



# Usability and trust in e-health applications

How to understand this phenomenon

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# Abstract

Technology is a big part of today's society. At this time more things and services become digitized, now even healthcare. This thesis will introduce you to e-health and how digitized healthcare will affect the doctor-patient relationship and the trust issue that may occur.

E-health applications need to be user-friendly and easy to use. The user needs to feel comfortable and safe. To investigate the cross-channel user experience we compared the two different flows: in-person appointment and video session.

There are many different providers for e-health applications in Sweden, most popular are Kry and Min Doktor. This digitizing not only affects the patients, the doctors are equally involved. We questioned doctors about their approach towards assistance through an application. A questionnaire was done to gather information about the patient's relationship and usage of e-health applications.

The questionnaire showed that there are some divided opinions regarding e-health applications. Some patients think that e-health applications will benefit society and may use an e-health application for minor complaints. Other patients are strongly against e-health, and most of them agree that it is a waste of tax money. Another common reason against e-health is that patients think that their complaints are too complex or that they do not trust the doctor to provide them the accurate assistance through an application.

**Keywords:** E-health, usability, UX, trust, doctor-patient relationship, cross-channel user experience, digitalization

# Sammanfattning

Tekniken är en stor del av dagens samhälle. Allt fler tjänster och saker blir digitaliserade, nu även sjukvården. Denna avhandling kommer att introducera dig till e-hälsa och hur digitaliseringen av sjukvården påverkar relationen mellan doktor och patient samt vilka förtroendeproblem som kan uppstå.

E-hälsapplikationerna behöver vara användarvänliga och enkla att använda för patienterna. Patienterna behöver känna sig trygga och säkra. För att undersöka användarupplevelsen i de olika kanalerna jämförde vi de två olika flödena: personligt möte med videosamtal.

Det finns många olika leverantörer av e-hälsoapplikationer i Sverige, Kry och Min Doktor är två av de mest populära. Digitaliseringen av sjukvården påverkar inte bara patienterna utan läkarna är lika involverade. För att få en läkares åsikt ställde vi ett par frågor till läkare om bedömning av patienter via videosamtal. Ett frågeformulär gjordes för att samla in information om patienternas förhållande, användning och erfarenhet av e-hälsoapplikationer.

Frågeformuläret visade att det finns delade åsikter om e-hälsoapplikationerna. Vissa patienter tror att e-hälsapplikationerna kommer att gynna samhället och kan själva tänka sig att använda en e-hälsoapplikation för mindre åkommor. Andra patienter är starkt emot e-hälsa och de flesta av dem instämmer i att det är ett slöseri med skattepengar. En annan vanlig orsak emot e-hälsa är att patienter tycker att deras åkommor är för komplexa eller att de inte litar på att läkaren ger dem korrekt vård genom en applikation.

**Sökord:** E-hälsa, användbarhet, UX, tillit, doktor-patient relation, användarupplevelse i olika kanaler, digitalisering

# Wordlist

UX - User experience

AI - Artificial intelligence

UI - User interface

PwC - PricewaterhouseCoopers, a British-American multinational professional service firm

SKL - The Swedish Association of Local Authorities and Regions (Sveriges Kommuner och Landsting)

RISE - Research Institutes of Sweden AB

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# 1. Introduction

This section will introduce e-health and describe the background to it. In this section, some of the established applications in Sweden will be presented. The section will investigate digital communication and describe the benefits and risks of e-health applications.

The previous research is limited because e-health applications have only been established for five years (Kry, 2018). Digitizing healthcare means a lot of things. It is interesting how artificial intelligence (AI) might play a substantial role in future healthcare. The section will also investigate the relationship between doctor and patient. How the patient's expectations are connected to trust issues and the importance of user experience (UX) and usability.

This section will present the research questions that this study will try to answer. The purpose of this study is also presented.

## 1.1 Background

When you feel sick, your first impulse might be to book a doctor's appointment at the hospital or care center. You need to physically go there, but you feel very ill. What if, you could call the doctor from home and have a video session with the doctor instead? Or if you just typed in your symptoms on a website and got an instant response from an AI-doctor? Would this be beneficial for you as a patient?

This is the modern version of healthcare, called e-health (Ehrismann & Stegwee, 2015). E-health has exploded in Sweden within the past years, and there are several different providers to choose from. In 2017 more than 17.000 digital health visits were fulfilled in Sweden (Cederberg, 2018). Will e-health benefit or disadvantage the Swedish healthcare system?

The two biggest providers in Sweden are Kry and Min Doktor (Kry, 2018) (Min Doktor, 2018). The different companies advertise all over different media platforms and highlight the benefits of a digital video session with a doctor (Arwidson & Lidé, 2015).

E-health has the potential to play a significant role in shaping the healthcare systems in the 21st century (Catwell & Sheik, 2009). Arwidson and Lidé (2015) said that over 1 milliard Swedish kroner could be saved if patients used digital healthcare instead of visiting primary healthcare. These services will only apply to primary healthcare where physical examinations or samples are not required (Arwidson & Lidé, 2015). The patient's safety should not be compromised in any way. If the systems are poorly designed, there is a danger that the benefits of e-health not will be achieved. The focus should, therefore, be on the patient's safety and not on how much money the government will save (Catwell & Sheik, 2009).

According to a report from RISE in 2016, 67% of the world's deaths are due to non-contagious diseases. Most of these could have been prevented if the accurate treatment had been given in time (Sommarlund, Falkvall, Sandberg & Andersson, 2016). The waiting times to meet a doctor is often too long, which is why many patients do not get their diagnostics in time. An alternative that could benefit is to use e-health applications, where the patient always receives a response from a doctor within two hours (Kry, 2018) (Min Doktor, 2018). E-health applications are not thought of as a replacement for physical

visits. It could be a complement to simpler cases that usually not requires a physical examination. This could, therefore, help to enable faster diagnostics for the patients (Holmberg & Knutsson, 2017).

### 1.1.1 Describe e-health

To in-depth describe e-health we need to consider different points of view. The phenomena itself is the information and communication technology across different platforms that affect health (Li, Talaei-Khoei, Seal, Ray & MacIntyre, 2013).

Digital healthcare has the opportunity for healthcare providers to meet patients across different digital platforms. This renders the possibility to have distance appointment through eg. video session and chat messages (Areblad & Schönebeck, 2018). E-health can be described as: “e-health is to use digital tools and digitally exchange information to accomplish and maintain health” (The Swedish Health and Human Service Department, 2018).

### 1.1.2 Established applications today

Different digital care center has arisen and established the market in the past few years. Min Doktor and KRY had over 100.000 digital appointments in the first year (Sjögreen, Andersson & Åsberg, 2017). Many county councils took the opportunity to unburden the primary healthcare and therefore generously subsidized this form of healthcare.

Kry was established in 2014, and since then, over 250.000 care visits have been performed via the application (Kry, 2018). It is the biggest e-health application in Sweden at this point, followed by Min Doktor established in 2013 (Min Doktor, 2018). Both Kry and Min Doktor offers digital meetings with licensed doctors. The patient legitimizes himself with Mobile BankID and then fill out a form with the disease symptoms. It is also possible to add pictures if the patient thinks that this could be of any help to the doctor (Kry, 2018) (Min Doktor, 2018).

Kry offers video sessions, either drop-in or a scheduled appointment. The meeting will automatically start at the set time, and synonymously as to a physical meeting, the session is scheduled for 15 minutes. The doctor can then set a diagnosis and possibly prescribe medicine (Kry, 2018). Min Doktor is similar to Kry, but instead of video meeting, the patient uses a message function to describe the symptoms. An answer from a doctor is received within four hours (Min Doktor, 2018). The patient can reply when convenient, so this is a more flexible approach for patients that are busy with something else while seeking healthcare. It is still possible to have a video meeting if the doctor considers that it is necessary. In both providers, the doctors can access the patient's medical history and further referral the patient if needed (Holmberg & Knutsson, 2017).

In addition to Kry and Min Doktor, some care centers also offer digital doctor's appointments. The main focus for all e-health applications today is common infectious diseases, a category that has been a big cost within healthcare (Holmberg & Knutsson, 2017). The most common causes for patients to seek help from an e-health application is influenza/cold, followed by skin disorders and then gynecological disorders (Areblad & Schönebeck, 2018).

Arwidson and Lidés (2015) research result shows a predominantly positive attitude towards the digitalization of health care. 40% of Swedish respondents claim that they are willing to choose e-health over a physical appointment, and 20% are willing to have the doctor's appointment via a video session. Arwidson and Lidé (2016) add to their research that even professional caregivers have a positive attitude towards the digitalization. 60% of the workers think that e-health may improve the care of chronically ill patients. 66% think that a doctor's appointment via video sessions in some cases can replace a physical visit (Arwidson & Lidé, 2016).

Today we use Google to do a lot of things. It is very common to google symptoms of the complaints before visiting a doctor. An AI symptom checker in e-health is therefore thought as a valuable complement to the doctor's appointment and will give a more trustworthy experience (Lunds University, 2018). There has recently been an application that is entirely based on an AI, called Doktor24. The patient enters their symptoms, and Doktor24 calculates what is probably the cause, and gives a further recommendation (Doktor24, 2018).

### 1.1.3 Digital communication

Good healthcare is achieved when the doctor manages to convey "sincerity, empathy and good ethics" according to the patient (Söderlund, 1998). This is not typically unique for healthcare. Trust is essential for building any good relationship between a seller and a buyer (Scott & Vick, 1999). The patient needs to feel safe during the healthcare session and feels that the doctor understands and listens (Söderlund, 1998). These characteristics become even more important if the trust between doctor and patient shall maintain when technical issues or other aspects occur (Söderlund, 1998). It is interesting, and much needed, to investigate how this trusting relationship is best kept when the communication transmits to digital tools.

Previous research on the subject communication is split in both positive and negative outcomes (Areblad & Schönebeck, 2018). The obvious positive outcome of e-health is that the patient no longer physically needs to be at the doctor's office. There are many occasions where this will be very helpful for the patient, for example during a tough cold or for a single parent. With e-health, digital communication is no longer obligated to time and space (Areblad & Schönebeck, 2018).

What can complicate digital communication is the lack of physical signals between the two parts. This will increase the risk of misunderstandings and part of what is trying to be mediated could be lost in the digitalization. Digital communication is therefore dependent on the technical tools that are used during the session. Emelie Holmberg (2017) explains that an important question is "If the digital communication is used in a well-thought approach, or if it is up to every individual doctor to decide what tools should be used" (Holmberg & Knutsson, 2017). If the choice is to only use text messages, there is a larger risk that the doctor will miss something that the patient is trying to communicate. This can result in that the patient does not feel like the doctor listens and understands them (Areblad & Schönebeck, 2018).



### 1.1.4 Benefits and risks of digital healthcare

The new e-health phenomenon means that there is no national system to secure the quality of the provided healthcare (Holmberg & Knutsson, 2017). The following check up on patients that exist, is based on the same instructions that exist in physical healthcare. This means that there are no key numbers to highlight the aspects that differentiate digital healthcare from the physical (Holmberg & Knutsson, 2017).

