefore, an important aspect of communication that seems to be taken for granted when consulting physically. Doctor A and C have difficulty specifying what is missing in digital video consultation but Doctor B describes more thoroughly, mentioning gestures and clothing as vital communication tools that go missing in digital video consultation, and describes this as challenging. This is in line with (Matsumoto et al, 2010) statement that all five senses are used when communicating and half of all communication comes from non-verbal communication. Also, according to Debra et al (2006), body posture, tone of voice, and eye contact should not be underestimated, which agrees with Doctor B's description. Reading between the lines is mentioned as an important aspect when evaluating a patient. All patients are not able to verbally express their concerns, making non-verbal communication a critical part for doctors to get a comprehensive understanding of the situation. This is especially vital when it comes to children since they are not as verbally skilled and their parents tend to take over and speak for the children in digital video consultation. This is not in accordance with Faucett et al (2017) findings, saying that it is the doctors that tend to take over and speak more in digital meetings, not the parents or the patient.

Debra et al (2006) also mention the risk of overreacting to non-verbal communication, both from the patient and the doctor. All doctors except Doctor A try actively to be aware of their non-verbal communication to prohibit misinterpretations and display professionalism. However, they also mention that it is difficult to stay aware of their non-verbal communication for a long period of time since it becomes exhausting. When looking at Faucett et al (2017) statement saying that patients are constantly looking for cues, it makes sense that the doctors become tired over time. Although, we found it interesting that neither of

the doctors has received training or been informed of such information, but attempt to adapt accordingly. Using non-verbal communication effectively expresses emotional support, understanding, and respect toward the patient. However, patients tend to be more observant of non-verbal communication when scared, uncertain, or anxious (Happ et al, 2011). Since the majority of cases in digital video consultations tend to be minor issues (Socialstyrelsen, 2018), the lack of non-verbal communication might not be as severe. Although, we found it interesting that all Doctors expressed concerns regarding the lack of it, indicating that non-verbal communication is important according to our empirical findings.

The lack of non-verbal communication seems to be a challenge for the Doctors on several levels. It disables communication with the patient, impairs relationship building, and in some cases makes the evaluation of patients more complicated. Since *evaluation* belongs to *Personal* in our conceptual framework, this displays how the challenges in *Communication* can affect *Personal*. It is important to acknowledge that these issues come directly from the lack of non-verbal communication, without having technical issues. Adding technical challenges such as shortcoming network, audio/video lag, or lack of technical experience enhances these challenges even more. Our conceptual framework implies this since *Communication* and *Technical* are connected and hence affect one another. Our findings show that the lack of non-verbal communication becomes enhanced when consulting children which was not found in the literature. Since the majority of cases in digital video consultation are minor, the lack of non-verbal communication should not be as severe of a challenge, but our empirical findings do not comply.

Establishing trust between the patient and the doctor is vital for a successful consultation. When conducting our literature review, we found that building trust is difficult in digital video consultation (Bos et al, 2002; Fernemark et al, 2020; Donaghy et al, 2019). This was expressed as a concern by all Doctors except C. However, the reasons why the doctors find establishing trust more difficult in digital video consultations vary. General communication difficulties are the most common answer, but Doctor D mentions technical issues as the main reason, referring to the risk of either part disappearing from the screen, implying that the underlying concern is that the communication will be disconnected due to technical issues. Hence, the ability to build trust seems to be disabled due to factors the doctors have a difficult time putting their fingers on. There is simply something missing that inhibits building trust in digital video consultation. Looking at the literature there could be several explanations for this. It takes longer to establish trust in a digital environment (Bos et al, 2002; Fernemark et al, 2020; Donaghy et al, 2019), and since the doctors we interviewed do not always conduct follow up meetings with their patients, this could affect their perceived ability to build trust. The trust that the doctors do establish is more fragile, which is in accordance with Donaghy et al (2019) findings. Further, Faucett et al (2017) mention the lack of non-verbal communication in digital video consultation as problematic when it comes to building trust, and communication struggles are mentioned by Wanko et al (2020). The usage of doctors' clothes is mentioned as a way to establish trust which can be connected to Kimball & Morgan's (2021) statement saying that fewer social remarks are present in digital video consultation. Using appropriate professional clothes - even though not necessary - is a way to increase trust in the meeting. Our conceptual model displays this since *Communication* is connected to *Personal* and *appearance of less professionalism* is part of *Personal*. What needs to be acknowledged is that the doctors we interviewed except Doctor C are working

hybrid. Therefore, their answers could potentially be biased since they are more used to consulting patients physically.

The first meeting is considered as an important aspect by the interviewed doctors when it comes to building trust. We did not identify this as a challenge in our literature review. Having the initial meeting digitally is perceived as a worse foundation of trust building, which is in accordance with Donaghy et al (2019) and Breton et al (2021) findings. Instead, all Doctors except C believe that the initial meeting should be conducted face-to-face. By doing so, the doctor-patient relationship seems to flourish more. According to our interviews, it is easier to get a more comprehensive picture of the patient and make a medical examination, which is one of the two parts that constitutes the foundation of healthcare (Tegelberg et al, 2018). This is also connected with the fact that non-verbal communication is more limited in digital video consultation. Doctor B exemplifies this by mentioning clothes, body movement, and way of talking as attributes that need to be considered when approaching a patient for the first time. All doctors but one imply that such attributes significantly contribute to the overall evaluation of a patient. In digital video consultation, these attributes are more latent, and can easily be missed. However, we found Doctor C's view interesting, since that was the only one not finding the first meeting important to be conducted physically. There could be several reasons for this. Doctor C is exclusively working with digital video consultation for several years, whereas the other doctors are working hybrid. As Cederberg (2019) & Socialstyrelsen (2018) mention, the patients seeking consultation digitally usually have minor issues, and thus the need to get the additional attributes mentioned by Doctor B is not as important for Doctor C. Additionally, minor issues do not require the doctor to establish trust nor build a relationship with the patient to the same extent. Hence, a doctor exclusively conducting first meetings digitally will likely not need to consider its limitations, whereas doctors working hybrid will reflect on the differences and see the limitations more definitely. It is stated in our empirical findings that the need for conducting the initial meeting digitally or physically depends on the case. However, with the usage rate of digital video consultation increasing, new challenges will occur. The flexibility and accessibility make patients more prone to choosing digital video consultation. The fact that doctors are not able to choose between face-to-face and digital consultation depending on the case needs to be considered. Today, the doctors can choose to some extent, but not in all cases. Our results imply that mismatched meetings lead to unsuccessful consultation with a lack of trust, reduced relationship building, and not getting a comprehensive perception of the patient. Since it is probable more consultations are to be conducted digitally in the future, this needs to be acknowledged. Otherwise, there is a risk that the majority of first meetings will be conducted digitally, even though it is not suitable for that specific case. The benefits of digital video consultation lie in its flexibility and accessibility, enabling for check-ups, however, these benefits are also its weakness if applied in the wrong case. Our conceptual framework illustrates the importance of carefully choosing when to conduct digital video consultation and not. If not, there is a risk that, for example, the challenges in *Technology* will disable *Communication*, leading to *Personal* issues for doctors and deficiency in *evaluation*. The literature and our empirical findings indicate it is more beneficial from a doctor's perspective to conduct the first meeting face-to-face. However, the benefits of digital video consultation make patients prone to choosing this alternative to a larger extent. The challenge for doctors occurs when there is a mismatch between the case and the deficiencies that come with digital video consultations shown in the conceptual framework. The process of deciding which patients to meet

physically and digitally seems to be lacking. This is a challenge we were not able to identify in our literature review and hence is not part of our conceptual model.

Our empirical findings show patients are perceived as more goal-oriented, less patient, and less prone to small-talk in digital video consultation. This is in line with Fernemark et al (2020) and Donaghy et al (2019) findings. Two doctors also expressed increased rudeness and patients questioning their competence as a doctor, which is in accordance with Donaghy et al (2019) findings. On a similar note, Fernemark et al (2020) and Socialstyrelsen (2020) mention concerns regarding the declining competence of doctors primarily working digitally over long periods of time. Since all Doctors except Doctor C are working hybrid and have only been working digitally for a few years, we do not believe their competence has been declining significantly since starting working with digital video consultation. However, the change in communication from patients when using digital video consultation seems to affect the doctors negatively. We see a connection with the *Personal* theme from our conceptual framework and the fact that they can be perceived as less professional and competent when working digitally. Also, feeling a lack of competence can increase the stress level for doctors. However, the fact that patients are becoming more prone to questioning and being more impatient with doctors in a digital environment, could increase the feeling of being less competent. On a similar note, Breton et al (2021) mention that a doctor's self-image can be negatively impacted in digital video consultation, which could be an additional reason why the feeling of less competence occurs for the doctors we interviewed. Patients questioning doctors are not as common in face-to-face interaction. The literature does not specifically mention the lack of small-talk to be a challenge in digital video consultation, but describes it as a less personal environment.

The fact that patients are more prone to being rude, goal-oriented and questioning seems to limit the amount of small talk between the doctor and the patient. Consequently, this saves time and enables more meetings to be performed during a day (Fagerström et al, 2017), but also comes with challenges. Establishing a relationship with the patient becomes more difficult. Our findings imply that something goes missing when the amount of small-talk is limited. The small-talk is a valuable tool the Doctors use to get a comprehensive perception of the case and enable better communication. Although, as previously mentioned, the need for small-talk depends on the case. For example, mental concerns and more severe cases, especially with children, have an increased need for small-talk. This is in accordance with Gulp et al (2015) and Donaghy et al (2019), even though they do not specifically mention cases with children to have an increased need of small-talk.

We found it interesting that doctors express the lack of small-talk as a concern, since the literature implies that the majority of cases in digital video consultation are of minor challenge (Cederberg, 2019; Socialstyrelsen, 2018), and thus the need for small-talk should not be as severe. However, based on the interviews we found that it is a challenge and that doctors found the lack of small-talk as concerning. One reason could be that the Doctors have not yet fully adapted to the role of working digitally. Potentially, they could have a perception of small-talk being more important than it actually is when it comes to digital video consultation since they are educated and used to consulting patients physically. As time goes by and they get more comfortable with this new way of consulting patients, the perceived challenge of lack of small-talk could potentially be reduced. However, this does not mean that the challenge should be ignored. Our interviews imply lack of small-talk is a significant challenge for doctors working with digital video consultation today and thus should be treated

accordingly. Looking at our conceptual framework, we see a connection with *Technical*. The lack of experience in consulting a patient through a technical device could potentially be a reason why this is raised as a challenge. Also, if technical flaws occur, it inhibits the conditions of small-talk.

5.3 Personal

The findings suggested that the system the Doctors used was perceived to be useful and the intention to use the system in the future was positive. However, changes in the technical aspects of the system could be made to reduce stress. The doctors who had or still have a negative attitude towards the system express that they had or have experienced stress and anxiety. According to Sutherland et al (2020), there needs to be support available when transforming to digital video consultation in order for stress to be reduced. From our own conceptual model, we found that technology can cause personal stress and anxiety called technostress (Salanovaet et al, 2007). This is still true and seems to have a connection to if the doctors have had a negative attitude towards the system. Although, Salanovaet et al (2007) mention fatigue as a consequence of technostress, which our empirical findings do not suggest. The doctors who have had a positive attitude towards the system did not experience technostress. Breton et al (2021) mention guidelines as a way to decline stress events. In our conceptual model, the *Technical* affects *Personal*. Since there has not been any formal training or technical education for the doctors, personal challenges like stress occur. Doctors A and B who claimed they have a good technical experience did not experience stress or anxiety. Doctors with less technical skills experience more uncertainty and stress, which is in accordance with Donaghy et al (2019 and Fernemark et al (2020). The stress could have been declined if all doctors had technical training and support, which is in line with Sutherland et al (2020). Looking at chapter 5.1 we have identified a lack of technical training as a challenge. Hence, additional technical training could prohibit doctors from experiencing stress when using digital video consultation as the technical experience increases. Previous studies share different opinions on whether digital consultations are more effective than physical ones. Purdy and Nye (2000) argue that digital video consultation is less time efficient and (Fernemark et al, 2020; Vårdanalyt, 2020) state that both patients and doctors experience digital video consultations as time efficient. The majority of doctors from our study show that they agree with the recent literature that it is more time efficient. However, the doctors agreed that this is only true when the technology is working properly and customized for the consultation of the specific case. It seems as technical issues make it difficult to be efficient and thus increase stress. It is also difficult to be more efficient if a digital appointment prevents the doctor from performing his/her skill or making an evaluation, resulting in an additional physical consultation having to be booked. Doctors agreed that not all consultations can be held digitally, it is important to know in advance what types of consultations can be held digitally for it to be effective.