Digital doctor's appointments may be the future, but there is a risk that the new technology will end up with wrong diagnoses (Sjögreen, Andersson & Åsberg, 2017). It also contains a lot of confidential information about patients, it is therefore very important that patient security can be insured. New technology can sometimes be met with resistance, and with this type of content, it becomes even more important to maintain the trust of the user.

Does the healthcare system need to be digitized? Because of the lack of availability and long waiting time in primary healthcare, many patients turn directly to the hospital's emergency rooms. Even though it should have been handled by primary healthcare (Sjögreen, Andersson & Åsberg, 2017). This is an example of why we need to make primary healthcare more effective. This is creating big challenges for the whole healthcare system. By introducing digital techniques, healthcare will become equally accessible to people in more remote areas as it is to urban residents (Holmberg & Knutsson, 2017). New digital techniques and other digital solutions are prerequisites to realize more effective primary healthcare. The digital doctor's appointments may in the future be a natural context of healthcare. Digital doctor's appointments are a whole new way of practice and provide healthcare. It is important that the excitement for the new technique does not go overhand so that unnecessary mistakes are made (Sjögreen, Andersson & Åsberg, 2017). But other voices claim that digital healthcare takes resources from the already shorthanded primary healthcare (Sjögreen, Andersson & Åsberg, 2017).

There a lot of unanswered questions about quality, security and trust issues, but how about the user experience? The process to digitize healthcare affects the whole experience (Areblad & Schönebeck, 2018).

## 1.2 Research questions

Three research questions were made up to concretizes what we wanted to investigate in this study. The questions that this study will try to answer are:

- “Why do people use e-health applications instead of going to the doctor?”
- “Which factors are most important for the patients to feel the same trust in e-health applications as to an in-person doctor? ”
- “Do the doctors think that assistance through video conference is beneficial for health care?”

## 1.3 Previous research

### 1.3.1 Doctor and patient relationship

The relationship between doctor and patient is a huge factor for the patient's overall satisfaction with the healthcare meeting (Scott & Vick, 1999). In previous research by Arwidson and Lidé (2016) they investigated the healthcare providers aspects of the healthcare digitization. The study presented a result that showed that almost nine out of ten respondent healthcare providers, had a positive attitude towards moving some physical appointments to digital appointments on distance (Arwidson & Lidé, 2016). But, almost one out of five respondents healthcare providers consider that there are a lot of risks with digital healthcare and that we need to be careful to not over consume the system (Arwidson & Lidé, 2016).

A study made by PwC in 2015 shows that 20% of the respondents had a positive approach towards doctor's appointments with video sessions (Arwidson & Lidé, 2015). The study also showed that the most common motive for the respondents to use an e-health application was the accessibility and availability. The most common concern was whether the quality of healthcare would deteriorate and that patient health would be compromised due to technical problems (Arwidson & Lidé, 2015).

The Swedish Association of Local Authorities and Regions (SKL) published in 2011 some advice regarding the communication between patients, relatives and the healthcare providers (Areblad & Schönebeck, 2018). One key thing is eye-contact. To maintain a sustainable communication between the patient and the healthcare provider there are some very important factors to take into consideration; empathy for the patient's context, the understanding of human needs, respect and confirmation of the patient. It is important that the patient feel safe and prioritized in the providers care. It is common that patients experience that nobody cares about their well-being and that they are alone in their condition (Areblad & Schönebeck, 2018).

Communication can be separated into two categories: linguistic communication and non-linguistic communication. Linguistic communication refers to all verbal information exchange and non-linguistic communications refer to all non-linguistic communication such as body language (Areblad & Schönebeck, 2018). Good communication should be a dialog, both the healthcare provider and the patient should have part of the information exchange (Areblad & Schönebeck, 2018).

SKL also declares that the patient's expectations have a huge impact on the satisfaction of the doctor's appointment (Areblad & Schönebeck, 2018). A patient that has too high expectations can feel unsatisfied with the healthcare and have concerns regarding the correctness of healthcare, according to the SKL (Areblad & Schönebeck, 2018). This means that from a patient's point of view, it is important to have information about what to expect from the appointment. There is also evidence that suggests that the doctor-patient relationship can influence the patient's satisfaction with healthcare (Scott & Vick, 1999). This regards the overall healthcare, compliance of treatment recommendations and health outcomes.

Another research study focused on the different types of media usage in communication between doctor and patient (Beul, Ziefle & Jakobs, 2011). The study showed that for a standard case, a physical meeting is still highly preferred compared to any telemedical application. The physical meeting was followed by a video session (Beul, Ziefle & Jakobs, 2011).

There is a structure for good communication between doctor and patient that includes: situation, background, current information and recommendations (Areblad & Schönebeck, 2018). The situation is how the contact will be performed, e.g. video or physical and if the patient has any special needs that need to take into consideration. Background refers to the patient's case history. Current information is regarding the patient's expectation of the appointment and current complaint (Areblad & Schönebeck, 2018). The last one, recommendation empathizes the importance of the communication and which recommendations and instructions that the doctor gives, and also how well the patient understands the doctor (Areblad & Schönebeck, 2018).

There might be some problematic misunderstandings in specific media communication usage (Holmberg & Knutsson, 2017). If this is the case, there would be some differences in the diagnoses that are determined. This is very serious and could affect the patient's safety (Holmberg & Knutsson, 2017). It is therefore very important to assure equal healthcare regardless of the media communication usage (Holmberg & Knutsson, 2017).

### 1.3.2 Trust issues

There is a high interest in e-health and the applications have the potential to influence the modern healthcare system in a great way (Catwell & Sheik, 2009). Unfortunately, new studies show that this potential has not been lived up to, so it is not possible yet to see all the benefits that could have come from the adaption to e-health (Li, Land & Ray, 2008).

Research from similar scenarios with technical developments highlights the importance of trust from end users, and that the lack of trust is a considerable factor as to why the outcome of the product did not go as presumed (Wang & Emurian, 2003). Trust is also a major factor in creating a good relationship between doctor and patient (Ehrismann & Stegwee, 2015). It is, therefore, a logical reason to believe that trust is a key aspect that has led to this low pace of adoption of e-health.

In the further development of e-health applications, trust must become a priority. An issue with building trustworthy services is to know at what point the product is good enough to gain the patient's trust and create a positive outcome (Ehrismann & Stegwee, 2015). Two successful keys for creating trust between doctor and patient is:

1. *Reputation*, people tend to listen to what the majority thinks (Ehrismann & Stegwee, 2015). By creating a good reputation and keeping the application consistent with the physical meetings will increase the patient's trust. Explanations should be held in a way that is easy for the patient to understand and encourage the patient to participate in a potential decision making (Scott & Vick, 1999).
2. *Transparency*, the doctor must keep patients involved and explain everything that could be misunderstood (Ehrismann & Stegwee, 2015). In e-health applications, this could be transmitted by describing text and information about what the patient can expect from the doctor session. The information should strive to be as concise as possible, and keep the easy language as the explanations (Scott & Vick, 1999).

Trust is a condition, and the specific content for achieving trust can be difficult to define. Ehrismann and Stegwee (2015) deepens into the subject and defined four important points that help to improve trust:

1. *Security*, patients claim that their biggest trust concern in e-health applications is security issues. Ehrismann and Stegwee tested this claim, but it turned out to barely have any effect at all. Patients care more about the feeling of safety than an actual proof of security.
2. *Benevolence*, patients want to feel that e-health applications are developed for their sake, to ease their healthcare experience.
3. *Competency*, e-health applications should be easy to use and understand for the patient, and they do not want to experience issues with technical issues.
4. *Effectiveness*, patients' need to feel that the outcome of the e-health session was valuable and that they gained something from choosing this channel over a physical meeting (Ehrismann & Stegwee, 2015).

These four points are describing feelings that the patient wants to achieve, more than a specific technical requirement. It indicates that trust could be accomplished by taking a bigger interest in the patient's overall experience, focusing on the reputation and transparency of the major key.

### 1.3.3 Restricted use of intelligent technology

Where is the technical development heading, and how much of the human interaction will be replaced with technology? When is this a good thing, and where should it be restricted?

Smart technology is continuously being developed within the healthcare sector. An AI could assist doctors in complex diagnosis assessments and reduce the risk of medical errors (Wan Ishak & Siraj, 2008). Today, 1 of 6 men will get the diagnosis of prostate cancer, while we at the same time have a deficit on pathologists (Lunds University, 2018). Analyzing the ultrasonography for cancer is a time-consuming job. What is being researched today is an AI that can support the pathologist's job and analyze the picture within 10 seconds and help numerous patients to get a diagnostic statement faster than they get today (Lunds University, 2018). Another ongoing project is called IHTSA - the International Heart Transplantation Survival Algorithm. The AI's purpose is to find heart transplantation matches in a quicker way than what is done today to save more lives (Lunds University, 2018).

Other researchers are pointing out the risks of relying more and more on technology. What if a badly coded software is recommending something completely wrong to the patients? (Catwell & Sheik, 2009). The consequences could be huge and intrude on patients safety. There is one example from Michigan where patients to a hospital were wrongly coded as dead on their medical bills (Catwell & Sheik, 2009). With the risks of this scale, it might never be topical to completely replace doctors with AI technology. A more interesting question is where the future development will draw a line to what must be decided with the help of human interaction.

A study made from the National Institute for Public Health concludes that the greatest concern within the e-health development is the lack of interest for risk assessment (Ossebaard, De Bruijn, Van Gemert-Pijnen & Geertsma, 2012). There is a very limited amount of research that refers to risks and security deficiencies. A poorly designed e-health application can create serious dangers like misdiagnosis and medicine dosage errors (Ossebaard, De Bruijn, Van Gemert-Pijnen & Geertsma, 2012). Errors like this can in the worst case lead to death, that is why the safety analysis of the systems should be highly prioritized. The study also highlights how these analyses should be designed to

capture as many risks as possible: “ safety analyses should not look for a single cause of problems but should consider the system as a whole when looking for ways to make a safer system ” (Ossebaard, De Bruijn, Van Gemert-Pijnen & Geertsma, 2012, p.42). E-health development should always strive for safer systems to achieve the trust that is needed to break through on the market.

### 1.3.4 Usability and UX in e-health applications

A definition of UX is, according to Garrett (2011), how the user is experiencing the interaction with a product. The product could be both physical and digital.

While designing UX it is important to design for the right target group. It is important that the user can understand how to use the product correctly. The product should have high usability so it is easy to use. Usability is how easy or hard it is for a user to use a specific product (Morville & Rosenfeld, 2007).

When designing applications there are some rules or certain guidelines to take into consideration to create a high UX. Jacob Nielsen (1995) has created 10 usability heuristics that apply to the interface design. Ben Shneiderman's 8 golden rules also apply for the interface design (Wong, 2017). It is easy to evaluate an application or interface according to Nielsen's and Shneiderman's guidelines.

The following table lists Jacob Nielsen's heuristics (1995) and Ben Shneiderman's 8 golden rules (Wong, 2017):

Jacob Nielsen's 10 usability heuristics (Nielsen, 1995)	Ben Shneiderman's 8 golden rules (Wong, 2017)
Visibility of system status	Offer informative feedback
User control and freedom	Permit easy reversal of actions
Consistency and standards	Strive for consistency
Error prevention	Offer simple error handling
Recognition rather than recall	Reduce short-term memory load
Flexibility and efficiency of use	Enable frequent users to use shortcuts
Aesthetic and minimalist design	Support internal locus of control
Help users recognize, diagnose and recover from errors	Design dialogues to yield closure
Help and documentation	
Match between system and the real world	

*Table 1: shows Jacob Nielsen's 10 usability heuristics (Nielsen, 1995) and Ben Shneiderman's 8 golden rules (Wong, 2017)*

Both the heuristics (Nielsen, 2011) and the golden rules (Wong, 2017) are applying to the UI (user interface). The UI will affect the users' experience of a product (Garrett, 2011). The previous table shows the headings of the heuristics and the golden rules, and they are in some way similar to each other and affect the user in the same area.

According to Garrett (2011), it is important to design with the diverse target group in mind. The diversity could be different age groups, different levels of technical knowledge and different sickness experience (Garrett, 2011). This is why the diverse target group has to be taken into consideration while developing an e-health application. How can we evolve every patient and make them feel the same trust as in an ordinary doctor's appointment?

To make the patient feel more comfortable and maintain the trust, it is important to design so that the patient recognizes the process. This is called cross-channel user experience (Resmin & Rosanti, 2011). The user should feel "at home" and know what to do and expect in the channels. The flow should be the same.

When visiting a doctor's office the patient has certain expectations on the procedure (Resmin & Rosanti, 2011). For example, the patient will expect a reception, a waiting room, and an examining room. When using one of the e-health applications they should have the same procedure to maintain the same flow (Resmin & Rosanti, 2011). Both Kry and Min doctor has a registration part that can be similar to the registration at the doctor's office. After the registration part, there is the waiting time, similar to the waiting room. The final step is the meeting with the doctor. The flow is the same in both applications.

## 1.4 Purpose of this study

The purpose is to understand why or why not people use e-health applications instead of going to a doctor's office. We will investigate how important trust is in the communication between doctor and patient.

Are the applications easy for all patients to use? Do the patients feel comfortable to use an app to get doctors assistance?

This paper will investigate e-health in different aspects. Trust, usability, and communication are the three main concepts that the thesis will focus on. This study will investigate the area to search for the answers to the research questions.

## 2. Method

This section covers the method selection, discussing the reasoning behind the chosen selection. A questionnaire was made to help answer our research questions. To optimize the questionnaire we first sent out a pilot questionnaire where we also asked for the participants personal opinions on the questionnaire. After feedback, the final questionnaire was created and will be distributed electronically via Facebook and in hard copy format which can be answered on paper or online by scanning a QR-code. A QR-code is a barcode that provides a webpage, in this case, the webpage where the participants can fill out the form.

To enable a doctors point of view, we sent out six open-ended interview questions to a private skin clinic in Malmö, that will forward it to the doctors that work there. Doctors are usually very busy, but we hoped to get at least some face-to-face interviews. The skin clinic was chosen because previous research shows that skin disorders are one of the most common reasons that patients seek healthcare via e-health applications (Areblad & Schönebeck, 2018).

### 2.1 Method Selection

A couple of different methods was under consideration before we made a final decision for what was the best option for our study.

An observation-based research method would have helped us to understand the underlying behavior of the participants, that they might not be aware of themselves (Oates, 2006). The first intention was to have a scenario where a group of participants tested Kry and Min Doktor to evaluate the user-friendliness and to see how a digital doctor's visit differs from a physical one. We wanted to investigate if the applications were supported a cross channel user experiences (Morville & Rosenfeld, 2007). We could after that analyze how the applications should be designed to optimize user-friendliness in future development. Even if that is an advantage, this study is not focused on the actual functionality or improvements of any application. This study focus on the overall experience of e-health applications, and the importance of trust in the communication between doctor and patient. This is better answered by the participants own thoughts than their behavior. Also, due to patients privacy and confidentiality, we could not implement this type of scenario. The observation-based research method is dependent on the researchers' perception of the observation (Oates, 2006). It can, therefore, provide different results depending on who was the researcher in the observation study. We are not interested in the researchers' point of view and therefore chose not to use an observation-based study.

The moderated usability test is a common method (Tullis & Albert, 2013). The usability test requires a small group of participants that perform a set of pre-decided tasks. The participant is asked to think "out loud" which would have provided us with the participant's thoughts. To perform this method, it requires that we meet the participants in person. It would have been very time consuming and most likely result in a small set of participants. Also due to confidentiality and privacy for the patient, it was not suitable in this study.

We have discovered from previous research that trust between doctor and patient is thought to be an issue in the usage of e-health applications. If our goal was to develop an

improved e-health application, then the design and creation method would have been a good option. It contains the development and evaluation of the product (Oates, 2006). An advantage with this method is that the researchers will have something to show, and it is usually met with joy from the people that are interested in the research (Oates, 2006). Because we are not developing or evaluating any product, this method was not chosen.

No focus groups were established for this questionnaire since the e-health applications include all types of people (Tullis & Albert, 2013). It would have been a very time-consuming work to find focus groups that contain various ages and with different reasons to seek medical help. It would also have affected the patients' privacy and confidentiality, just like in the observation method.

With the survey method, we can collect a large amount of data that can represent a wide set of people (Oates, 2006). This is valuable because we can then make a more generalized conclusion. The cost with this method is very low and the time can be predicted in advance (Oates, 2006). A downside to this method is that we cannot ensure the honesty of the respondent's answers, because we will not be able to observe their behavior during the execution (Oates, 2006). It also lacks depth, surveys do not provide the researchers with much details in the result. In this study, we do not have a huge interest in details so after the method evaluation, we decided that a survey-based research method is the best choice to achieve an accurate response to the research questions.

With the survey-based method, we created a questionnaire containing 15 questions. It was easier for the respondents to answer a questionnaire than if we would have asked for an in-person interview (Tullis & Albert, 2013). Due to privacy and patient integrity the survey was general so that no information could identify, a specific respondent. It is easier to get a clear overview through numbers and statistics, which we received with our quantitative data collection.

### 2.1.1 Pilot questionnaire

The questions were inspired by a previous study (Areblad & Schönebeck, 2018). The pilot version was answered by eight people, participation was voluntary but not anonymously. This is because they were asked to complete the questionnaire and write what they liked and did not like about the questions, what they thought was easy to misunderstand and what they suggest could be better. After reading their feedback, we needed to be able to ask follow-up questions so that we could edit the questionnaire as accurately as possible to collect the right type of data. All participants are referred to as Pilot Test A, Pilot Test B, and so on, in our notes. There are no names or other personal information in writing. After the examination, all notes will be eliminated.

Feedback from participants indicated that the questionnaire was designed in a good way that was easy to understand and follow. Participants requested one more option in question 14, "Which of the following suits most why you should refrain from seeking medical care through an app?", this is for those who want to explain that they think that e-health applications are a great tool. After a long discussion, we chose not to add one more option because the purpose of the question is to find out what aspects are the most important when developing e-health applications, not if participants favor the applications. "Have no idea why I should abstain" indicates that the participant agrees with e-health, so we decided to only keep that option. There are later questions where the participants are asked for their standpoint in e-health applications.



### 2.1.2 Questionnaire

The questionnaire was made in both digital and paper format. The patients could answer on paper or reach the questionnaire online by using a QR-code or a given link. The paper format questionnaire was handed out by the receptionists at the private skin clinic. The receptionists asked if the patients wanted to participate in our study which means that the questionnaire was optional for the patients to fill out. The receptionists also declared that there was no collaboration between the study and the skin clinic.

When the patients had answered the questionnaire, it was returned to the receptionists that stored them at a safe location. The paper questionnaire was available the same five days as the online questionnaire was available. The online version was published two times on two different Facebook accounts during the specified five days. The questionnaire was available for five days since the amount of data we expected to collect was 20 answers a day. In that case, it would end up with 100 answers which is a good amount of participants.

There was only one questionnaire even if the patient had or had not used an e-health application. The questionnaire started with some general mandatory questions for all to answer. Then there were some follow-up questions with specific questions about the patient's experience with the used e-health application. The questionnaire was finished up with some more mandatory questions regarding the future and the respondents' approach towards e-health. Some of the questions were in scale like an interval (Tullis & Albert, 2013), some with selectable alternatives and some were voluntarily open-ended to extend an answer. The total amount of questions were 15, five of them were mandatory.

All the participant's answers, both paper and online, were put together in the end to get a final overview of all answers.

The following table will present the questions from the questionnaire:

Question	Mandatory question	Scale answer / selectable alternatives	Open-ended answer	Source
1. Your Age?	Yes	Yes	No	Adopted as is from previous research questionnaire (Areblad & Schönebeck, 2018)
2. Did you know that you could seek medical care through an application?	Yes	Yes	No	Own creation of question
3a. Have you ever sought medical care through an application?	Yes	Yes	No	Own creation of question

3b. If you have sought medical care through an application, which one did you use?	Yes	No	Yes	Inspired from previous research questionnaire (Areblad & Schönebeck, 2018)
4. Which of following best suits why you most recent made a digital doctor's appointment?	No	Yes	No	Inspired from previous research questionnaire (Areblad & Schönebeck, 2018)
5. What is your total experience of the digital doctor's appointment?	No	Yes	No	Adopted as is from previous research questionnaire (Areblad & Schönebeck, 2018)
6. How did you experience the communication between you and the doctor?	No	Yes	No	Adopted as is from previous research questionnaire (Areblad & Schönebeck, 2018)
7. How did you experience that your doctor listened and understood your problem?	No	Yes	No	Inspired from previous research questionnaire (Areblad & Schönebeck, 2018)
8. How would you estimate the trust that you felt for the doctor?	No	Yes	No	Inspired from previous research questionnaire (Areblad & Schönebeck, 2018)
9. How would you estimate that you trust the help that you got from the doctor?	No	Yes	No	Inspired from previous research questionnaire (Areblad & Schönebeck, 2018)
10. Did you get the help that you expected?	No	Yes	No	Inspired from previous research questionnaire (Areblad & Schönebeck, 2018)
11. Was it easy to understand and navigate in the application before and	No	Yes	No	Inspired from previous research questionnaire (Areblad & Schönebeck, 2018)

during the digital doctor's appointment?				
12. Did you experience a lack of the physical examination?	No	Yes	No	Inspired from previous research questionnaire (Areblad & Schönebeck, 2018)
13a. Do you plan to use a digital doctor's appointment again?	No	Yes	No	Adopted as is from previous research questionnaire (Areblad & Schönebeck, 2018)
13b. Do you want to explicate why or why not you would use a digital doctor's appointment again?	No	No	Yes	Inspired from previous research questionnaire (Areblad & Schönebeck, 2018)
14. Which of following best suit why you should refrain from seek medical care through an application?	Yes	Yes	No	Own creation of question
15a. Do you think that digital healthcare benefits society?	Yes	Yes	No	Own creation of question
15b. Do you want to explicate your answer?	No	No	Yes	Own creation of question

*Table 2: shows all the questions from the questionnaire*

The following table will explain why the questions were asked in the questionnaire:

Question	Reason why asked
1	The respondent's age is interesting to evaluate in comparison to usage. The result will tell which age group that uses e-health applications the most.
2	This question will investigate how spread e-health applications are on the market to see how many patients that know about them.
3a	It is interesting to see how many patients have used e-health applications in comparison to the knowledge about them.
3b	It is interesting to see which application(s) that people use the most.