Besides the stress coming from *Technical* challenges, we also see connections with *Communication*. The fact that patients tend to become less personal and hence more impatient and questioning could potentially increase the stress level for doctors. Based on our empirical findings we argue that this could be an additional reason for increased stress levels.

Adapting to the new role of being a doctor consulting digitally could also lead to enhanced stress (Breton et al, 2021). Initially, the transformation was considered stressful, but the Doctors seem to have adapted quickly. Nonetheless, technical issues are still considered

stressful for Doctors D and E on occasions. However, all Doctors but Doctor C seem to find the limitations of evaluating patients digitally as difficult to accept, but do not express it as stressful.

Previous studies showed that perceived self-efficacy plays an important role in affecting motivation and behavior. Self-efficacy is important using any system (Celuch & Taylor, 2004; Ong & Lai, 2006; Tung & Chang, 2008). A person may be more likely to undertake behaviors that he or she believes will result in valued outcomes than those perceived as having unfavorable consequences. In the context of using technology, computer self-efficacy represents a person's perception of his or her ability to use a computer to accomplish a task (Compeau & Higgins, 1995). Further, only working with digital video consultation is described as concerning due to the limited amount of challenging issues, and therefore making it difficult to maintain competence (Ferenemark, et al 2020; Socialstyrelsen, 2020). The doctors who worked both physically and digitally, express that if they would have only worked digitally, they do not believe their full potential as doctors would be explored. The only doctor who felt that one's full potential as a doctor was being fulfilled, under the conditions of digital barriers, was Doctor C. However, we found Doctor C's answers to interfere since she also claims that all parts except the physical evaluation are possible in the digital environment. Tegelberg et al (2018) claim that efficient evaluation is one of the two foundational parts of healthcare, and limiting the evaluation, therefore, indicates that the role of the doctor is being limited. Hence, all doctors express a concern regarding digital video consultation not enabling one's full potential. All doctors in this study have voluntarily chosen to work with digital means. But again, Doctor C is the doctor who voluntarily chose to work full-time digitally. Because of this, Doctor C could potentially be biased in this matter, which has to be acknowledged. Looking at our conceptual framework, we see a connection between *Personal* and *Communication*. In section 5.2 we discuss that the reason why patients are more questioning and goal-oriented could possibly be since they are experiencing doctors working with digital video consultation as less professional and competent. However, we are not sure what is the catalyst in this case. The fact that patients' communication tends to become more questioning and goal-oriented in digital video consultation, could be a reason why the Doctors are concerned regarding their competence and perceived professionalism. For doctors' competence and perceived professionalism to increase in the future, the evaluation seems to be a key component. Being able to perform a more thorough evaluation - with the help of additional features mentioned in section 5.1 - the doctors will potentially perceive themselves as less limited and thus increase their own, and patients', perceived professionalism. It could also limit the patient's room for questioning since the doctor's scope of operation would increase. Additionally, this would enable doctors to conserve their competence in evaluating patients.

Previous studies show that digital consultation challenges and digital work for doctors can lead to feelings of isolation and lack of assistance, even though the doctors have the ability to interact with colleagues remotely (Vårdanalys, 2020; Breton et al, 2021). One out of five doctors work full time with digital video consultation and the rest of the doctors work both physical and digital. The doctors who work hybrid admit that they would not be able to work only digitally due to feeling isolated and lack of evaluation. Although, feeling isolated is not expressed as a challenge but rather as a personal preference by the Doctors. However, Doctor C who works exclusively with digital video consultation does not feel isolated or lonely and does not mind the limited evaluations. Regarding isolation, our empirical findings do not fully

correlate with our literature review. All Doctors agree that working digitally is considered more lonely and isolated for obvious reasons. However, they do not consider this to be a challenge which is not in accordance with Breton et al (2021) and Vardanalys's (2020) findings. One reason for this could be that they all have actively chosen to work with digital video consultation to some extent and therefore do not experience being alone as a challenge. We found it important to consider that the increased usage of digital video consultation in the future most likely will mean that doctors who do not feel this way will be forced to work digitally and thus may consider it to be a challenge. Also, since the majority of patients seek consultation for minor issues, the perceived necessity to ask colleagues for assistance might not be as severe. However, if additional technical features were to be applied in the future, and thus expand the evaluation, there is a risk that doctors would experience the work as more isolated and lonely.

There seems to be a difference depending on whether the doctors have chosen to work digitally or not. There may be a difference in perceived stress depending on whether it is a purely digital workplace or if it is both remote and physical. The technology, process, and working methods with a digital healthcare provider are already selected and set up. It is important to acknowledge that some doctors have made an active choice to work digitally depending on the workplace and therefore the technostrain and isolation may not occur as intensely for those doctors.

All doctors agreed on what Ekman et al, (2019) say that there are natural limitations to what a doctor actually can perform on a patient using telehealth. All Doctors think they are limited to some extent to make an evaluation. For Doctor E, who feels that it is less time efficient to book a double appointment when an assessment could not be given digitally, Doctor C feels that the first appointment done digitally is more like a screening of patients. Some doctors see the screening as a workload while some see it as a survey. Here we can understand that there are divided opinions about what is considered right and wrong. As our empirical findings indicate, there are technical aspects that limit the evaluation process in digital video consultation. According to Tegelberg et al (2018), the evaluation of patients consists of two parts, and in the second part, the doctor uses their senses to make an evaluation of the patient. As mentioned in the Technical chapter 5.1, doctors are asking for features enabling more efficient consultation for this second step. Breton et al (2021) state that the evaluation process is more difficult in a digital environment. Our empirical findings agree with Breton et al (2021), but in accordance with our findings in *Communication*, it depends on the case. Evaluating less severe issues is not considered a challenge which is in accordance with Vardanalys (2020), but more severe issues are. Vardanalys (2020) mentions psychological complaints as better suited for physical evaluation due to better conditions for establishing trust. The Doctors express that they feel their confidence regarding evaluating patients varies. They do not explicitly mention specific examples of this but mention the lack of non-verbal communication and the lack of features as two main components. Further, our empirical findings suggest that the challenge of evaluating patients in a digital environment adds to the challenge of appearing less professional and competent. Looking at our conceptual model, *Communication* includes the challenge of *trust* which states that patients are more prone to questioning and being rude towards the doctor. This is in line with our empirical findings. One could argue the reason patients' communication becomes different in digital video consultation is because the doctors are not able to evaluate the patients to the same extent, and therefore their appearance of professionalism declines in the eyes of the patient. Doctor C

who exclusively works with digital video consultation has the most experience regarding this issue.

6 Conclusion

This study set out to investigate the challenges in digital video consultation. We wanted to do this by looking at the doctor's perspective, and therefore aiming to answer the research question:

What are the challenges in digital video consultations from a doctor's perspective?

To answer this question, a literature review was conducted assessing the current challenges in digital video consultation. In this process, we identified three themes of challenges: Technical, Communication, and Personal. The results from our literature review guided us when developing our conceptual model (see figure 1), which additionally guided our data collection.

We found that the boundaries of the technical challenges are expanding. The conventional challenges historically in the field, such as audio and video lag, are replaced with new ones. Lack of features and interoperability are found to be the two most prolific challenges. The challenges that these two oppose affect the other two themes, Communication and Personal negatively.

Regarding communication, we found that applying digital video consultation, especially in the first meeting, comes with challenges since it enhances the difficulty of establishing trust due to a lack of non-verbal communication and small talk. However, the need for communication characterized by trust varies and depends on the case. We found that there are mismatches in the cases doctors receive, which enhances the communication challenges.

Isolation is not a major challenge, however, stress and evaluation have been a problem experienced by several of the doctors. Stress is found to be a challenge, mainly due to the limited amount of technical training the doctors receive. The factors that influence stress, experience, and attitude, can be counteracted with technical training and good digital support, which turned out not to have been provided to all doctors. Further, evaluation is challenging due to the lack of technical features, which consequently affects the doctor's perceived professionalism and competence negatively.

6.1 Future Research

There are several different aspects to what future research could be imposed based on our study. As this study did not aim to make a generalization, further research could have studied this. To make the study generalizable, a quantitative study can be done in the future with responses from several doctors. A further dimension would have been to do a comparative study between the private and public sectors to see how it differs. For this dimension, one could have focused on the socio-economic elements as well as the technical conditions that differ. Furthermore, this study included doctors in the Swedish market. Future studies can therefore explore other markets outside Sweden.

Appendix

Interview Transcript Doctor A

Speaker	Citation
Magda	Hi!
Doctor A	Hello! fun to join. Sounds like an exciting topic you are writing about.
Magda	Thanks Doctor A. We think you can have a pretty open dialogue. I guess we have some different themes on our paper as well, and we are trying to understand the relationship between humans and technology today. That's what information systems is all about really. So I guess we have some positions and just to tie into that a little bit, we have a theme that's like the technology part. And where I've looked at previous studies show that there are technical issues that arise between the physician and the technician. You've experienced and if so what? -
Doctor A	You can say like that the digital concept is well developed, but with a high degree of reliability required. Very few of them that cannot take place. Roughly so if we talk pure technology in video meetings, So it works well. That's the thing that we always talk about in healthcare is reliability. That you can conduct your meeting well or whatever it is with high reliability into the pure video meeting in functions, the video meeting function, there is a good function with few disruptions.
Magda	Have you experienced audio or video delays?
Doctor A	No, not to any extent that is worth mentioning. But you can some occasional mishap so that it feels like you have developed this part of the company for so many years so you have a solid video solution.
David	How was your technical skills and did you receive any technical training as well as between work or training before joining X?
Doctor A	If you work for X a bit more broadly like I did, they involve a lot of technology, and skills on the side so to speak. But to work digitally, it takes a bit. If you're a bit intimidated then it's difficult, but if you're kind of normally IT savvy and interested, and get the adequate introduction needed to work in our system, they should be fine.
Doctor A	It wasn't a traditional set-up with the medical record system, it's a concept and if you just get a good introduction which often has to be a bit longer than other comparable introductions, it's not technically complicated to do video meetings in terms of the technology. There are other small concerns in everyday life, but it is not a purely technical issue.
Magda	But you being a trained doctor from university, would you say that there is a big shift digital versus face to face interactions?
Doctor A	A small but mental barrier initially, but as I said, it disappears quickly. You're just pleasantly surprised. It took me one or two video sessions to get over that small barrier. What can we say? Now the discomfort and comfort feeling very quickly dissipates as you realize that the system works. Patient encounters are essentially relevant and can