4	This question will investigate which type of complaints that make people seek medical care within e-health applications.
5	It is interesting to see the respondents total experience of the digital doctor's appointment. The experience could affect if the patient will use an e-health application again.
6	This question will investigate the communication between doctor-patient through video conference. How the communication flows may affect if the patient will use an e-health application again.
7	This question will investigate how the patient experience the doctor's capacity to understand and listen to the problem through a video conference.
8	This question will investigate how much trust the patient gained for the doctor through a video conference. This may affect if the patient will use the app again.
9	This question will investigate how much the patient trusts the help that the doctor provided. This may affect if the patient will use the app again.
10	This question will investigate if the patients' expectations match the help that the doctor provides. This may affect if the patient will use the app again.
11	This question will investigate the patient's experience of usability in the application. It is interesting to investigate if the result has anything to do with if the patient will or will not use the application again.
12	It is interesting to investigate if the patient feels or not feel a lack of physical examination during the appointment comparison to why the complaint about the appointment.
13a	It is interesting to see if patients would use a digital doctor's appointment again the comparison to the trust and experience from the previous usage.
13b	In this question have the patient opportunity to describe why or why not they would use a digital doctor's appointment again. It will give more qualitative answers to the study.
14	It is interesting to see which reason(s) that make patients refrain to use an e-health application.
15a	This question will investigate if patients think that digital healthcare benefits society. It is interesting to see if patients are positive or negative towards digital healthcare.
15b	This question allows the patient to express their thoughts regarding the pros and cons of digital healthcare This will give the study more qualitative answers.

*Table 3: shows why each question was asked in the questionnaire*

### 2.1.3 Electronic interviews

To get some sort of understanding about how the doctors feel about to assist in video sessions, we asked dermatologists at the private skin clinic in Malmö. They got six small questions to answer. Due to the lack of time for the doctors to schedule an interview appointment, they answered the questions by email. The interview method is good to get the depth and details in a specific topic (Oates, 2006). Interviews are flexible but not suitable for all situations. One negative aspect is that you will need a large number of interviews to generalize a whole population. That will take a lot of time and effort (Oates, 2006).

Since the questions were sent out by email, the questions were the same to all of the doctors. The downside with this electronic interview is that that we were not able to ask follow-up questions to their answers, but we could, of course, email those questions if needed. The questions were focusing on how a doctor would experience a video session. If the trustworthiness of the patient would be the same through a video session as an in-person meeting. We also wanted to know why or why not they would consider performing this type of appointment. The questions were asked to get the doctor's personal opinions.

The interview questions were:

1. Do you have any experience of evaluation or assistance with pictures/video before?
2. Do you think that the established digital healthcare providers can provide the same assistance through a video conference as an regular doctor's appointment?
3. Do you think that digital doctor's appointments benefit the regular healthcare?
4. Could you imagine yourself providing assistance through a video conference? Why/why not?
5. Do you think that the confidentiality is the same when using a video conference in comparison to an regular doctor's appointment?
6. Do you, as a doctor, think that you can feel the same trust for the patient through a video conference as in comparison to an regular doctor's appointment? For example with prescription of drugs?

## 2.2 Selection of participants

The big part of the participants was reached through Facebook contacts because we wanted to reach users of different ages and with different backgrounds.

Previous research indicates that skin disorder is the most common reason why patients use e-health applications (Areblad & Schönebeck, 2018). Therefore, the questionnaire was available to patients of a private skin clinic in Malmö. We had the opportunity to leave the questionnaire at the reception desk. The receptionists then handed out the questionnaire to voluntarily patients that wanted to participate.

## 2.3 Ethical considerations

During this study, we have taken into account the ethical guidelines regarding *reliability* in terms of ensuring the quality of research, *honesty* in informing about research, *respect* for colleagues and research participants, and taking *responsibility* for the research from idea to publication (Science Council, 2018).

Healthcare contains confidential information about patients and requires a lot of privacy. Within our research, we found an ethical difficulty in how users of e-health applications will feel confident that their sensitive personal data is handled correctly when participating in our questionnaire. We handled this problem by using anonymous questionnaires. Every copy had an explaining introduction with the purpose of the study and an assurance that no personal information will be used. This was clarified in the beginning so that the respondents felt comfortable and well informed before they started. Information such as name, precise age, residence, health history e.g. is left out from the questions.

For the pilot questionnaire, eight people were personally asked to participate. The reason why this was not anonymous is that we wanted to be able to ask follow-up questions to their feedback. No names or personal information was saved from this test, in all notes, the respondents are referred to as Pilot Test A, Pilot Test B and so on. After the examination all documents regarding the pilot respondents will be eliminated, until then everything is stored at a secure location.

We chose to share the questionnaire via social media platform Facebook, to ensure that it is completely voluntary to participate. The physical questionnaire was handed out in a private skin clinic in Malmö. The receptionist at the clinic asked their patients if they wanted to participate in the study and emphasized that participation was both anonymous and voluntary. No information about the patients was given back to us after the session, only the pile of anonymous questionnaires. To further consider ethical aspects in this study, all questions were formulated so that they could not be perceived as intrusive or objectionable. The questions were designed so that no answer could be bound to a specific participant and if any answers will be used in this paper and all open-ended questions are completely voluntary to answer.

Due to the ethical considerations, the doctors that chose to participate in the interviews decided beforehand if they want to be completely anonymous or not. If anonymous doctors are mentioned in the paper, they will be referred to as Doctor A, B, C, to ensure their privacy.

The questionnaire was interested in the experience and understanding of e-health applications, and will not receive any private information. The questionnaires used in this study were completely anonymous, giving confidentiality to the participants in the study. All answers from the participants are stored at a safe location and will be eliminated after the examination.

### 3. Result

This section will present the result of the questionnaire. The questions where both quantitative and qualitative, therefore the result will be presented in different sections.

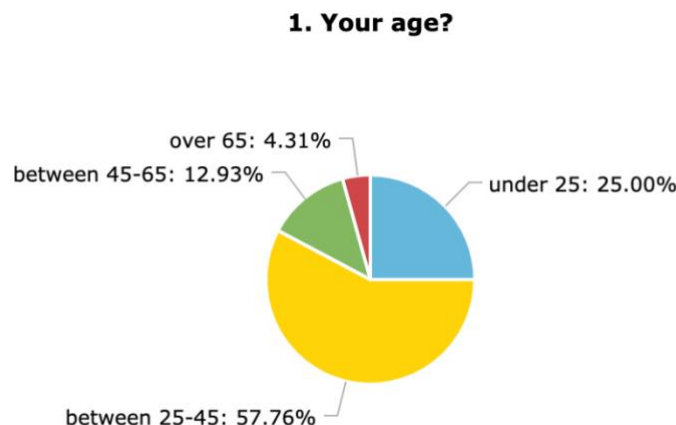
#### 3.1 Summary questionnaire result

The total amount of participant where 116. Among the total participants, only 28 of these had previous experience of seeking care via e-health applications. This constitutes  $\approx 25\%$  of the participants.

When summarized all results, we discovered that some participants have filled out the questionnaire wrong. 29 participants have answered the questions regarding the application but only 28 participants have sought medical care through an application. This means that one participant has answered all questions but had not used an e-health application. Therefore some results may be a bit confusing. Since it is just one participant, we decided that it is not a big deal for the final result and will continue with the study. This is why question 3b the participant answered “vårdcentral” which indicated the primary healthcare center and not an application.

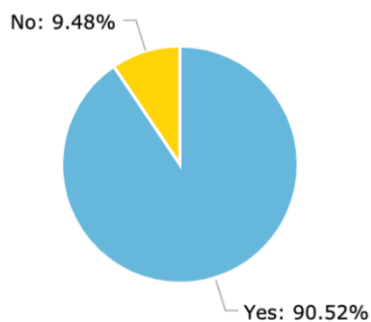
#### 3.2 Result of quantitative questionnaire questions

To illustrate the result in charts and diagrams we used a free online tool (Live editor, 2019). Question number 1, 2, 3, 14 and 15 were mandatory for all respondents to answer in the questionnaire.



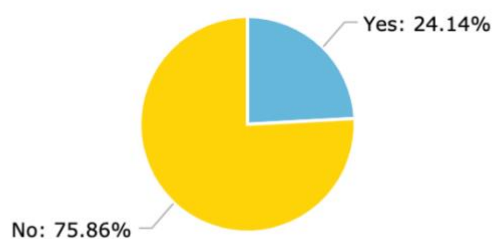
*Figure 1: 116 respondents answered question 1*

**2. Did you know that you could seek medical care through an application?**



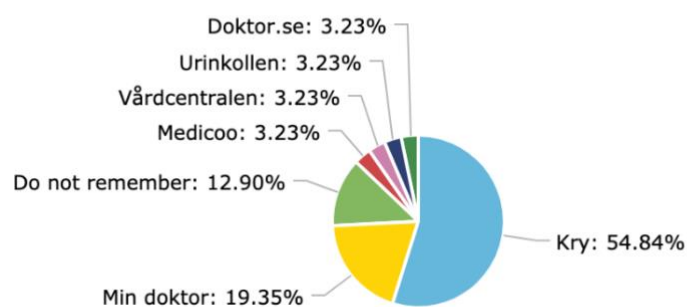
*Figure 2: 116 respondents answered question 2*

**3a. Have you ever sought medical care through an application?**



*Figure 3: 116 respondents answered question 3a*

**3b. If you have sought medical care through an application, which one did you use?**



*Figure 4: 27 respondents answered question 3b*



**4. Which of following best suits why you most recent made a digital doctor's appointment?**

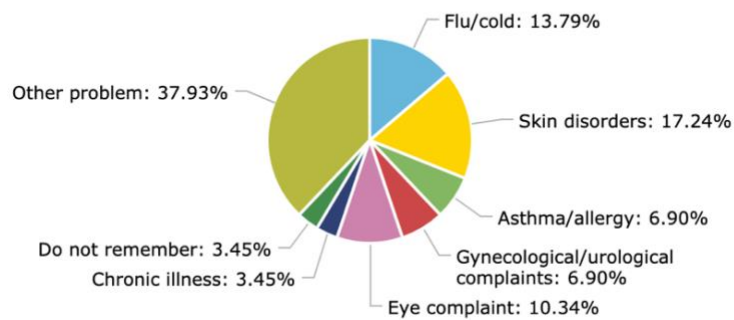


Figure 5: 29 respondents answered question 4

**5. What is your total experience the digital doctor's appointment?**

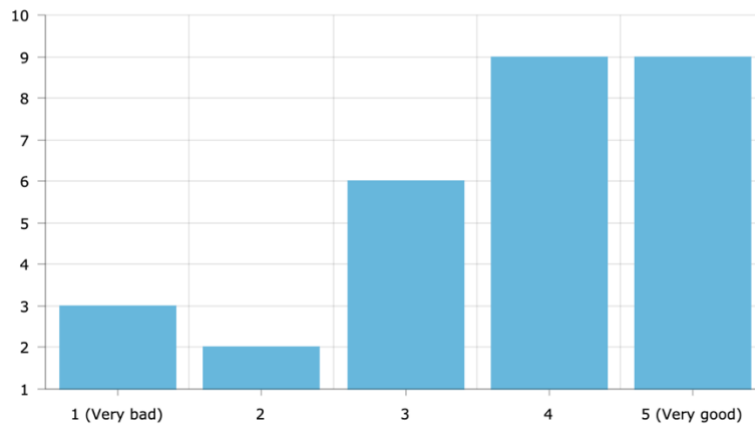


Figure 6: 29 respondents answered question 5

**6. How did you experience the communication between you and the doctor?**

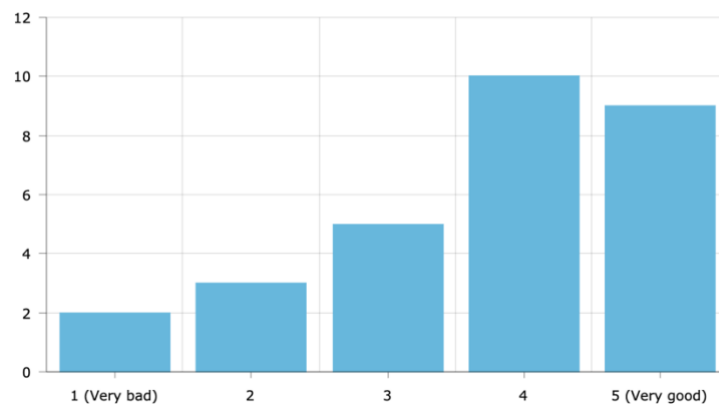
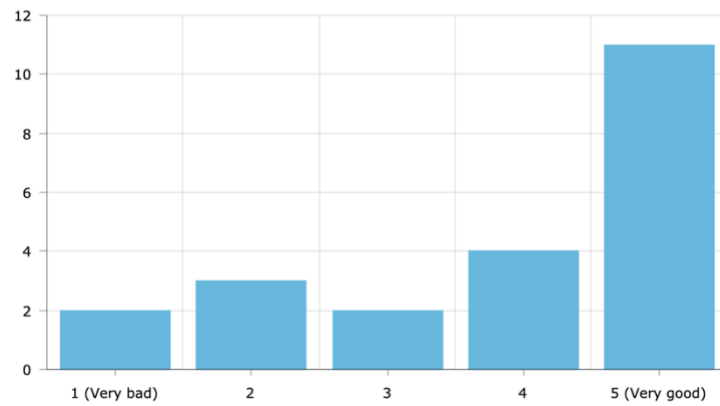


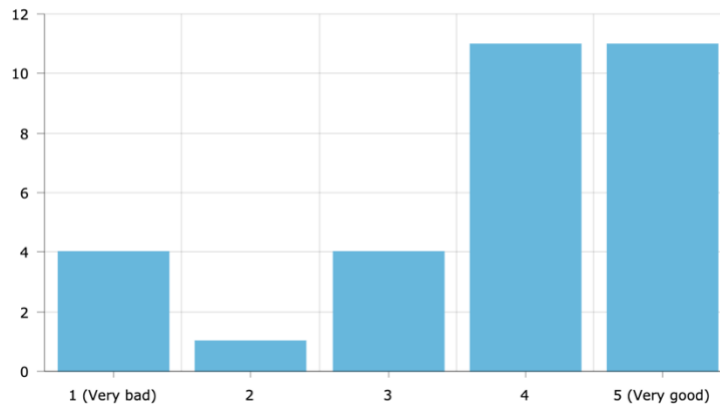
Figure 7: 29 respondents answered question 6

**7. How did you experience that your doctor listened and understood your problem?**



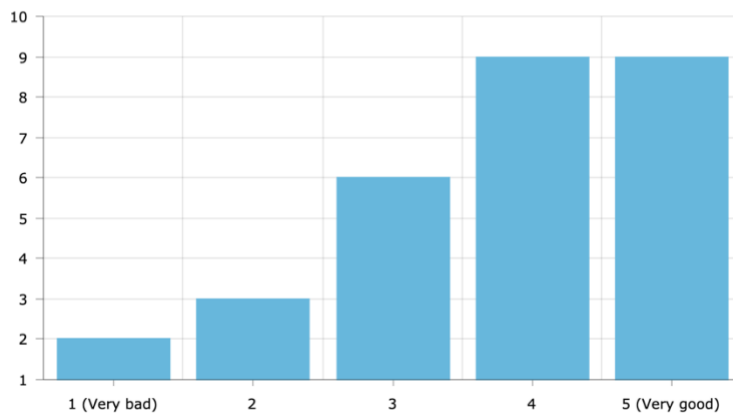
*Figure 8: 29 respondents answered question 7*

**8. How would you estimate the trust that you felt for the doctor?**



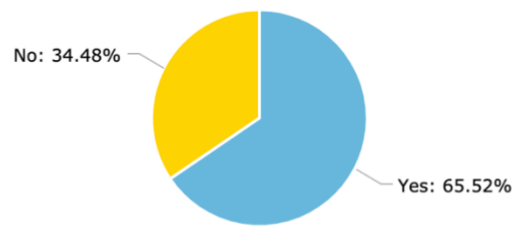
*Figure 9: 29 respondents answered question 8*

**9. How would you estimate that you trust the help that you got from the doctor?**



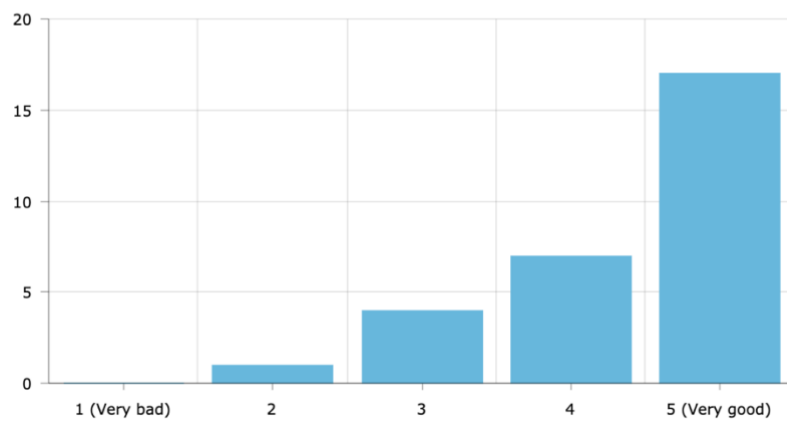
*Figure 10: 29 respondents answered question 9*

**10. Did you get the help that you expected?**



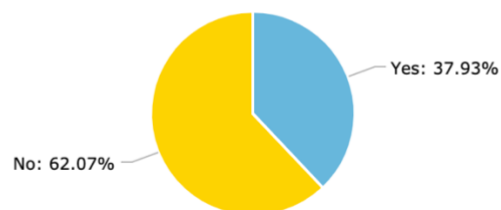
*Figure 11: 29 respondents answered question 10*

**11. Was it easy to understand and navigate in the application before and during the digital doctor's appointment?**



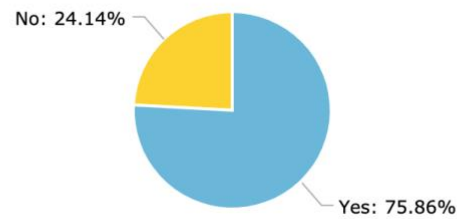
*Figure 12: 29 respondents answered question 11*

**12. Did you experience a lack of the physical examination?**



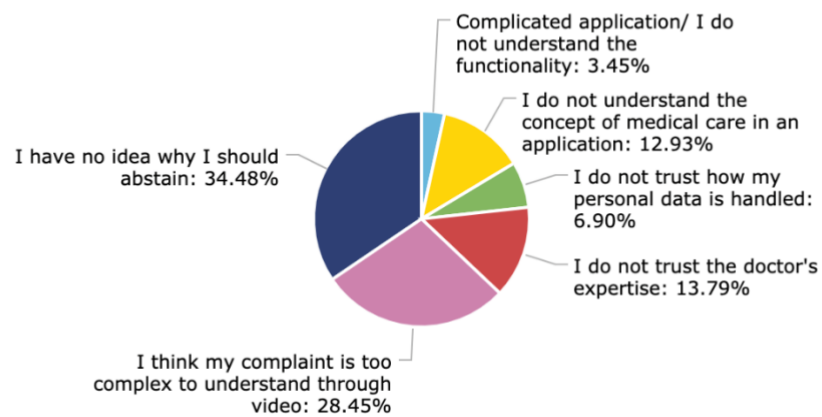
*Figure 13: 29 respondents answered question 12*

**13.a Do you plan to use a digital doctor's appointment again?**



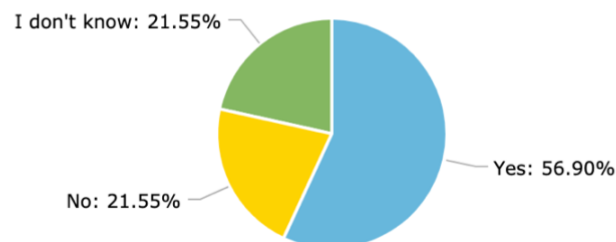
*Figure 14: 29 respondents answered question 13a*

**14. Which of following best suit why you should refrain from seek medical care through an application?**



*Figure 15: 116 respondents answered question 14*

**15a. Do you think that digital healthcare benefits society?**



*Figure 16: 116 respondents answered question 15a*

### 3.3 Result of qualitative questionnaire questions

Question 13.b “Do you want to explicate why or why not you would use a digital doctor's appointment again?”

18 respondents answered this question. 12 of the answers where positive and the other six were negative. Participants mostly described the simplicity in digital doctor's appointments. It is smooth, fast and has better opening hours than physical health centers. For simple visits like renewing prescript drugs, there is no need for a meeting with a doctor. Participants thought that it is a big advantage that they do not have to transport to the health center and wait there for hours. Instead, they can stay at work or home and still get the help that they need.

The six participants that do not want to use an e-health application again, all feel a lack of trust in the doctor. One participant claim that the doctor from the digital appointment could barely understand the Swedish language, another participant says that these doctors just take the easiest path with patients. Most think that their problem cannot be explained through an application, that they do not trust the doctors' competence and that e-health is a waste of tax money.

Question 15a. “Do you think that digital healthcare benefits society?” This is a Yes/No question followed by question number 15b “Do you want to explicate your answer?”