	<p>be done digitally. And then there was a physical instance to deliver the patient to at least in Stockholm and in Skåne then. But then there are others who might think that the obstacle is greater.</p> <p>But I'm not a fast, technology freak. I find it interesting and exciting, but certainly not as young people, like the staff at head office. They were a lot sharper in a lot of different respects in terms of technology, but I'm maybe a bit better than average, because I didn't find it a big problem or hardly a problem at all..</p>
David	Okay
Doctor A	<p>The concern was a little bit learning the system and our system. In Stockholm, almost all the health centres have a common medical record system which is old, not very user friendly, but you know what you have. It's not pleasant but they have come somewhere and they had to leave when you work digitally because then we have to use our own. It's our own portal which is a kind of entry point into video meetings. And then there's a medical record system in the background and it's rattling around where all the patient data records are stored. So it's two systems you're working in and it's a bit unflattering you could say so far, but it's getting a lot better in the year and a half that I've been at the company, but still a bit more cumbersome when you compare it to a regular health centre in Stockholm that has video meetings on the agenda.</p> <p>It's a little more complicated and a little more cumbersome but it's not really purely the technology that's a vital issue. The issue is just that you want to build your own digital system and it's not done in a jiffy. And then you have those of us who are working on it now more influencing and hopefully designing something user friendly.</p>
Magda	Is it important that all the systems are integrated with each other?
Doctor A	Yes, and it's not really for the person who works with pure digital and only runs digital passports, for that it's after the run, the route on board and the introduction after the two. If you run a digital passport investigation of the digital clinic then it's a marginal administrative burden.
David	I was just wondering if you said you've kind of had problems. I'm thinking it must be the patient calling in and having so they might have poor network or they have a poor video or something like that. Is that something you've experienced or?
Doctor A	Yeah, it could be that you have really bad coverage and it's difficult to conduct the appointment, but I think so. I kind of don't have any statistics. I think it's different if you compare it to working at Praktikertjänst. There we use a different video solution for everyday downtime. Of all the patients we had digitally, a negligible amount could not be done. Then I think it's just like you say that it's likely that the patient who doesn't have adequate coverage.
Magda	But as I understand it, you have never felt that you have been stressed by the system or that you have had a negative attitude towards the system, but you have felt that they have had a very positive attitude?
Doctor A	I might have some positive traits. There's a positive streak in me, if you like. I was surprised at how user-friendly the system is, then of course it is a bit more complicated if you work digitally and you work in the health centre, to manage physical meetings. Then you are more affected. Not in the pure video meeting but in the unit around patient administration by being much clearer inside both systems. It is said that you should order lab tests, order radiological examinations and send referrals, it is still

	<p>complicated. or more complicated, at least even in comparable systems that you had with in Stockholm. It's probably the same in Skåne, I thought at the time.</p>
David	<p>Do you feel that your full potential as a doctor comes out as much when you work digitally?</p>
Doctor A	<p>Well, maybe not. You could say there are three levels. You only work digitally and then you have a slightly more limited range of conditions to deal with, for example. Sick leave, investigations. Where a physical assessment is required, I think there is limited extent to how diagnoses are made. Being able to do assessments more widely would be preferable. Then there is the Digi-physical where digital is part of the workload where you can take your revisits digitally rather than having them physically. When a digital revisit generates the same quality of patient encounter as a physical visit, then physical visits may not add any value. The physical encounter might consume travel time from the patient or working time from the physician to no purpose. That was some of the most interesting of experiences. So that in some cases you can actually deliver at least as good quality in video meetings.</p> <p>And then you can move doctors, doctors talk a lot about administration and that they find it burdensome in some of the telephone communication they have with patients. You can move some of the communication you have with the patient to a video meeting and then deliver better quality than giving a lab answer or x-ray answer where you can have a dialogue with the patients.</p> <p>There is a lot of potential there. And then it's even more important that those who work digi-physically now and when you start digi-physically are a small percentage of revisits. A fairly large proportion of the general flow is longer if you have worked digiphysically. So the less time is taken from the essentials.</p> <p>Then we have tried to ensure that those who work digiphysically are in Stockholm. That when they work digitally and not with their own patients, they receive patients from the region, not from the country, which makes it feel a little more appropriate to work digitally with patients who have not previously had contact with. But with their digital patients, you have a greater and greater opportunity to work in the same way as you do when you work in health centres so you have broader authority so you are better at following up patients. You can send referrals in a better way. You are considered a physical doctor but you have some of your physical time digitally.</p>
Magda	<p>Yes, but that was something we saw in the literature when we were looking at that particular topic, that some people who had felt a bit too qualified in themselves for the problems they often had to deal with. But then maybe the mix of digital-physical is more optimal?</p>
Doctor A	<p>In that case, we are very many people who have this as an extra and you work evenings and weekends and have a job on the side.</p> <p>Which you might wonder if their employer would accept, but that's another question. Many of them work digitally, purely digitally, and then it's a narrower perspective. You work so you can't be on sick leave for long periods. You can't handle all the x-rays and referrals as broadly and that's not the idea either.</p> <p>But you can still help a lot of patients. You don't have to drag whole families of children to the health centre for snotty kids who need to be assessed. And then we can</p>

	<p>assess a snotty kid in a video meeting. You can usually assess whether you need the imaginary ones or not. You can do the initial screening and leave those appointments to physical doctors, which opens up for just those who really need to see a physical doctor.</p> <p>But the majority of doctors already work digitally in one way or another. But then there are those who work digitally And digitally, but have some sessions physically and then you have some sessions digitally that are different, almost like two different services and that's also an option. So you have two extra jobs for X.</p>
Magda	<p>I see. When you look at a lot of studies from the patient's perspective, it's just that it's time saving for the patient to not have to go all the way into the hospitals and so on. Would you share that view as well? Is it more time efficient for doctors to work digitally?</p>
Doctor A	<p>If we talk about the return visit then. I don't know if you are familiar with the concept of patients coming with a list of concerns. It's a classic GP problem that comes for a giant problem then you bring up problems 2 3 4 and five. When you listen in video meetings it's much easier to narrow it down to one issue, so to leave it here and just be able to have a dialogue. Partly because there is less administration and less time spent per effort in a video meeting. Not just because they can't pick up the patient in the waiting room. That's not where the savings are, but it's a slightly more contained meeting.</p> <p>And you also save time because telephone calls also cost time. And writing a letter takes time. So you're replacing some administrative tasks with a video meeting anyway. It's better quality in a video meeting than a letter, a call and more time-saving compared to physical visits.</p>
David	<p>If we look at the communication pieces, as well as how it is compared to in real life. And it can be a lot more, for example gestures or any communication when you specify a lot or that you miss things in terms of a video call versus you would meet someone physically. Have you ever felt that communication is more difficult or easier?</p>
Doctor A	<p>Yes, as I said, if you take an average visit you have the patient face to face on the spot. Compared to a video meeting, there's a little extra dimension in seeing them, actually, there is. But unless they really are in need of a physical examination, the difference is less than I really imagined. There is something a little extra about the physical meeting, especially the first contact with the patient. The following meeting usually goes pretty smooth, but if there is a patient you haven't met before. Then it can feel as something additional could be added by having it physically. That is a problem when working digitally. That's the crux. If you work in Stockholm, then we can refer patients to our units... If you work in another region where we don't exist, then we have to refer them to the health centre they belong to and that's not very patient-friendly in all situations, because then they have to tell their story and then they have to do the whole story all over again when they go to the health centre where we don't have any operations.</p>
David	<p>Do you find it more difficult to build trust or have you ever felt that patients lack any kind of respect or trust towards you?</p>
Doctor A	<p>Nah, I am not sure. Not that it's clear or counts, it might be on the margins No, not experienced that with respect. However, I have experienced that communication and</p>

	trust can break down sometimes. If I as a doctor don't fully understand the patient, it can affect trust. And they...they're not fun, of course.
Magda	What about doing an assessment on a patient digitally?
Doctor A	Well, it depends a bit on the condition of course when. A lot of infections with respiratory infections and looking a throat It can possibly make patients take a picture, but it won't be as good of course. If the patient has ear pain, it is impossible to do the examination or visit in practice. There are a lot of young children with colds who have pain in their ears, and if it hadn't been for the pandemic, they would have come to the clinic. Sometimes you'd actually like to feel the patient a bit, for example. But you feel that the visit is going well enough, you can deliver, what you would sometimes like to have is the Investigation Commission as support. The ones that apply in many medical cases is that you should dare to wait. Solving and trying to assess which ones need follow-up and which ones can get well on their own within a few days.
David	But what about now? You don't work entirely digitally anymore?
Doctor A	No, now I work with a lovely mix. Some physical work, some digital, some business development and other things.
David	Is there any particular reason why you've chosen this?
Doctor A	There was an urgent need for a new operations manager at the mall who would be on leave for three weeks. Then the regional manager asked me question about it. You don't mind working in the mall today, do you? And it was that I was working as one had to and then was. I worked a lot with just expertise in the beginning and when you work with patients, it's important. But there are a lot of people who have worked much more digitally than I have and you've probably got *** Names, right?
Magda	Yes!
Doctor A	** is probably one of those who has ticked off the most video meetings of all our digi-physicians. Truly a mercury, a working ant that we often use when we need to have something to deliver.
David	Do you find yourself isolated or lonely when working digitally?
Doctor A	Most people work from home or in the country, you are somewhere isolated. It's unavoidable and you don't have the same colleagues if you only work digitally. But I think the vast majority of people who work digitally... They have another workplace as well and were entirely digital, I don't think that would work. I wouldn't be interested in that. You want to have some sort of context even during pandemic times. But if you choose to work that way, I assume you're okay with it. I found the first shift where I was sitting at home almost cheating a little bit and not really working there. You don't really work, but after a while it felt okay to sit at home and work and like many others did during the pandemic. Everything is very difficult in healthcare, but it felt like you were free, like you didn't have to go to work. But you got over that quite quickly. So it became a regular feature of the working day. As for the technology, we have received very good support. I find that the system has few breakdowns and then we have a very quick response through our support system if there is a problem. The support system can make the priority more urgent. Seems the

	<p>net effect is that the support is good and solves the problems and they can go in and remotely control the computer if there is any problem that you can't solve in a conversation or other communication. It's an IT prodigy sitting there not in control of the situation. That's the generation that not many of our general practitioners belong to.</p>
David	<p>No, but it feels important that there has been a working system for if and although maybe one of the problems I picked up from you was that it might be that everything is integrated with each other?</p>
Doctor A	<p>Well, that's the thing. Talk to a digi-physician in Stockholm and 11 out of 10 will say that integration is the biggest concern. That it is the integration that is the biggest concern.</p>
David	<p>Are there any other challenges with the digital meetings?</p>
Doctor A	<p>Would you be able to deliver the product as you call it, the finished package that is so much more than just a signaling system. Could you deliver it much like you envisioned the end user task it would be an amazing. Fantastic tool to work in. But at the moment we're not quite there. You constantly relate to where you were working before and it's still the case that it's a bit more convenient to work with the regional record system. Digitally, there's not much difference. Maybe it's not just that it takes more time and not that much more time, but more mentally that it feels a bit more complicated. Then you might not lose so many minutes, but you might lose some mental energy. But it's not really the digital concept that's the problem. It's more that we have a portal and a medical record system that doesn't sync with the regional one, and that's a slightly different issue.</p>
Magda	<p>Exactly - Those who work in the public sector. They might have a slightly different view than you who are used to working digitally?</p>
Doctor A	<p>Now that everything is all set and ready, it can be. But it's not a short journey.</p>
David	<p>But I think it will be interesting to see. What do you think about the future of digital video constellations as well? How long before it's established in the whole of Sweden?</p>
Doctor A	<p>Stockholm is often at the forefront and if we look at our competitors, the biggest ones in traditional healthcare, that's it. They've started this, but it's mostly been for pandemic reasons. Not to achieve any other dimension. Had it not been a pandemic, we would have been even further ahead of our competitors.</p> <p>Now we have some additional digital players. Doktor.se, which has opened and bought health centres in Stockholm. That's our comparable competitor. And I don't dare to answer really but the pandemic has pushed all of you in here, forced everyone into this. But now we have kind of faded a little bit.</p> <p>I guess it will be very much like it was before, but with a digital touch. But it will probably be a while before it has taken hold widely, we're talking several years. Not two. We bought health then in all the health centres But they hardly work, don't work digitally other than in the infection meeting. But it's been a big uphill climb to get in there. They haven't gone into this themselves and haven't wanted to be bought up, while we employees at X have chosen to work digitally.</p>

	<p>Some people won't be able to adapt... A doctor who quits at 65 when we let so many people in won't be able to go on an organised career path when she leaves. And then I have some colleagues who may be a little more senior. Will be a bit difficult to just get over the threshold and get to the whole concept of working from home. You have to dare to jump on it and then X is one of those better actors, the digital-physical advantage.</p>
Magda	Is there any final word you would like to include?
Doctor A	<p>But I think it's an exciting company to work for. Lots of bright, young, witty people who get a man in the wagon. They deliver how many you've met at the head office which is gigantic and seems like everyone is cast in the same mould. It's a bit on Spotify and all that, but startups must attract the same Employees somehow have never encountered so many bright, witty, smart, nice, action-oriented Iknappt Somewhere overhead is something suggesting that it's a bit</p> <p>It's special. They've been out to primary care for a long time and yet try not to be all old-fashioned and square. Then it's just for a soul to get into a spunky business.</p>
David	Thank you very much for all the wise words and opinions and objections
Doctor A	Have a nice day in the sun. Thank you!
Magda	Thank you!