A total amount of 61 participants answered this question. 36 of the answers where positive, 17 were negative and the last eight were neither positive or negative. The participants state that e-health applications are good for simpler ailments, where a physical visit is not necessary. Another point was that it is a complicated task to bring sick children to a hospital and that digital visits could be beneficial in those cases. More people that have issues with transporting to the centers. For instance people from smaller communities, or patients with mental illness. The participants agreed that digital healthcare combined with physical visits can benefit society. It would facilitate the pressure on physical health centers, and help reduce queues. It could also create security for patients since a hospital is a very vulnerable place to be in. Many of the participants like that e-health reduces the risk of infection and disease spread at hospitals since they do not have to go there.

Many participants that have a negative approach towards e-health claim that it is an unnecessary cost for society and a waste of tax money. They would rather see that money go to improving the physical health care centers. One participant expressed that e-health is only good from a business point of view, but that taxpayers should not be obligated to pay for digital health care. It would instead be more reasonable if those who want medical care through apps pay for that care themselves. Multiple participants claim that today's society is getting too digital and impersonal. They think that a proper examination should be done in-person so that the doctor can feel, hear and see. Participants fear that a disruptive environment could distract the doctors, and in the worst case lead to missed diagnoses.

Participants with a more neutral standpoint mostly argued for both sides but could not decide what was most important. The arguments are mostly the same as the previous positive and negative standpoints. Many said that e-health is a good complement because it is a fast and easy way to get medical help. The downside is that it is too expensive for society and that our society is starting to become a bit too digitized. One participant is

worried that e-health will create an easier way to get drugs on prescription, which can result in increased drug intake.

### 3.4 Result of the electronic interviews

The questionnaire was only about the patient's point of view. Since we wanted to know how doctors reasons on the subject, we also asked to interview doctors at the private skin clinic. Two doctors could participate, but only by answering questions by email. The doctor's schedule was too fully booked for a face-to-face interview. We adapted to this by using an electronic interview where they answered the questions by email instead. The doctors are specialists in dermatology. Dermatology is the science of the skin and its diseases (Rorsman, 2019). Two interviews are not enough participants to draw some conclusions, but the purpose is to get a better understanding of potential opinions from doctors.

The answering doctors were Doctor A and Doctor B. We also tried to get in contact with Doctor C, but without success. The reason why we wanted to interview Doctor C, is because of the doctor's experience with assistance through a video session. Doctor C works for one of the most used e-health applications combined with ordinary employment at the clinic. All participating doctors choose to be anonymous.

It is interesting how the doctors have so different approach towards assistance through a video session. Doctor A and Doctor B both agree that a video session is not enough in a digital appointment. According to Doctor B, the in-person meeting means to much and Doctor A does not specify why.

The two interviewed doctors both had some sort of experience of evaluation or assistance with video and/or pictures before. Neither of the doctors had worked clinical with it, but Doctor B had experience of it in educational purposes. They did not specify any reason or gave a more detailed answer so it is hard to understand their level of experience, especially since Doctor A just gave a short "yes" as an answer.

Both Doctor A and Doctor B can see the e-health applications as something beneficial for healthcare. Doctor A thinks that it could be a good complement in some cases and could consider using it as a tool to follow up some specific patients that have had an in-person meeting before and not has gotten any better, e.g. acne or eczema patients. Doctor B sees the beneficial aspect in a long distance to travel for the patient or more easy and standard diagnoses.

The confidentiality would be the same for both Doctor A and Doctor B in a digital appointment. As long as the session not will be saved and that the session is held in safe locations for both the doctor and the patient the confidentiality will be protected.

Doctor B points out that the doctors must always stand for the healthcare that they provide. This means that they will have to trust the patient through the video session, but it may be difficult in some cases according to Doctor A.

The complete response from the doctors is available to read in the appendix.

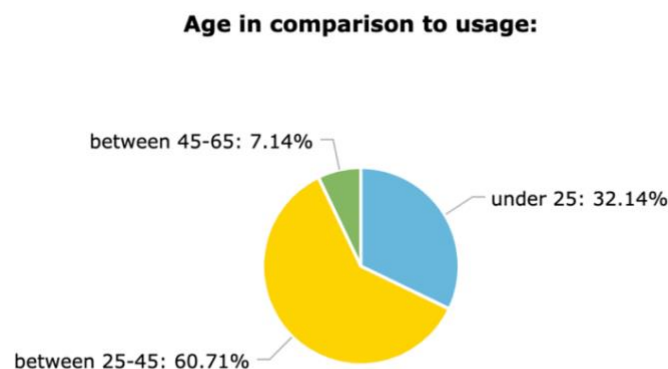
## 4. Discussion and analysis

### 4.1 Analysis of questionnaire

The total amount of participants was 116, and 105 of them knew that you could seek medical care through an application. This means that 9,5% (11 participants) did not know that you could seek medical care through an application. Two of these participants were under 25, five were between 25-45, two were between 45-65 and none were over 65. This corresponds well with how the different age groups are represented in their participation in the study, which indicates that knowledge about e-health application is about the same in all different age groups.

When we move further to instead look at how many who have used an e-health application, we can see a difference between the age groups. A total of 28 participants have used an e-health application, no one of these were over the age of 65. Even though all participants over 65 knew that e-health applications are an option, none of them have used it. Most of them think that their complaint is too complex for an e-health application, but that an e-health application could be good for other people. This indicates that there could be a lack of trust between the elderly and digital healthcare.

About 60% of the ones that used an e-health application were between 25-45 and about 32% were under 25 years old. This means that about 93% of all participants that have used an e-health application are in between 18-45 years old. Following chart shows the division in a more visualized way :



*Figure 17: shows the division between age and usage of e-health applications*

In question 4, the respondents were to select the alternative that best suited for their last digital doctor's appointment. The alternative "other problem" was the most selected alternative with about 38%. When the options were created, we first analyzed the previous research for all the most common reasons for choosing an e-health application. We were therefore very surprised to have "other problems" as the most common option. We later got a comment from a respondent saying that an alternative for renewing prescribed drugs was left out. This could be why the alternative "other problem" was the most selected option.

Aside from the left out alternative and the "other problem"-alternative, the result was as predicted. The most common reason after "other problems", were skin disorders, with

about 17,2%, following by flu/cold with 13,79%. This corresponds well with the previous research that we read before we did our study.

To analyze the result of question 5 to 9, we think of the grades 1 and 2 as negative, the grade 3 is neutral and the grade 4 and 5 as positive (Tullis & Albert, 2013). In question 5, the respondents were to grade their total experience of the doctor's appointment. 18 respondents had a positive total experience, which is about 62%. Six respondents were neutral and five respondents had a negative experience. In question 6, where the respondents were to grade the communication between them and the doctor. 19 patients gave a positive response and five a negative. In question 7, the respondents should grade the doctors' ability to listen and understand the patient's problem. 20 respondents give a positive grade and five a negative. In question 8, which grades the trust it is also 20 positive and five negative responses. In question 9, where the respondent should grade the estimated trust that they felt for the doctor, 18 positive and five negative.

At this point we see a pattern, the satisfied patients graded question 5 to 9 with a high grade, a 4 or a 5. The result follows a line with about 20 positive responses and five negative. It is interesting that in question 5 to 9, five respondents always answered a negative value.

In question 10, that is about if the patient got the expected help, 19 respondents answered 'yes' which is about 66%. This could indicate that the patients that had a total positive experience (18 respondents) most certainly got the help that they expected (19 respondents) from the appointment. It is interesting though, that ten respondents not are satisfied with the expected help from the doctor, which is 35 %. The reasons for this could be from failure in building the same doctor and patient relationship via the application as in the physical meetings.

In the following table, question 12 and 13 are compared. The table will show the division of the lack of physical examination and the willingness to use an e-health application again:

	Want to use an e-health application again	Do not want to use an e-health application again
Experience a lack of physical examination	20,69%	17,24%
Not experience a lack of physical examination	55,17%	6,9%

*Table 4: shows the division of the lack of physical examination and the willingness to use an e-health application again.*

Even though almost 21% of the respondents experienced a lack of physical examination would they use an e-health application again. This could relate to some of the benefits with an e-health application that include small complaints or renewing of prescribed drugs. In these cases, you would not need any physical examination and you could use the



e-health application instead of going to a doctor's office. The interesting here is that almost 7% not experienced a lack of physical examination, but still do not want to use an e-health application again. This may be related to several reasons. It could be that the patient did not get the expected assistance from the doctor, that the patient found the application hard to use or that the patient does not trust the doctors' competence. All of these reasons are convenient reasons since the questionnaire and the previous research could confirm this type of response.

Positive for the e-health applications is that 55% of the respondents, did not experience a lack of physical examination and want to use an e-health application again. The reason for this result could be that the patients had used an e-health application in a beneficial situation that was suited for a digital appointment.

In previous research by Arwidson and Lidés (2015) showed that 40% of the Swedish respondents claimed that they are willing to choose an e-health application over a physical appointment. Our study showed that 55% are willing to use an e-health application again. The results are in line with each other. If we take into consideration the respondents from question 15a, if e-health benefits society, 66 respondents out of 116 answered 'yes' which are about 57%. With this result, we can assume that since Arwidson and Lidés study in 2015 the positive respondents towards e-health has increased.

In question 13b, participants were asked to specify why or why not they want to use an e-health application again. All participants that are positive towards e-health applications claims that the reason behind this is because they do not have to leave home to seek help and will, therefore, save a lot of time.

### Reason against e-health application

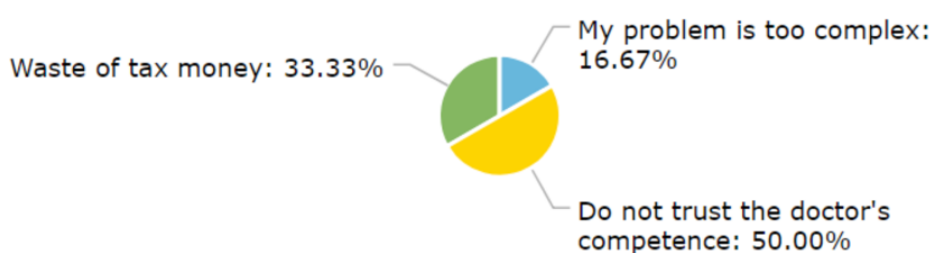


Figure 18: shows the divided reasons against e-health. A total of 6 participants answered, 1 thought their problem was too complex, 2 think it is a waste of tax money and 3 do not trust the doctor's competence.

Of those who said that they do not want to use an e-health application again, we could put their answers into three categories: Those who think that their problem is too complex, and need a physical exam instead, those who do not trust the doctors competence or believe that the doctor wants to help, and finally those who think that e-health applications is a waste of tax money.

In question 14 we asked the respondents why they would refrain from seeking medical care through an e-health application. Almost 35% is positive or not negative towards seeking medical care in an application and answered that they do not know why they would abstain from e-health. Almost 30% think that their complaint is too complex to handle through video conference. The last 35% has answered another of the negative alternatives. This indicates that almost 65% could concretize a negative alternative to why they would abstain from e-health.