Interview Transcript Doctor B

Speaker	Citation
Magda	Tell us a little bit about your digital work.
Doctor B	I started working digitally because wow, what can we be now? That was a little over two years ago. Would I believe something like that anyway and then I've only worked at XX. really the whole time. It's the only company I have experience with, but still work relatively regularly every week basically.
Magda	Do you also work face to face on the side?
Doctor B	I work full time otherwise as a physical doctor. This digital job becomes more of an extra job you could say.
David	Have you ever experienced any technical problems, with audio or video ect?
Doctor B	Surprisingly little I would say. On the platform that we use, for the most part everything works very well or smoothly. There are very rarely problems with software or hardware in that way. Then it's probably an advantage that I'm quite tech-savvy so that when it does happen it helps. But no, I wouldn't say there have been any major technical problems actually.
David	Do you think the patient might have poor coverage or poor image for example?
Doctor B	It happens, but relatively rarely it's probably more in rural areas have problems with poor internet and then we can video calls become half-assed so. But then again, most of the time it's fine. Then of course it depends a bit on the patient's technological knowledge as well, sometimes they find it difficult to find certain functions that you. Almost always it works out well.
Magda	You said this about being quite tech-savvy. Do you kind of get any kind of training or be any kind of onboarding when they start working for the company?
Doctor B	Yeah, we had an induction you could say. It was a bit more focused and on routines and stuff. It wasn't so much a systems review. There was, but nothing detailed. But I'm computer literate and my brother is a programmer too, so in a way it's natural for me. It wasn't anything new or strange like that, but you get a bit of an intro before you start work for a few days.
Magda	So would you say you've always had a positive attitude to the system before?
Doctor B	Yeah, definitely, I would probably do that. I did have the system that we use and it's mainly the medical record system that I kind of use in my regular day job as well. Yeah, I was probably very pleasantly surprised.
David	Because we talked to doctors before who said it was problematic that there were two different types of medical record systems. But then you've had it integrated or been lucky enough to use similar ones and both?

Doctor B	It's the same system. I guess it's mostly luck really that there are so many different medical record systems in the country. I guess it was mostly luck, but I think our generation probably has an easier time learning a new medical record system too. It takes a few hours instead of a few weeks.
Magda	But would you say that you've become more efficient when you work digital or do you feel like you're more stressed?
Doctor B	Yes, it's flowing faster than before so I'm definitely more active than if I hadn't been able to use the medical record system. And then this thing with the stress of how many patients there will be, it's kind of self-selected how many patients you take and how much extra you work that. It doesn't stress you in any way and you just choose how much you work.
Magda	A big advantage of digital consultations is that it is more time efficient for patients not to have to go to health centres and so on. Do you feel that your working day becomes more efficient with digital?
Doctor B	Yes, extremely much more efficient. There is an enormous amount of dying time that goes away.
Magda	Examples of dead time that falls away?
Doctor B	For example, if you just take a clean transfer, to go and pick someone up in the waiting room and take them into the room. There's often a lot more, like of getting dressed in outerwear and then it feels like there's very often more like cold talk that's not part of the concentration when you're meeting physically with someone when you're talking digitally. I don't know why it has become that way from the patients' side necessarily. But I get the feeling that they are also trying to be more efficient and kind of get straight to the point in the conversation. When it's done, they finish pretty quickly. Instead of starting to talk about a lot of other things, you get time for one more visit. But, sometimes I wish we could talk a little bit more because sometimes the the small talk gives you useful information and enables better relationship.
David	Early studies show that it can be difficult to build trust and confidence in each other in digital. Do you feel any difference between the two or how do you feel about it?
Doctor B	Yes, I think there is a difference and I think it's more difficult to build trust and build a relationship at all with the patient Digital or over the phone. It is a major difference. But then it's also a separate ability also to be able to do it digitally so that you solve it in a relatively good way. But I definitely think it's more difficult. It's hard to put your finger on that feeling of not being in the same room as your patient is still something that occurs in human contact that you can't get through video. Then how big a role does it play? It's very different. It also often depends on what problem the patients has.
David	Do you feel it affects you? But if you're going to diagnose someone or set some kind of need, they just need what's the next step, does that become more difficult because of digital? Or how do you feel about that?
Doctor B	Yeah, I think it's a bit more difficult. But it definitely depends on what it is... If it's someone who kind of has a urinary tract infection, it's not so essential to build a relationship or the feeling you get from the patient. But if it's somebody who's striking

	<p>out and looking for mental illness, for example, then it's significantly more difficult to form a proper opinion. Well then there's so much else you're looking at during the conversation that you might not really get in the same way on video or phone.</p>
David	<p>There are those who argue that body language disappears a bit in the digital world. Do you actively think about how body language acts and when we are in the digital?</p>
Doctor B	<p>Yes, I absolutely do. Both one's own body language as a doctor. But of course we're basically always looking at the body language of patients as well. and it's quite special if you just see "This" (*points at head and shoulders*) you just see the upper body and a face. But there's so much else that goes on in the body really, like other gestures and clothing in general whether you're well-groomed or unkempt and details that you might not see. It's a half-baked video with poor resolution and yes, that does have an impact. But as I said, it really depends on what the case is.</p>
David	<p>How do you deal with such a situation and do you feel you are getting through as you need to in the digital world?</p>
Doctor B	<p>From personal experience, there are procedures in place that we work to. I guess it's about if you really feel that you're not getting through, that you feel that a failed conversation with the patient is not possible, that it's not appropriate as well. Occasionally you have to refer to physical counsellors so that if they book in at, for example, a health centre and take the case there instead. But if you think you've had a perfectly okay contact but still feel that there are things that you want to bring up again. Then we've started booking return visits so you can meet again. You can always ask a colleague for help and transfer the patient to another colleague. If they are more successful, another colleague will get a contract. There are many different ways to go. But if they fail totally then we have to refer to a physical care provider.</p>
Magda	<p>Just this thing about being able to ask a colleague for help. What does it look like when you're all digital? Do you feel isolated?</p>
Doctor B	<p>I'm relatively used to it already given that. A health centre where you quite rarely see your colleagues. That with that you see then at similar coffee or at lunch. Otherwise you sit there quite alone in the room at a health centre and it's quite similar in the digital too. We sit in teams available all who are inside. You can write to each other or call each other if you want. It's clear that it's more isolated and so lonely digitally. Then it doesn't bother me in any way that I find it hard. But maybe there are others who do.</p>
David	<p>Some studies showed that it's a little difficult to be able to show authority or that you kind of feel that you are with a doctor in a room when you meet a doctor digitally. Do you feel like you're getting your full expertise as a physician in your doctor when you meet someone digitally?</p>
Doctor B	<p>Yeah, I would actually say I do so far anyway. I've very rarely come across situations where I've felt like you're not making the most of your role, it's clear that even that degree is quite different in the digital versus the physical.</p> <p>It's about much simpler little things if you like applying for digital and occasionally it's clear that it would have been appropriate for another professional and maybe not even need to see a doctor. Put to normal cases would without using their expertise I think in.</p>

Magda	Would you say that, if you speculated that you would only work digitally. Do you think you would feel that you are kind of using your full potential and lack of outlet for your skills?
Doctor B	Not if I had done it 100 percent. I wouldn't have done it just because of the nature of the cases as well. We can't do practical parts, which is a relatively large part of my specialty and the same investigation, it falls away, which is a huge part of me. If I had worked full-time, I wouldn't have felt the same way.
David	Has it ever kind of been felt that you've been stressed by the system or is your attitude towards the game system generally positive as well.
Doctor B	No, certainly not. I definitely think it has its place and it will, just grow in the future. That it's not something you do any good in and put yourself against I don't think and personally it doesn't stress me out at all. But it's just another part of the profession.
Magda	What do you think VC looks like in the next 5 years?
Doctor B	Next 5 years I don't think there will be much happening in medicine but I think in the future VC will go more and more and patients will have certain types of equipment at home where they can examine certain things, maybe even will be able to take certain kinds of samples. Or different examinations. Equipment that they can apply to themselves and can send in some answer or so to a doctor digitally I would think will happen in the future. That's the simplest example of this in blood pressure monitors. But there are things that people can buy and have at home. Read off and send the numbers to a doctor as on, interpret the whole picture
David	Interesting! Another issue regarding communication that we were talking about earlier. That previous studies of patients, can differ quite a bit depending on whether most patients are digital or not. And in digital, it can have some variation in terms of looking up to doctors and questioning doctors. Is something you've experienced in the digital space?
Doctor B	Yes, I think so. Patients have fewer inhibitions in every way, as well as both good and bad.
	Yeah, but did you experience that as a problem or do you think it's beneficial?
Doctor B	It's hard to say. I personally think both really. Of course you get frustrated if you think you're not being treated with respect. Patients are more like outspoken in the negative direction and question me more. That rarely happens in a physical meeting and I believe it affects us. Maybe not me personally, but definitely my colleagues, even though they don't admit it. On the other hand, it's also nice that some patients let go of their inhibitions and dare to talk more about certain things that they want to get across. I can't say it's either one or the other, or both.
Magda	Do you feel that digital meetings are more targeted than face-to-face meetings?
Doctor B	Yes, definitely. Absolutely.
Magda	Are there any in particular that you haven't mentioned? Anything in particular you can think of that are big challenges today?
Doctor B	One challenge for the industry to be able to skyrocket and grow tremendously is to somehow make it so that you can examine patients, and I don't mean reach your hand

	through the screen But, some kinds.... Like you can tap on a button on your iPhone and you can zoom in on a change or some other little thing and press your phone in or hold your phone to your ear. These features could expand the digital world a lot and make assessment better . I think the biggest obstacle is the technology right now.
Magda	You started working with VC before the pandemic broke out?
Doctor B	It was before the pandemic.
David	Is it fair to say that you chose to work with digital by yourself?
Doctor B	Yes.
David	In the long run, it seems that technology has to get better. I'm just thinking about you being a doctor today, what's the biggest challenge today? Working digitally or anything in particular that you're thinking about that we might have missed?
Doctor B	I think the biggest challenge is to be able to replace this whole feeling, like the feeling you get from a person in a physical meeting. I don't know how to solve that feeling. I'm sure there is a way where you get the whole picture of the patient.
David	Because it is that picture that is very important, especially at a first meeting, which nowadays usually takes place digitally?
Doctor B	That first impression, the first physical impression when you meet someone, it says extremely much about that person. Everything from the way someone is dressed, to how clean they are, to how they move in the corridors and how they talk. All these things together form a perception that is difficult to get digitally, I would say.
Magda	I'm very happy, great answer, and I'm so grateful for your time XX! Is there anything you'd like to comment on or mention?
Doctor B	No...not really. It would have been great to see the results. I also find it very interesting. Yes, it would be appreciated if I could see the final result.
David	We'll send it to you!
Doctor B	Thank you!