The total amount of respondents that want to use an e-health application again was almost 76% of the answering 29 respondents. Among the 76% that want to use e-health applications again, the reasons are because it is fast and smooth, easy to use and that they do not need to leave home. Those who are negative towards e-health applications, think of the complexity in their problem, the doctors' competence and willingness to help and that the doctor does not listen.

It is interesting to see if the usage of e-health has any connection to the opinion that e-health benefits society. To investigate this we made up the following table that will present question 3a and 15a in comparison:

	Have used an e-health application	Have not used an e-health application
Think e-health applications benefit the society	15,52%	41,38%
Do not think that e-health applications benefit society	6,03%	15,52%
Do not know if the applications will benefit society	2,59%	18,92%

*Table 5: shows the percentage between using an e-health application and the opinion if e-health is beneficial for the society*

The table above shows that the distribution between participants who believe that e-health benefits society and those who disagree, are similarly divided whether they have used the applications before or not. About twice as many are for e-health compared to those who are against it. The difference is the amount that does not have a determined opinion. Almost 20% belong in this category when they do not have previous experience. Our research indicates that it is likely that that  $\frac{2}{3}$  will be for e-health and  $\frac{1}{3}$  will be against after using an application.

We have analyzed all the collected data to be able to understand the e-health phenomena. At the beginning of this study we presented the following research questions:

- “Why do people use e-health applications instead of going to the doctor?”
- “Which factors are most important for the patients to feel the same trust in e-health applications as to an in-person doctor?”

- “Do the doctors think that assistance through video conference is beneficial for health care?”

Have we got the answers to the questions that we expected? According to the respondents of the questionnaire, the patient could use an e-health application instead of going to the doctor’s office. The reason for that could be a small complaint or renewing of prescribed drugs.

One of the most important factors for the patient is that the doctor listens and understands the patient. This factor has to be more successfully implemented in digital healthcare.

The doctors that we have questioned were more positive than negative towards e-health but wanted to see more established research before we standardize it. They could consider assisting patients through video sessions in some situations, for example, a follow-up check on a patient diagnosed with something like eczema or acne. As mentioned previously in the study we only got two respondent doctors with the same expertise area, which is dermatology. This is not enough to represent all doctors. The answers from the doctors are still interesting to investigate.

## 4.2 Analysis of User Experience

We were not able to make any UX evaluation or investigate the heuristics in any of the e-health applications like Kry or Min Doktor. This is because in an e-health application need you to sign in and register as a patient to be able to use it (Kry, 2018) (Min Doktor, 2018). This confidentiality is very good for the patient but made it hard for us. Also, to respect the patients’ privacy and confidentiality we could not have any user tests.

Therefore we have to use answers from the questionnaire to investigate usability and UX. 29 respondents answered question 3b to 13 which was regarding the experience of a digital doctor's appointment. In question 7 the respondents were to answer if they experienced the used application as easy before and during the digital appointment. 24 respondents out of the 29 give the answer 4 or 5, which indicates that they found the application easy to use. Only 1 respondent gave the answer 2 and no one gave the answer 1. Four respondents gave the answer 3 which is a neutral answer. According to how the respondents answered our question, the result could indicate that 80% of the respondents experience that the applications are easy to use

As described in section 1.3.4 it is important that the flow follows the same steps in the applications as in an ordinary doctor’s appointment. If the user feels at home and recognizes the process through the different channels the user is more likely to become comfortable and gain more trust. The application Min Doktor (2018) gives the user an information dialogue that describes what the patient can expect and get out of a digital appointment. The information is shown before getting in contact with the doctor. This is good according to Jacob Nielsen’s (2011) heuristics. In line with Schneiderman's golden rules (Wong, 2017). 22 respondents out of the 29, which is almost 76% would use an e-health application again. This can be connected to usability if the user had experienced the application hard to use they would not have considered using it again. Of course, UX is not the only thing that matters, in the choice if you would use the application again, but it is a big part of the usability.

In question 14 the respondents were to answer why they would refuse to use an e-health application. Out of the 116 respondents, only four respondents answered the alternative “Complicated application/I do not understand the functionality” which is about 3,5%. This could also be an indication that the applications easy to use.

### 4.3 Analysis of interviews

The in-person meeting means a lot to both the doctor and the patient. About 17%, according to the questionnaire, believe that they need to have an in-person meeting. This shows that both the doctors and the patients prefer the in-person meeting.

All these benefits, the distance, the follow up and the easy diagnoses are very good for all parts. In question 15a in the patients’ questionnaire, about 56% answered that they think that digital healthcare benefit society. It seems like the beneficial reasons are quite the same for doctors and patients. The patients also mentioned the easiness and the travel distance in the questionnaire of why they think that e-health would be beneficial for society.

Trust is an important part for the patients, according to the questionnaire. Some patients had some issues with trust for the doctor’s competence in e-health applications. According to the patients they may also consider the trust issue when providing healthcare through a video session.

### 4.4 Limitations

This thesis does not cover the routines of an ordinary doctor’s appointment versus a digital appointment. The thesis is not intended to judge e-health applications or be in favor of them.

Due to the doctor’s limited time, it prevented us from having a face-to-face interview, which meant that we were not able to ask them any follow-up questions as we could do in a real interview. The limit amount of participated doctors is not enough to represent all doctors. Also, the fact that the questioned doctors are specialists in dermatology and have no experience of working in any of the online companies, makes their responses not representable for all doctors.

### 4.5 Lessons learned

If this study were made again there is one specific learning that could have to improve the research. The learning is about how important it is to put a lot of effort into the pilot questionnaire and do it as an iterative process. If this had been done, maybe the insight of the left out alternative ‘renew prescribed drugs’ would come up earlier in the process. Then that alternative could have been a selectable one in the final questionnaire and we would get a more accurate result in the end.

Also, the question about how the patient experienced the used application could have been improved. If we had put more work on the pilot questionnaire maybe some more UX related insights could have come up. Then the final questionnaire could have some better UX related questions.

## 4.6 Future work

This study has researched the most important aspects of future development within e-health. One important task for future work is a more thorough risk assessment before developing e-health applications. This was both found in previous research and also pointed out by doctors in the electronic interviews. The negative outcome of a poorly designed application could be very dangerous.

Many patients claimed in the questionnaire that e-health takes money from the physical medical centers, but most of them do not know if this is actually true or not. If there was more financial information in digital applications, it might lead to a decrease in this type of argument.

Trust for the doctor was by far the most important aspect, both from previous research and from the questionnaire. Participants were concerned that the doctor did not understand and listen. Some patients also said that a disruptive environment could distract the doctors and that some doctors just want to choose the easiest solution for the patient's medical problem. There is a lot of small things that could be done within the future development to prevent this type of concern. Video sessions will help increase the doctor's credibility. Doctors could choose this option more often, especially if it is a medical problem where they think that the patient's trust might be uncertain. The background in the video session and the doctor's clothes are also very important aspects, it needs to be consistent with the physical environment. This helps to increase the same trust in the digital patient and doctor relationship, as in the physical.

## 5. Conclusion

The study showed that there are divided opinions regarding e-health and whether it benefit society or not. Some patients value the availability and easiness of seeking medical care through an application. The other side refuses the idea of e-health and believes that it is a waste of tax money.

The total amount of participants in the questionnaire was 116 respondents, among them only 28 participants had used an e-health application. Some interesting insights from the questionnaire are that about 50% answered that they think e-health benefits the society, 25% though e-health was bad and the last 25% did not know. This question was answered by all 116 respondents. Those who were positive towards seeking medical care through an application all agreed that the main reasons were that they not have to physically go to the doctor, that they could stay at work or home and not have to bring their sick child to the doctor's office. Even for small complaints and renewal of prescriptions, it is very smooth and easy.

Those who were negative towards seeking medical care through an application were also in agreement with their reasoning. All agreed that the main reason was the waste of tax money. After that, they thought that their complaints were too complexed for digital healthcare or that the doctor not was competent enough or had any engagement for their complaints. These opinions are very much in line with previous research of the importance of trust and the relationship between doctor and patient.

The respondents who did not know often argued for both sides, without taking a stand for neither side. Another interesting aspect that we found was that no one over the age of 65 had used an e-health application. Someone did not even know that it existed, but all in that age group though e-health seemed like a good thing.

The questioned doctors both had a positive approach to e-health, but want to see more detailed research on which occasions e-health could be beneficial or even be a better alternative. This needs to be done before the digitizing of healthcare becomes a normal standard. One of the questioned doctors talked about the "digital stress" and the mental ill-health that increases a lot, especially among young people. The doctor talks about the importance of "move forward if you can prove that it is the right thing to do".

There could be a lot of benefits with e-health and digital healthcare, but we first need to investigate in which occasions it is beneficial to use e-health before we proceed forward.

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# Appendix A – Original questionnaire

## Digital läkarvård

Detta är en undersökning som genomförs till grund för examensarbetet "Understand Trust and Usability in E-health Applications" av Jessica Mårtensson och Cajsa Nilsson för Malmö Universitet vid fakulteten för Teknik och Samhälle.

Detta är en oberoende och fristående undersökning som genomförs av oss studenter vid Malmö Universitet. Syftet med undersökningen är att se hur folk i allmänhet ställer sig till digital vård. Undersökningen syftar varken till att förespråka eller motsätta digital vård.

Tack för din medverkan,  
bästa hälsningar,  
Jessica Mårtensson och Cajsa Nilsson, Informationsarkitekter

**\*Obligatorisk**

1. Din ålder? \*

- ☐ under 25
- ☐ mellan 25-45
- ☐ mellan 45-65
- ☐ över 65

2. Visste du att man kan söka läkarvård via en app? \*

- ☐ Ja
- ☐ Nej

3a. Har du någon gång sökt läkarvård via en app? \*

- ☐ Ja
- ☐ Nej

3b. Om du har sökt läkarvård via en app, vilken app använde du dig av då?

Ditt svar

Om nej, fortsätt till fråga 14.



4. Vilken av följande stämmer bäst in på varför du senast genomförde ett digitalt läkarbesök?

- ☐ Led/muskelvärk
- ☐ Influensa/förkylning
- ☐ Hudbesvär
- ☐ Astma/allergi
- ☐ Magproblem
- ☐ Gynekologiska-/urologiska besvär
- ☐ Huvudvärk
- ☐ Ögonbesvär
- ☐ Kronisk sjukdom
- ☐ Kommer inte ihåg
- ☐ Övrig åkomma

5. Hur upplevde du vårdbesöket som helhet?

	1	2	3	4	5	
Väldigt dåligt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Väldigt bra

6. Hur upplevde du kommunikationen mellan dig och läkaren?

	1	2	3	4	5	
Väldigt dåligt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Väldigt bra

7. Hur upplevde du att läkaren förstod och lyssnade på ditt problem?

	1	2	3	4	5	
Läkaren förstod mig inte alls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Läkaren förstod mig mycket bra

8. Hur skulle du uppskatta den tillit du fick för läkaren?

	1	2	3	4	5	
Väldigt dålig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Väldigt bra

9. Hur skulle du uppskatta att du litar på den hjälp du fick av läkaren?

	1	2	3	4	5	
Väldigt lite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Väldigt mycket

10. Fick du den hjälp som du förväntade dig?

☐ Ja

☐ Nej

11. Var det lätt att förstå och navigera sig i appen innan och under vårdbesöket?

	1	2	3	4	5	
Mycket svårt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket lätt

12. Upplevde du en avsaknad av den fysiska undersökningen?

☐ Ja

☐ Nej

13a. Kan du tänka dig att använda dig av digitala vårdbesök igen?