Interview Transcript Doctor C

Speaker	Citation
Magda	Would you like to start and tell us a bit about your journey as a digital doctor?
Doctor C	Absolutely. I actually work full time at XX, only digital . Then I have some side assignments also where I write some texts for XX Facts and advice pages, a little So “ask the doctor” Texts and advice pages. I work basically eight hours a day, sometimes on weekends. And I've been working here for four years, I almost think it's now actually. I still have some experience of the digital.
Magda	So during these four years I have really only worked digitally.
Doctor C	Yes, that's right. Started as a small, a little smaller assignment. It was meant to be extra in addition to our job at the health center. Then we enjoyed ourselves so much and it was so flexible and like. So then we continued and then we stepped up and now work full time. Then came the pandemic and then of course it was good. But as I said, we started full time before the pandemic as well, so for us it was as usual to end up working from home and just continuing there. I say "us", it's me and my husband. He's sitting in the room next door.
David	You have to be one among those who have the most experience?
Doctor C	Yes, there are those who have more experience and have worked even longer. But I can say that you learn a lot, you catch up a lot and especially if you do this daily as every day, several hours, I still have a pretty good grasp of it. In the beginning I had 0 control over it, it was very scary , but now it feels like they are... Now it is normal routine for me.
Magda	Did you get any kind of technical training before you started?
Doctor C	Yes, I got an introduction . But there are no trainings that you have to go before you start and then when you are on probation for a period as well and then it is as always both... I do not have much focus on this with the patient meeting, but it was more the general around how to, as well as journal keep how to start conversations, concludes . Yes, so all that as well as technical. There is very good with something called a knowledge bank and there are videos and detailed text on how everything should go then.
David	Have you ever experienced a problem with technology?
Doctor C	If I have, yes . When I started at X, then it was still a pretty... They had been around for a little while so it was a pretty small thing. There was a lot we could not do digitally. It was like a little simpler stuff and then over time during these four years it has only become more and more. It has, as it were - but then when added more and more features. And with that, I thought it was only natural that a lot of technical problems arise as well. Since then, we have tried to become more and more independent that we should have our own systems that we use . Now we are a bit dependent on something called (PRENATA) which is like a journal system. There has been a lot of fuss about it and the same in terms of what is called a national patient overview and so there has been more out there about it. And you should, like you, get a permit and look in the

	<p>patient's medical record, medicines and such things. So it has probably been more about that. But as I said, there has been trouble with the KRY portal also during the development that it has happened, as where something happens in the patient's app. Or is the KRY portal that has crashed sometimes as well. But as I said, they add new features all the time, so I think it has often been something.</p>
Magda	<p>But do you feel that it as well as that it affects your work negatively when it happens or is it easy to get back from.</p>
Doctor C	<p>Yes, sometimes it has. Then I have been to the health center also that we have had technical problems and there it has been a little harder to fix it. It has not been as flexible. Here it has been more like it does not work today, for example if we have to prescribe a prescription or renew then we need to look at the previous drug designation, we have no access due to technical problems and then we can not really do it. It sort of goes against the guidelines and then we have said that if I book the patient for a return visit tomorrow, we can hope that it resolves. Or book another return visit tonight to another colleague. At a health center, it can be a bit awkward to be so flexible because there you have all the booked patients for the thirty minutes it is Year's checks so there is a lot that is not as easy to be flexible there. And then there are a certain number of doctors. Here we have very many that a service can jump in and so on so that .. Yes it has been disturbed sometimes but then we have just said that, "okay right now we can not make this assessment simply, You are welcome to come back".</p>
David	<p>But have you experienced that it has been in the daily work that has affected you is technically, maybe that there are problems with some camera or have there been sound delays that have affected me today?</p>
Doctor C	<p>Sometimes it has been, but most often it can be said to have had to do with the patient's connection and such. In general, we usually say about, but disconnect wifi, please use mobile data and it will usually work out. Some patients have a tendency to participate in a digital consultation when they are on a train or a bus out on the road. There is generally poorer connectivity there and it is usually this that disturbs the video call, as well as the audio.</p>
Magda	<p>Are all the systems you worked in integrated? If not, does that affect your daily work?</p>
Doctor C	<p>It depends, but all is not connected. So other journal systems that we use can sometimes stop working. For example when using a national patient overview or on PRORenata and they have not worked, then I have not been able to continue my work via the portal and it has been that we have been dependent on these other systems then, so that when it is not really that well integrated, then it happens. We have got more and more functions in the portal itself so send specialist, referrals and so on and sent mistakes. We can do that via the portal nowadays, so then it's a little less. But sometimes we are quite dependent on these others then. And if the integration between them does not work, then it will be troublesome.</p>
Magda	<p>But it can still get better over time?</p>
Doctor C	<p>Yes, it has already happened. It has - We notice a clear improvement and it is probably precisely because they work constantly for us to be as independent as possible from all other systems.</p>

David	If we go back to when you started working with video art and digital. Do you ever feel stressed about using the system or did you have a negative attitude towards the system?
Doctor C	In the beginning I did. Above all, it was very nerve-racking that digital meetings are excessively more lonely. to sit and work like this. It's like completely new to me and so I thought, but how strange not to see the patient, I thought. Then it has been a bit stressful, but it has been frustrating when some, as well as technical stuff has not worked. Then you feel that it will be difficult. You can not do this. Now I get tied up, can not do much, but you can say everything as over time I have noticed that there have actually been more positive things with digital meetings. Above all, you have more time for the patient himself. Precisely this digital means that we do not need as much administrative time and it is possible to put in continuously under our system are more flexible with bookings and so where you have met patients in from a queue as well as they are thrown at random. I think this provides better contact. It sounds strange, maybe like digital, but I get better contact with the patient. I have the opportunity to actually talk more with the patient better now. But in the beginning it was maybe a little frustrating, a little nervous and a little unusual. But this has become routine.
Magda	Did you feel that there was or is there support for you in case the technology should fail? How does it look?
Doctor C	We usually have an on-call service that sits. Then we also have a common SLA channel. Or we have several common beat channels. And so we always write in the channel that does not feel then and if there is any technical trouble, we write. usually all colleagues usually write it at the same time as they think it is a general problem then. Then you see post after post that everyone writes and then we also inform the obs-jour who is on duty and the person contacts our technical support and then they announce and as well as continuously update then what happens, What can we do, Usually write in those channels. Did not work - Test this. Then it is very good with the Slag channel as well. Then other doctors will help. Maybe I have tried something else, but this works. For example, try jumping or logging in directly here and there so that we have had very good support there.
David	When working digitally with your colleagues digitally as well. Have you ever felt like some form of exclusion or isolation?
Doctor C	I can imagine that it differs from person to person. I think it's a little nice. Now we compare it with the work at the health center. On the contrary, there have easily been very conflicts. You have been very dependent on other professional categories such as nurses who usually decide your entire schedule and book in for you. Then there can be conflicts, frustration and a lot of stress around this. Where you feel you have less control over your daily work. So in this way is actually very nice. Then it is almost a little easier to communicate, it is not that you have to wait until a person is in place. You can only send a message if there is something you can book in meetings this early, meet them when needed and so on. So I have to say that I actually prefer this. And then we have... Before the pandemic, we actually had joint X parties and so on. It was actually to meet each other in person and it has been like a great fun thing and like meeting people. So we have done the same.
Magda	When you communicate with your patients digitally.

Doctor C	<p>In general, it is still a fairly large screen. Then it is the case that the patient is looking for a rash, so patients are usually asked to film there. Then it's very different too. Some people think that you can put down your mobile phone and just talk without having to meet them. Then it can be a bit like an obstacle and then you try to explain even if it is digital but we still need to see it as if I should still be able to do status, description and such things for example. In some cases it is important to see whether the patient is overweight or not. But I can think that it was still quite good, as well as the size of the screen so that you still got a good idea. And if you then need something, you usually only know how to look at them.</p>
Magda	<p>Do you still feel that you can create as a doctor as a feeling of trust and create a relationship with the patient?</p>
Doctor C	<p>I think that this is a little more relaxed because patients usually call when they are in the home environment, safer environment and then it might as well de-dramatize that I sit at home and work, as I do not sit in a white coat. Before, we wore white shirts. Now we have got blue, as it is not really here, as well as sterile. Even if you've heard of this "white coat" high blood pressure". Where you get high blood pressure, just by seeing healthcare professionals. That sort of thing disappears a bit with this digital. I actually thought at the beginning that this would be difficult to create trust, but precisely this that you have more one on one time. I have less time for the administration, so I think this actually works better.</p>
David	<p>And, what about the first meeting?</p>
Doctor C	<p>I don't really see a problem in having a first meeting online. I have had several patients like that. I understand some find it easier to have the initial meeting physical, but for me it has not been a problem. Maybe that is because I have worked with digitally for a long time and it is just part of my routine.</p>
David	<p>Okay, I see. Do you feel that you are reaching your full potential as a doctor digitally?</p>
Doctor C	<p>Of course, there are some physical things that you are not allowed to do. Then there are doctors who work both digitally and in physical services. We are opening more and more health centers, so it is very simple and there is always a need to supplement it then, but it is probably precisely this that sometimes you want to look at whether it is so that the patient has a little harder to film, have difficulty with technology and so on. Then you almost want to be there yourself and help. And like sometimes there are certain rashes, you want to feel and like poke a little and such and so it has probably been a thing sometimes. But but, now, as I said, we are also lucky that we can book most of them at our health centers. Do we feel that: "But no, it's missing like this I need to do. This can not then book, is usually not a health center or just refer on then.</p> <p>It depends a bit on what you do too. If you sit with this all day then it can get a little casual after a while. Then I have the turn I always have the assignment also when I sit and write like that. For me it will be variety and then I feel personally satisfied with what I am doing right now. Then I do not know what will happen in the future. I may return to the physical form. Right now it's good. Then there is another situation as well. It has happened. We kind of visited health centers and so that some patients have been aggressive, we do not get these but we have other types of patients who call us.</p>

	<p>It happens too. Then you do not feel as exposed. But that one can then take in the digital internet aspect also that the user can easily check out information about you, find where you live, as well as such stuff. There is also another side aspect to all this. But just this, as well as physical where I have had several situations when the patient has been threatening, aggressive and threatened as well. Then it feels good to have this distance.</p>
Magda	<p>Some patients may be perceived as less respectful, easier to criticize.</p>
Doctor C	<p>Absolutely, absolutely. It's a bit this with the expectations and then most of the time you really want to sit and educate the patients in what this is about. We have strict guidelines, but many call us and think it is like some commissioned work.</p> <p>They call and want to order antibiotics or call and order cortisone, and we try to explain to them that it does not work that way. And then you notice a slight disrespect starting to show, since many have already googled their symptoms and know exactly what they have for diagnosis. And when I say I can not make that assessment digitally, then they get impatient and you get questioned</p> <p>We get their reviews too and they come anonymously and it comes like several days afterwards. But most of the time you know exactly which patient, that one I denied as well as painkillers. We are not allowed to write that much digitally. There was a lot of talk about it even then, but then you know then it will immediately be this disrespectful other so I can feel a little more with the digital that people have higher expectations. Then there is this in general with the digitization we have. Society has become more like this quick fix with everything so easily accessible. And then it will be the same with the care as well, so that when they call and pay, they expect to get what they want. Not always based on our judgment.</p>
David	<p>Rating, Is it something that affects you?</p>
Doctor C	<p>Personally it does because for me it is very important. Like relatives, I have families myself who have been involved in healthcare before and you feel how incredibly important it is to receive a good treatment. To meet someone who actually listens to yet, so I kind of go after my reviews before, as well as good reviews then I know: Okay, I continue like this it goes well. If you get a little negative reviews then you become like a little: okay. What can I change? What was I doing that was wrong there? Most often, they are negative just when you deny people prescriptions</p>
David	<p>Can that be stressful then?</p>
Doctor C	<p>Well, in the beginning it may be so for some, but I have worked with this for so long and I have such a good grasp of our guidelines so I always have it as support as well. Then we have back shifts as well. So if a patient is very demanding and absolutely must have it, then we turn to our back office who is mostly on duty, we write to them, we can send pictures that we de-identify. They also make an assessment and then we inform the patient: Okay, now I will request a second opinion and if the back office also agrees then you feel even more strengthened in your assessment .. We also always have the opportunity to turn to each other. But no, I do not think it feels stressful, quite the opposite. That was not really the case at the health center. Guidelines were not always very important. We also get many patients where we read medical records from the health center where people prescribe antibiotics for basically anything. So here we have a little more, precisely because it is digital care. Because we have many eyes on</p>

	us, it is actually more strict around this and for me it feels good to have a clear set of rules to follow up.
Magda	But when we have done a lot of studies on what the patients say if there are a lot of studies on, it is a great advantage for all patients that they do not have to go to the health centers and that it becomes more time so efficient simply. Do you also feel that it is like a time efficient for you?
Doctor C	<p>Yes, it varies a bit too, but it depends a bit on what they are looking for. We have a certain time frame that those who hold the company would like us to stay within. But but, if it goes over, there are no problems only. And what is very effective is to keep a patient booked so maybe postpone. There is no danger as well. Or is there someone who ends up in my queue that I have not met, then I quickly write in our back call: Can you please move that patient. Then you have time to spend more time on this patient right now so that you may not need to have more return visits and so on.</p> <p>And then, that particular administrative is probably simply the biggest bit actually. No need to take the time of the patient to sit and take medical records to dictate send x-ray. Calls that take a very long time. And I actually think it feels like you do more digitally than you did at the health center.</p>
David	Is there something you are missing with the physical meetings?
Doctor C	No, Maybe what I said it is practical sometimes , - cut a little and sew and fix and look and feel the patient sometimes. But I can say inwardly that I have often missed that.
David	What would you say was the biggest challenge of being digital?
Doctor C	<p>People's opinions. But "digital doctors are cold doctors." After all, people have a tendency to say a lot about things that they have no idea about even then.</p> <p>My husband and I come from families where everyone is a doctor. He has three siblings. Everyone is a doctor. I have a brother, He is the doctors are when you meet them they are and they know what it's about. We have explained, but when you meet their colleagues and so on, you feel this.</p> <p>If it's the negative as well as has a lot to do with the economy "But you deduct contributions from the hospitals, you are not real doctors, new si and so." Then I can think that we help in many more ways than people in the physical care do what he shows helps to refer to the right authority. We help with referrals when needed. We have a greater overview of what the patients have been, what has happened. We go into this national patient overview and then we see notes from different places while someone from a health center may not really see or go in there to see what is happening. So in that way, I actually think we help and just this and listen. Give the patient time and talk. It's so underestimated and sometimes it's all that is needed. Yes, people do not really understand that them. But I think that is the biggest challenge and then try to indoctrinate it. This is part of society right now. We are not there to replace physical care, we will never be able to do that. But we can complement in so many ways and also facilitate.</p>
David	What is your future vision in digital video conferencing?

Doctor C	<p>My hopes are precisely that the digital business will be there side by side with the physical. That I think that hopefully... Many health centers already have this digital part, but just to expand the digital activities, there is a lot you can manage digitally that does not have to come in physically. In this way, you help to shorten the waiting times, patients get better help if they get the right diagnosis, the right treatment.</p> <p>So it's a bit of my hope that this will be that society will have a little better view of this and understand a good better understanding also of what this is about.</p>
Magda	<p>Do you think or do you feel that the technology also needs to be developed in order for it to become more perhaps accepted and more useful with just digital?</p>
Doctor C	<p>Yes, and then I think exactly this with the hope is that we who work at X will then be able to use our own systems and not be so dependent on these other systems. And it's like we're still on our way there and that's a process. Then there is always trouble, whether it is technical or not. Something always happens, like it's hard to get away from. I think it will get better and better. We have very skilled staff, competent who sit with it.</p>
David	<p>Is there anything special you are thinking of that we missed asking?</p>
Doctor C	<p>No, I think it's great that you're doing this now. It is also like a way to contribute to this very understanding of digital healthcare. It's actually here to stay, I think, I hope then, and it's there to help people. So thank you, who do this.</p>
Magda	<p>Thanks! Pleasant evening!</p>

Interview Transcript Doctor D

Speaker	Citation
David	Hi!
Doctor D	Hi! Can you hear me?
Magda	Absolutely. We can hear and see you
Doctor D	Good! Sometimes it can be a little messy.
Magda	Mmm..So I was thinking if we could start Doctor D and tell you a little bit about your work and how long you have been working with video consultations?
Doctor D	<p>Yes, but I'm a paediatrician at heart, but I also happen to be the head of operations in children and youth. So from that perspective, it's also a bit difficult to take that out in this context. I don't work very much clinically now, but somewhere between maybe 30-40 percent and then it's clinics and I have mainly diabetes and endocrine patients and diabetes. Patients are quite technical. And so they're used to a lot of different, more or less advanced pumps with equipment and so on, so it's a grateful group to try to use other technical gadgets and manicures on. So that's a bit about them. I've been thinking that this was a good group, to run digital visits on.</p> <p>So I pretty much did. We started even before the pandemic, but it was during the pandemic that it became unfortunate and with more speed you can say that there have been some different problems along the way, but it is like the systems we are allowed to use and so on. But I'm sure we'll get to that later.</p> <p>But I guess you could say that the process itself and the idea of digital meetings, I think, definitely takes a place in them. Children that the media is pursuing today and I think you could extend it quite a bit more. But it has its limitations and especially when you're working with children and young people it has them. And you need to be aware of them, and above all use it then in the right context to the right family and a patient. And so you want to have well-functioning systems. That's a brief summary of the situation.</p>

Magda	Thank you..when you say well-functioning systems is it that they have not been integrated with each other, the systems or is there some other problem you have seen?
Doctor D	<p>You could say that when non-integrated systems are fragile systems that all of a sudden break down, get knocked out and conversations break down which leads to difficulties for the patient and connects up in complicated ways when you have to click in so many places before it just kind of happens. It's very easy to call home straight away, you could say. The systems that we have offered are not really simple, and I can say this, that it requires quite a lot of commitment and willingness on the part of the healthcare staff who are going to carry out the digital meeting with us. At least to make it work. But it requires a lot and I think that may be one reason why we haven't got as far as we need to.</p>
David	Have you had any training or education on how to use the system?
Doctor D	<p>Yes, there is. There's quite good written instruction and it's a case of teaching a few people and then teaching each other. That's how the system is set up, so there's no such training that you can go in. The training portal is where it is disseminated.</p>
David	Are there any negative aspects of the system? And do you feel that it affects your work?
Doctor D	<p>It could have been so much smoother and taken so much less time.</p>
Magda	Do you ever feel that you have had a negative attitude towards the system or felt a bit intimidated by using the system?
Doctor D	<p>Yes, you could say that some days it works just fine. But then that day comes and all of a sudden it's like everything is hanging and then you get quite discouraged when you know that it can work so well. And you don't want to spend ten minutes trying to disconnect and jump back up and keep at it. You don't have time for that. There's not enough time for visits as it is. You want to use that time for quality for the patient.</p>
Magda	I'm thinking of technical support. Does anyone help you when the system hangs up?

Doctor D	You can call a friend, but there isn't always someone who can help you there and then.
David	No, but how do you resolve a situation like that? If you have a patient when the system hangs up or something like that, how do you go about it?
Doctor D	You have to use the phone.
David	And I suppose that has its flaws too?
Doctor D	<p>It's not good. You have to call a colleague, we don't have access to any technical support... If you can't solve the problem yourself, you have to call the patient without video. That's not good. The point is that we should see each other and at some point I have to admit that we have had to use other systems that we shouldn't or aren't allowed to use.</p> <p>And it's clear that if the patient himself suggests media, this doesn't work. Now I'm calling you instead, I can probably say that there are probably quite a few people who do that when the systems we're hassling, and that's not good because it's like. It's more insecure, and we have the systems we have for a reason, so that we can stay within them, with different confidentiality, walls and firewalls and all that, so we absolutely shouldn't do that. That's the way it is. Then there's been a bit of ambiguity, I think, through these years. We've had the digital versions. Some businesses have for periods allowed the use of Teams, for example, which we use sometimes within XX for all the other internal meetings and so. But it hasn't been allowed in our administration to use that as a patient meeting forum, but then it's in this other system with the other business, but I actually know that some have used teams despite that. Because it's not quite clear, like how to do it. The idea is that you teach a few and then you teach each other. That's the way the system is set up, so there's no formal training that you can take, you have to get help from a colleague.</p>
David	When you think about the actual technical hassles, it's often that it's the video that's messed up or the audio that's messed up. Can you be a bit more specific?
Doctor D	It's that you don't have contact at all. You can't get the call.
David	Okay.

Doctor D	<p>And when you do get it, it works, but sometimes it doesn't connect. The way it works in this system is that the patient gets a link sent to them on their phone and then they have to click on that link and then they come in from their end and I need to log in from my end, with my ID I come into the system from my end and then I see another view and then I get the waiting list for my clinic where the patients are going to be lined up.</p> <p>Then I click on the patient that I want to see and sometimes when I click there, the patient doesn't come up and it sort of falls away. That's usually what happens and then it's a lot more clever, I think, with a video call. This with us who then have perhaps children and especially young people where you in school you do not want to take time off from school. Mum and dad don't want to take time off work and can only have tripartite talks where mum and dad are at work and the child is at school. Also, they all talk together, and that's a pretty easy thing to connect, and you can do that in this system as well. But then you need a lot of good will to make it work, so I'm going to say that I'm going to leave it to a colleague and get to grips with it. But I do it myself because I want it to work and that makes it right. But it takes a long time to get a conversation like this going, and I think that's also... silly, because it's something that can be good for the patient as well. The care provider also needs a simple design.</p>
Magda	<p>Do you feel that working digitally is more time-efficient than working in the hospital?</p>
Doctor D	<p>No, it's about the same actually, because it's the same as the time commitment for the patient. For patients you talk for the same amount of time is so from a doctor's point of view it takes the same amount of time. Then it's different for the patients. Everything around, like sitting in the waiting room. They don't register out at the front desk. There's no nurse being called in to weigh and measure and prick a finger and take samples. And it's all here. So the fact that it's on the total means there's less strain on the reception, there is. I spend the same amount of time talking to a patient, so from a doctor's point of view, it takes the same amount of time digitally as it does in person. ... As far as the administrative side is concerned, there's not much difference either, because it's done afterwards. My own time is more or less the same, possibly a few minutes shorter. It depends on how much the system hassles</p>
Magda	<p>But do you feel that you can build as much trust with your patients in a digital environment as you can in a physical environment?</p>
Doctor D	<p>The patients that you know before, I think it works really well with, and then I know a little bit how they react to different things. I might feel that I don't want to have video calls every time I see them, but I want to have like physical meetings sometime in between. But quite a lot of people want me to maybe meet every three, four times or so and show each other once. It depends a little bit on that, and do you need to take samples or? You actually need to be measured and weighed and that sort of thing, and</p>

	<p>it's time for a physical visit. Then we have everything as a physical visit of course. But if you don't need that, if you feel that this has gone quite well without you coming here, that's a great benefit for the family.</p>
David	<p>Okay. I'm thinking about non-verbal communication. Is that something that you experience or do you think about, like your body language, that you want to show that a little bit extra in the digital space or the other way around?</p>
Doctor D	<p>Yes, that's it. And especially the other way around. When you are talking to a child or teenager, you can not only listen to what they say. You also need to read between the lines to see how they appear. There are a lot of things we need to consider. They way they move, how they interact with their parents or siblings. There are a lot of nuances. A lot of nuances that are probably even a little bit more than when you just have adults who can speak for themselves better. But there it is also important of course, like everything else besides speech.</p> <p>But it's very individual dependent I would say, and family dependent and above all age dependent. And that's why I also feel that you can't just have digital meetings, but you have to meet the patients.</p> <p>Some new visits are needed and if you ignore chronically ill patients, if you think that you have referrals coming in to just clinics with all sorts of different symptoms, then you could think that you could have a first assessment, perhaps to determine a little bit how? How serious could this be? But it can never replace this examination, and the assessment that does it has to take place so you can feel the stomach, listen to the heart and so on. We can't escape the fact that it needs to be done anyway. But sometimes it can be.</p> <p>There can be long waits so you can speed up a process by having a digital meeting with the family. What has happened and what is the background? What else is there? What are the symptoms based on and what does it look like? And you can do all that and form an opinion about the situation. But then you usually need to have the patient in for a visit, at least then in some cases maybe not, but most I would say. I'm good at talking haha.</p>
Magda	<p>That's good! We're just trying to process everything you say!</p>
David	<p>If we go back to communication? Do you feel that there is a harmony missing in the digital space or do you feel that you are getting through in the same way as when you are meeting someone?</p>
Doctor D	<p>It is easier to capture someone and kind of build trust when meeting someone face-to-face, of course. You can't disappear from the picture when you have a physical meeting. It can be like that when you have digital meetings and sometimes, it's like</p>

	<p>that in itself even to some extent with face-to-face meetings, but the parent takes over. And so the parent is talked about more than the child, and that's not in any way what we want to avoid. Is it the child who is the focus? Yes.</p> <p>Of course, the parents need to talk too, and if you are really young, it is clear that only the parents talk. But we still want to have contact with the child, and that's where it is. And is that more difficult? Digitally, that's why it's quite good to know the families before you have digital visits and follow-up and visits I think are considerably better, because then it's easier to catch each other. When you know what buttons to push.</p>
David	So first meeting, do you prefer to have face-to-face?
Doctor D	That's it. I've tried sometime and have portrayed the conversations as I've tried sometime and had an interpreter three times and I was actually a bit skeptical at first. But it works pretty well. That's one way, but it requires the connection itself to work.
David	Interesting.
Magda	Do you find that digital meetings are more focused and that it's a bit more straightforward with less small talk, or how do you feel about that?
Doctor D	<p>Possibly, but I think that maybe it also depends a little bit on the individual, both as well as the provider and the patient, and because I know these patients very well and just the diabetes patient that it's mainly about.</p> <p>In my case, a diabetic patient knows how much you know about diabetes, but diabetes is diabetes. And the disease is actually also then for those who have diabetes a very big part of life. And when it comes to children and especially young people where you talk quite a lot about life to understand how this individual here is affected by their disease. So that I talk quite a lot around. Because that's part, like in and of my own assessment of what the situation is, so maybe not that I experience it so much. No, but it's probably just that I have that approach.</p>
Magda	How do you experience diagnosing patients in the virtual room? How do you experience it?
Doctor D	So when it comes to this particular type of patient? It's quite different if you're going to say you have an acute error, like X for example, who has everything from a sore throat to somebody to a stomachache to a headache. That's the way it should be with anything. That's not really the case for me. In my case, more than 50 percent are patients I know. And then when you look at the chronic disease which is 99 percent is

	<p>diabetes here, then it's 1, no diagnosis, and 2, it's a lot about dialing in. How does that work now? What we do is we look at how blood sugar this has been and then we reason about it together. And then it's the case that they have a lot of different aids at home. Continuous blood glucose monitors and are pretty advanced insulin pumps all that we can look at together. I can see the same information that's in the pump that you can see in your own phone. And then I can tell if you this curve at lunchtime, is good or not, really straight off, but here it's always raising blood sugar. What do you think about that? Why did that happen? And how does the pump work? Have you thought about it? What are the settings and how do we reason about it?</p> <p>That's a completely different way. You can't really compare it like that. Then it's clear that with the system we have now, you're not allowed to share information on the screen like they often do when we have digital meetings, sharing like Powerpoint presentations or something. And I would like to do that, that you can share blood sugar curves or pump settings and so that you are looking at exactly the same picture at the same time. I know they have the same thing on their phone, but I can't tell if they're watching it at the same time as me. But I think that's the way the reasoning usually goes and it works I think.</p>
Magda	<p>Do you find that patients become more aggressive or negative towards you? In the digital space. Is there anything that you have felt towards your patients that you have found to be a bit threatening or aggressive?</p>
Doctor D	<p>Do you mean that they would be that towards me?</p>
Magda	<p>Judgment towards you.</p>
David	<p>That they might lose a little respect for the doctor?</p>
Doctor D	<p>I would hope that we all have a pretty good respect for each other and are going to do something in all directions, and I expect people to be able to say both this and that to me, both in the physical space and the digital space, and I don't really feel that there's any difference really.</p> <p>But then again, isn't it? Most of them are for me familiar patients, I can see in them that something is not right now. What has happened? And then you do it and then you get sad and angry and happy so I can't really feel it. Then I can understand how it can be like that.</p> <p>You now have digital visits where you might be very worried about something. And then you have them in front of you who you don't know at all, but don't know, like what this person stands for or what their values are or what they stand for. Then it is clear that it is certainly much easier to scold someone, even though it is really concern that it is about perhaps. I think so, and it's the same on the phone now. If I</p>

	<p>take off my doctor's hat and put on my business hat, most of the time it will grow after the hat, so I often get all these complaints. Pedigree. As you know, patients are not happy and so on and so it is often like that. Then you can make a visit physical visits and it is quite a different tone compared to the telephone because you realize that it is people and there it is not so that it applies to another machine or you evil on one side. We want to try to solve this of that it was. But of course, the barrier is there, and the further away you get from each other, the clearer it becomes. That's how they are, but I don't experience it, these contacts that I have with these patients, that's me. And that's why this group is so good.</p>
David	<p>I'm just thinking personally for you, you have it as a medical training and so on before, and do you feel that when you work digitally that you get, do you get to fully express your skills as a doctor or do you feel that you get a bit limited in a way?</p>
Doctor D	<p>I was limited in the sense that I can't do all the things that I might feel would be needed if other things come up in the conversation. Sometimes it's just so right. Often it's something else that is, whether with also that I've had stomach pains lately and so. Then I can't feel my stomach if we have a digital visit, but then we'll have to say in that case. Can we do it next time? If it's not an emergency so it may be if you can't wait so in that way approve it. It's very much about pedagogy.</p> <p>When we talk to this group of patients and I can't feel that I could go any worse in any way. What I would like is that I can just draw, and explain and so, and I do that pretty much all the time when I see the patient family physically, that you draw pictures or diagrams and arrows and figures and things like that. It would be nice to be able to do that in a digital forum as well, because I think you'd gain a lot from that, and I guess that's what I'm missing. I don't know if it's more for my own sake or if it's for the sake of the patients. It's still a big difference.</p>
David	<p>Are you saying that technology is stopping you?</p>
Doctor D	<p>Absolutely.</p>
Magda	<p>If you look at the same trajectory. What do you think in the future about what that looks like, like digital video meetings?</p>
Doctor D	<p>I hope we'll have a new system where I think it's already come. But I haven't started using it yet and I don't dare to say much about it before. I have tested it of course, but I can hope that it is much better as the CEO has promised. And then I think they should get a boost. And I also think it feels awful to say it, but I think we have quite a lot of pressure on us now within the Y, at least that we should have a very good</p>

	<p>availability and most on that. And occasionally I think that's also a way of kind of forcing it forward. If you want to put it that way, they're a little bit more quick meetings. Then maybe it can generate more visitors if it's a quick digital visit to sort of sort of filter and stay here. No, this was none of that. You'll have to go to the health centre or something, that may be it. But but, it could be that there will be that visit and then additional visits you haven't had a digital visit. It might have been enough to have the first visit at that time, but then you had to wait longer and then the accessibility was worse. I can imagine that this might put some pressure on the new system.</p>
David	<p>At first I was just thinking about the social aspect of working digitally in that way. Do you feel like? Do you feel left out on your own, or how do you feel like you can take support from colleagues if you need it?</p>
Doctor D	<p>Well, reception work as a whole is quite lonely. You're usually in the reception and I have my digital visits as well. Sometimes it is also mixed that there are physical and digital in the same reception. One afternoon or morning I'm sitting there and I think it's good that I can jump in and meet people. Maybe a little extra me because you want to ask all sorts of different things that have to do with the other mission as well. I think it's good to be there physically, I think. I can't really feel it.</p>
David	<p>I mainly think about when you're working digitally.</p>
Doctor D	<p>If you were to compare to before, you visited the patient in the room. You have the patients in the digital room as well, but it's just you and the patient. and it's in the reception room as well. The only difference is that the patient also sees the nurse, that you can't see you and the patients at the same time. Eh. So I wouldn't say that actually. It's not something I've thought about in that way</p>
David	<p>If you look at working digitally. What do you think is the biggest challenge or challenge if you are allowed to run free in everything in your day to day work?</p>
Doctor D	<p>If that's the biggest challenge, it's the technology right now, isn't it? The next step is to get colleagues to use it more. Because I think that would be very good. I also think that... how to put it? It's probably not just in children and young people in healthcare, but there's quite a lot of telephone contact in various places, both adults and children, and many of those telephone contacts I think might have been good to have a video connection to actually get a little check on the plan now that you see how, he says. What does it look like? Actually says quite a lot, and especially if you then know you well. And all our phone contacts are, not all, but most of them are. The chronic patients in total maybe call and tally off this year the medication has worked a service, this we'll raise we'll reduce is and so on. And the ones that you know well</p>

	<p>you get another dimension on when you see them, not just hear them on the phone, and I think that can be a bit of a challenge of and turn it around, because it's all that stuff is rooted in hard, that makes people think in new ways. But I think that would have been a win, but also a challenge to get to. But the technology is probably what I want to highlight, like the most. Because without a well-functioning technology, I won't be able to pull this off.</p> <p>And then the challenge is also of course to find the right patient groups, and we can look at that very differently.</p>
Magda	Anything else you'd like to highlight Anna-Karin that you think we've missed?
Doctor D	<p>But I think it is. I think you can sum it up by saying that digital visits are fantastic and that it makes it easier for, in my case, children and family, and it's also a social and economic benefit that you don't have to take time off work, it's environmental, you don't have to travel back and forth, and it's also to some extent locally good. You save physical space, which is good for the hospital if you think you can increase the number of physical visits. If you have more digital and so on, there are lots of advantages. Then there are the disadvantages that you have to be aware of, and especially as we were talking about here with children and young people, that you have to be able to assess and see and create relationships and be able to get that little subtlety and fingertip feeling. And you get that more easily when you know each other from the beginning. And you can't just have digital visits. You have to mix, but if you manage to do that and select the right patient, it's a very, very good tool. Good technology and the right selection.</p>
David	I think we've seen most of it very well and a big thank you for setting up.
Doctor D	That's the little bit. This is how our work can be better. Good luck.
David	Thank you so much!
Magda	Bye!

Interview Transcript Doctor E

Speaker	Citation
Magda	Hello!
Doctor E	Hi!
Magda	How are you?
Doctor E	Fine, thanks. Happy to be able to help you guys. I hope I have some insightful things to say haha.
David	Yes, sure!
Magda	Well..let's get started then.
Doctor E	Yes!
Magda	How long have you been working with digital video consultation?
Doctor E	Aahh..It started right when Corona came, so approximately two years
Magda	Okay
Magda	Aahh..Have you experienced any technical problems when working digitally?
Doctor E	Yes, hahah. A lot. That is the problem at the moment. When we have meetings, us three here, and on Zoom, on my spare-time, in Teams, it usually always work. But unfourtunaetly it does not always work as smooth at my jobs platform, the one we use. It is a lot more complicated. If you haven't used the system in a while you almost have to update yourself to remember all the functions. "How did I do this again?" If you look at Teams, there is no one under 50 that doesn't manage to handle that. All you have to do is click. But the platform we use today is not as easy to handle. You have to click around and put yourself in different spaces within the platform. I have managed to learn, but it is a problem for others. For parents and patients can struggle with it. The wins is that, children that I meet usually, could have been done every other time digitally. I don't have to meet them physically every time. If I don't need to examine them, there is not as big of a need. We have sensors that enables me to track their blood sugar thoroughout the day. I can see how they are doing every day, hour by hour. If I could visually share screen with them and make it more visually clear for them, that would be a huge plus. Maybe the patient could be in school and the parents at work while doing this. But this is not possible right now. The technique is not there, not with our current platform. You cannot screen share, you can't invite a third part because of certain regulations. The functions are there, but it never works. At least not for me.
David	So would you say it is the technique that hinders you?
Doctor E	Yes, totally. I could have had so much more consultations done digitally if the technique was better established. I would have been more flexible, and also the patients. To be honest, not many limitations. I could have met more people everyday, and become more efficient. It would have been a huge win, in many ways.

David	Mm.
Doctor E	But the platform, the technique we are currently using is not that good.
Magda	Is the problem that the meetings have trouble starting or is it video errors, or audio errors that cause these problems?
Doctor E	The quality is usually okay. But it is the limitations. Important aspects like getting a full screen can sometimes be difficult. To share screen does not work. I have stopped trying. The quality is like every other digital tool, it depends on the network, where the patient is located.
David	Mmm
Doctor E	But it is quite common, if I have a meeting day with all of them done digitally, then there is always one that fails. The patient has trouble logging in, so I have to call them on my personal cell-phone. Then we have to conduct a telephone interview instead. Which is not the same thing
David	No..how would you say that these technical issues affect your work?
Doctor E	It affects a lot. It makes me always have to worry that something could go wrong. I have to make myself available 5-10 minutes prior to the meeting, sometimes I have to call the parents and guide them to log in to the system, which is time-consuming. It takes a lot of time.
Magda	Yes..
Doctor E	It would have been much more efficient if the parent and the child did not have to be in the same room. To be separate but still logged in in the same meeting. It works now, here. But it doesn't really work with our platform.
Magda	It is quite obvious that meeting online is quite flexible and efficient for patients..
Doctor E	Yes!
Magda	Would you say that it is time-efficient for you as well, to have them online?
Doctor E	Generally speaking, yes. Good meetings, when it works, usually takes as much time as a physical meeting. And then the quality is good as well. But sometimes there are technical issues and I have to call the patient on my cell phone. And sometimes I only speak to the teenager, not the parent, and then I want to call the parent afterward. But generally, I manage to do more.
Magda	Mm..
David	I am thinking, have you had any practice or guidance on how to work digitally? Or are you left alone?
Doctor E	There is a manual on our intranet. But that is more pictures telling you how to do basic stuff. This is how you make yourself available. And it is useful, to be honest. I use it a lot, but if a couple of weeks have passed I need to check the manual again. That's how bad it is. It is not self-explanatory.
David	No..

Magda	Have you ever felt frustration, negatively, or stress about the system?
Doctor E	Yes I have been stressed when I plan to have my meetings at home, and it does not work. A have prepared everything, I have my journalsystem at home, and then I log in and it does not work. The first patient can't get access, and I have to call them on my cell phone. And sometimes I then have to book them a physical appointment a week later. Because I feel I cannot deliver the same kind of quality on the phone. And, in some way, we are the face of the tool, we have to be responsible. We offer them a digital alternative and it does not work, then it feels like our professionalism and quality decrease. I don't want to stand for that. And then I have to resolve the issue.
David	Mm
Magda	Do you find it more difficult to build trust and communicate during digital video consultation?
Doctor E	Yes, maybe sometimes. But the other way around somtimes as well. Some teenagers are more used of meeting in the digital room. That's how their every-day look like. And then I can feel they are even more open digitally, than physically. Sometimes I don't only talk about their disease, but have a more general, personal, conversation. The might ask, how do I handle my insulin pump when I go out, or when I meet my boyfriend or girlfriend? In those situations I feel as I get more connection with them in a digital environment. They are so used to it, they feel comfortable, so I almost see it as an advantage sometimes compared to the physical meeting. If I meet a 15-16 year old who is shy, then they won't be as open physically. They do not want eye contact or so. Then they do not ask the same amount of questions, but that can come behind the screen.
David	Mm.
Doctor E	That is a major win, in my opinion.
David	Is there a difference if you meet the patient for the first time digitally, compared to physically?
Doctor E	Yes, totally. Then you can really speak much more on a basic level. So the first meeting I prefer to have physically. I would not choose a digital meeting as the first. You have to establish a comprehensive picture of the situation. Maybe regarding the relationship between the patient and their parents, which is easier physically. And then we almost always want to examine them physically on the first meeting. But sometimes you don't have a choice. The optimal is to have every other meeting online.
David	Mm.
David	I am thinking about non-verbal communication in the digital consultation. Is that something you have reflected upon?
Doctor E	I have thought about it on my own. After sitting in meetings when people sit relaxed, laid back, and drink coffee, and you see them flipping on their phone. I haven't gotten any education in it. But I try to look at them in the camera, and try to zoom out a little bit so they can see more of my body and my body movement. I believe it adds something to the conversation. But I would love a tool where I could use the screen to show things. I would like to screen share, and then I usually put on my "hospital clothes" just to create an environment that feels more genuine. Even though I could sit

	with my personal clothes, since from a hygiene stand point, it does not matter since they are not there. So, to make them feel as they have a doctors appointment, I usually do that.
Magda	I see.
Magda	Do you see a difference in the way patients are approaching you in digital consultation?
Doctor E	Hmm..not really. Maybe some are a bit more straight to the point. But..this is quite good for me. They have more courage.
Magda	Are they more goal-oriented? More straight on?
Doctor E	Yes, that is the way it is. Absolutely. Therefore, sometimes you gain some extra time. The cold talk goes away. But, when there are younger children, there is a challenge. You try to establish some sort of connection with them. If they are wearing a football jersey, you might ask them some question regarding that. Try to invite them by talking about something completely different to make them feel comfortable. It makes them feel included. This is much harder in the digital room since there is less of that small talk. Hmm..if you connect yourself digitally, the child is usually less present. Within 30 seconds, the child has their attention somewhere else. So it is very difficult to have a dialog with the parent and the child, with both digitally. That is incredibly hard.
David	So do you feel as you get more contact in a physical meeting?
Doctor E	Yes I do. Then I can clearly, with my non-verbal communication, aim my attention towards the child. Now I want to speak to the child, and hence exclude the parent, if I don't want answers from them. I look at the child, and sometimes lower my position towards the child, and that is much more difficult in digital video consultation.
Magda	Yeah.
Doctor E	The parents tend to take over, and answer for the child. So that is more difficult, but the advantage is the teenagers and older that are used to meeting digitally. Sometimes it is more beneficial to meet teenagers digitally. And sometimes I can ask them to meet me alone without the parent.
David	How do you handle a situation when you can't reach the patient, in a video consultation?
Doctor E	Sometimes you have to be satisfied with good enough. And sometimes you have to finish up by saying "I want a physical meeting". Then you book a new time. Which is negative, because it is a waste of time. Then one appointment becomes two. In reality this is quite rare since I don't have any appointments available. So if the meetings is not good enough, the next meeting will be in September, which is problematic. So that is only when I truly need to meet them.
Magda	Do you think, in the future, with new techniques that you could only work digitally? Or do you believe there is a need for physical consultation as well?
Doctor E	I think you still need the physical meeting. But within certain areas, like diabetes, the digital can complement the physical and increase the level of quality. The digital meetings could work as a way of not only looking at graphs and numbers regarding their disease, it could be more of a conversation. The digital meetings could be used to

	look at numbers and the physical to talk and not looking at the numbers. How they are feeling, how it is going. You can choose what to pay attention to. Some other cases, I cannot work digitally. I need to examine them physically, meeting them digitally is a waste of time. Looking at puberty for example, I can not examine the level of puberty on a screen. It is not possible.
David	I see.
David	Ehm..Is it challenging to examine people digitally?
Doctor E	If you have a large chunk of information in advance, it is possible. You need a remiss, or something with a lot of information. In my case, if I have a lot of data in advance, I can exclude certain things or tell them you need to move on with this thing. Ehm..but I want all first visits to be physical. It is easier and more accurate.
Magda	So is it the technical aspects that is the most challenging? Have we understood you correctly?
Doctor E	Yes. It is sad, but the truth. We could have been so much better. It should be an integrated part of our journalsystem. Where you simply push one button and it connects you with the patient and it works.
David	Mmm.
Magda	What are your thoughts regarding the future of digital video consultation?
Doctor E	I believe the private companies have cost the society a lot, but have increased the level of quality since it shows that it works pretty well. There are certain areas where it is efficient and super useful. The younger population are used to it, and it will have a place in our society. So I truly believe it needs to be developed even more. The faster the better. It should be a complement to the physical meeting.
David	Mm.
David	Do you believe you are using your full potential as a doctor when having digital video consultations?
Doctor E	Never, haha.
David	Haha
Doctor E	Not really, to be honest. You can gain a lot from talking to the patient. And listen. So no.
David	Okay. Would you say you could work solely with digital video consultation?
Doctor E	No. I would not. I believe the people only working digitally do not feel that. So only as a complement, is my opinion. And I would have been bored haha.
Magda	But you are doing some work from home?
Doctor E	Yes, I do. It has its benefits. I can do my work from home, like many others in society. But it is a fantastic feeling to have some meetings and then go for a jog during lunch and then have more meetings. That is fantastic. So that creates a happy doctor and hopefully more happy patients.

Magda	Is there anything you feel you haven't asked David?
David	Yeah, maybe it is difficult for you to answer since you do not only work digitally. But do you ever feel alone or excluded from not being surrounded by colleagues?
Doctor E	Yeah, the technical aspect of it, I would say. On many occasions when the technique is struggling, there is an expert that you can ask. Or a colleague you can ask and express your frustration. But when I am home, you have to fix it on your own. But it should work. I believe I am one of them at my clinic that have the most experience regarding digital video consultation. Me and X have the most experience, I think. So I am very positive towards it. - Axel. Many people are old and do not want changes, and therefore are reluctant of trying new things. They do not want change
Magda	Really good. Is there anything you feel we have missed that you want to mention?
Doctor E	No. But I wish all doctors would strive towards more effectiveness to save money. But do it in a way so the patients also gain from it. I could never imagine sitting only with digital meetings and having short meetings with so so quality. But I believe there are opportunities to shorten the lines in healthcare by utilizing the benefits of digital healthcare even more, if we would have better tools to work with. You need to be adaptable. I have worked with the same system since two years back and there are still the same problems today. That would have never happened if there was more will to change. So there need to be more flexibility, and faster change so you meet the need necessary.
David	I am just thinking about the last question. In your everyday work. What are the main challenges?
Doctor E	It is the tool. The technical. That I can not rely on it.
David	Yeah
Doctor E	If I knew it would always work, there would be less stress and more effectiveness. Ehm..otherwise there are not that many problems to be honest, if you can choose when to use digital meetings and not. So I believe the doctor should choose when to use digital meetings and not. If the doctors can make the right decisions, it will make the healthcare more effective and save resources.
Magda	Mm.
Doctor E	If the tool worked effectively. Then I could potentially meet 2-4 more patients everyday. So..
David	But you don't feel comfortable at the moment?
Doctor E	No..the technique struggles too much. And, yeah..
Magda	Very good!
David	Big thanks! If you wish to get the transcript and the thesis sent to you, feel free to let us know.
Doctor E	No problem. And yes, I will. Good luck!
Magda	Thank you!

David	Thanks.
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