☐ Ja

☐ Nej

13b. Vill du utveckla varför eller varför inte du skulle använda dig av ett digitalt läkarbesök igen?

Ditt svar

14. Vilken av följande stämmer mest in på varför du skulle avstå från att söka läkarvård via en app? \*

- ☐ Krånglig app/förstår inte funktionaliteten
- ☐ Förstår inte konceptet av läkarvård i en app
- ☐ Litar inte på hur mina personuppgifter hanteras
- ☐ Litar inte på att skriva in mina kortuppgifter
- ☐ Litar inte på läkarens kompetens
- ☐ Tror att mitt problem/åkomma är för komplex för att ta över videosamtal
- ☐ Har ingen uppfattning om varför jag skulle avstå

15a. Anser du att digital sjukvård gynnar samhället? \*

- ☐ Ja
- ☐ Nej
- ☐ Har ingen uppfattning

15b. Vill du utveckla ditt svar?

Ditt svar

## Appendix B – Answers for question 13.b and question 15.b

Question number 13.b “Do you want to explicate why or why not you would use a digital doctor's appointment again?”

Positive answers:

1. Depending on what it is, but not having to stand in a queue and the session goes faster
2. The simplicity of seeking healthcare
3. Nice to avoid leaving home if you are ill, big bonus that you can wait at home instead of in a waiting room.
4. Smooth to avoid transporting to a healthcare center and sitting in line all day. Through digital care, I can get help directly regardless of where I am. In my case where my eyes were concerned; there was no major acute visit, which meant that I was able to stay at work and carry out my daily tasks while waiting for help
5. I used Kry to renew my contraception, which I always had to go to UMO for. I think that for such a simple visit, it is much easier for me to just use the app.
6. Smooth, quick healthcare when needed
7. It is smooth, better opening hours and short waiting time.
8. It depends a little bit on what it is about. It is very nice to not have to take sick children to the healthcare center
9. Fast, smooth and easy. The negative part is that they cannot prescribe that a contraceptive should be subsidized
10. Using digital healthcare is good because I could do it from home and did not have to leave the job to seek help.
11. Smooth. Going fast.
12. Incredibly smooth when I was traveling a few days before New Year's Eve.

Negative answers:

1. When I seek healthcare, it is often something that I consider to be serious. My experience is that it is difficult to explain or show my problems to a doctor in an app via chat or video call. I therefore prefer a physical meeting where the doctor can actually take a good look at my problem.
2. I do not think the doctors competence is so good that they can assess problems via images / video. In addition, I believe that doctors generally choose "the easy path" because a possible return visit or feedback is time-consuming. Finally, I think any sampling can easily be skipped as it is more complicated than during a physical visit.
3. Birthmark that the doctor did not want to remove at all, but in the case of a proper examination, it was decided that it would be removed
4. The doctor did not understand the Swedish language, and language destruction is a big danger!
5. It did not provide any help, I did not get penicillin to my son. Politically, I think it is a waste of tax money.
6. The apps cost a lot for county councils. What I think could work is psychological help

Question number 15a. “Do you think that digital healthcare benefits society?” This is a Yes/No question followed by question number 15b “Do you want to explicate your answer?”

Positive answers:

1. Reduced queues
2. Yes, but it's not black and white.
3. I believe that digital healthcare can make a lot of effort for healthcare, but also for patients. If there were minor symptoms or similar, it would have been good if you didn't had to go to, for example, a health center when you could instead get an answer directly in an app.
4. It probably depends on how the costs hit the county councils, if healthcare becomes more easily accessible via apps, then maybe more people will seek healthcare that otherwise might not have sought, which in itself may be positive. It can be an advantage for e.g. patients with mental illness, patients with sexually transmitted diseases.
5. Personally, I think digital healthcare is good if it is combined with physical visits. The digital system have a better reach within sparsely populated areas.
6. I think it's important to be able to meet a doctor if you want. But for easier problems, an app is a great way to reduce queues and get quick help without leaving home. Good with video calls so you can see who you are talking to.
7. Think it contributes to faster help in many cases and reduced health queues. For easier cases like renewal of recipes.
8. When the health center did not have time to help me and just sent around me, took care of me & helped me directly.
9. Think it can be a great help to those people who find it difficult to get to a hospital and therefore withdraw from seeking help in time. If they can instead get help digitally, they may be able to get help in time and therefore reducing the consequences that a wait could have caused.
10. In case of simple ailments where video calls are an adequate alternative (ie less information is necessary), it can be more or less managed by someone other than just a doctor.
11. For the individual, I believe that digital e-health can create security for patients. For many people. a hospital is a very vulnerable place to be in and it can create nervousness or anxiety. To then move the healthcare to people's own homes has the opportunity to counteract this. There are also opportunities for giving sick people a smoother and more continuous communication between healthcare and patients. For society and healthcare in general, it can, for example, reduce health queues in hospitals, which gives healthcare easier opportunities to prioritize and be able to provide better care. With good user-friendliness and privacy protection, I believe that one can create trust with digital systems for health. However, my opinion is that digital technology can never replace the physical healthcare, but rather aim at strengthening it.
12. Parents of small children where children get simpler ailments do not need the logistics to get to healthcare centers, administration of regular recipes etc.
13. You do not have to go to a healthcare facility and you can get help quickly and smoothly
14. More alternatives are needed when there is rarely access to times at ordinary health centers.
15. I think that in a more efficient way you can get medical attention digitally. In this way, time is reduced to lack of work, which in itself is good for society. In addition, I hope that lead times will be faster with digital medical care, which would also contribute to a positive social development.
16. It relieves the physical healthcare centers that already have extremely long waiting times for visits.



17. I think it can benefit smaller communities where people may not be able to go to a doctor, or for elderly people who have difficulty traveling away
18. In order to get rid of whining people with "make-believe disorders", the usual healthcare / emergency room is burdened. Instead, they can mitigate their concerns digitally. Then there are some people who have easier "real" disorders that can quickly get help through an app.
19. Shorter queue time. But pity they were in private clothes. You do not know in reality via a camera if they are doctors or nurses
20. Environmentally friendly and more efficient
21. Helps to relieve healthcare facilities and emergency departments
22. Easier to get in touch with a doctor. Nice to avoid in queue at the health center.
23. Reduces the risk of infection and disease spread at hospitals / health centers because fewer people need to go there.
24. Reduces waiting time / queue. Reduces the workload of staff by facilitating easier disturbances at a distance
25. It is good for those people who are sick in a way that could be contagions, or that you might want to get advice or so. It can also be good if you have rashes etc.
26. Can relieve the healthcare
27. It is certainly good in today's stressed society where it is sometimes also difficult to get to the healthcare center but I have never used it myself
28. Easy access for patients. Faster visit times for patient and therapist. Cost effective for healthcare. Cost effective for a patient who may not need to take time off from work for a visit to the care.
29. You don't have to leave home, which can be a difficult process for some. In addition, the doctor can probably work from home that can also facilitate.
30. Digital care helps to facilitate physical healthcare
31. I think this is a good complement to a physical visit. It can act as a funnel into other healthcare. Many problems can be diagnosed relatively well only on the basis of the history, or at least on the basis of this make a decision about which further investigations need to be done. Then, for example, after this initial assessment of the doctor, the patient can visit his / her health center to leave blood samples, but needs a smaller physical visit with the doctor.
32. Good compliment to "regular healthcare" for easier conditions
33. Because you do not need to take time off from work, instead you can seek help when you come home digitally
34. For those who feel comfortable meeting their doctor via screen, it is certainly very smooth. Maybe in the long term can relieve the health centers, in that case it is good.
35. I can imagine using e-health applications and digital medical care, didn't know that there was an app
36. For easier ailments and problems that have been investigated earlier, it is a smooth way to get medical attention. Especially when it is nowadays difficult to get a doctor's time at the healthcare center.

Neutral answers:

1. I absolutely believe that it can benefit society to some extent. On the other hand, I also believe that our society is starting to become a bit too digitalized and to seek medical attention should be something we continue to do physically. But on the other hand, it is not particularly easy to get a medical appointment today and then of course the app can facilitate.
2. Because we can get faster healthcare attention, the healthcare system can also help more vulnerable people, which is good, however, I have experienced that it has

become "easier" to get drugs on prescription, which can result in an increased drug intake on occasions where you might have struggled your way through the pain instead if you had to go to a health center that takes much longer

3. In more difficult cases, the doctor should refer to the nearest healthcare center, so the patient receives the right treatment as quickly as possible.
4. I think it is good for small and simple things that make doctors and nurses be able to focus on "more serious" visits. But I am at the same time quite certain that it may have some ethical consequences, which makes me not really be able to ask myself whether it will benefit healthcare or not, in the long term.
5. It benefits society to the extent that it is easier to get in touch with a doctor / nurse. However, it is a huge cost for the county councils because many get referrals for smaller and harmless things, which in turn disadvantages society in the long run. I am split to pros and cons.
6. In some cases, super. Since simple problems can easily be remedied, some skin conditions, etc. But generally believe that it is a worrying development that leads to care taking shortcuts, which leads to misleading diagnoses and in some cases excessive medication. Until the opportunity exists to actually send with blood values etc. Should be careful.
7. Both. In a way, people get help faster through an app (those who have access to a smartphone and can handle it) but at the same time I think most people want to meet a doctor unless the problem can easily be remedied, for example, renewal of the prescription.
8. digital healthcare is good for accessibility, but also very expensive for society

#### Negative answers:

1. A video call means limiting the amount of information available to the doctor. Doctors should, according to me, handle diseases that are more complicated than a cold / foot fungus, and therefore need a lot of information to make a proper assessment.
2. I think we need to physically meet the doctor. The problem that arises in case of bad reception, disruptive environment, etc. can easily become an obstacle in communication, which can lead to errors during diagnosis. Any form of simplification is not always the right way to go.
3. I understand the concept but I do not believe it. I understand why one from a business point of view wants to carry out this type of care. I just don't understand why we as taxpayers should pay for this type of care. It would be more reasonable if those who want medical care through apps pay for that care themselves.
4. Not today. There is potential to benefit society with digital healthcare, but then that should be integrated into the healthcare system instead of being seen as an alternative / competitor. Right now, it is a waste of tax money because the digital platforms suck out the physical care because of how the regulations / compensation model is structured.
5. Everything must not be TO digital, directed via mobile ... the personal meeting is still a better experience in 2019 than via video calls.
6. Everything becomes more and more impersonal in today's society. Healthcare is something I think must be personal. I am also worried about lack of competence and difficulties in examining competence.
7. Will not be a good option until some technology is available, that for example can take different values over the phone. High possibility that too many cases will be sent to the health center, which is one of the main objectives of digital healthcare to counteract.

8. I want to protect healthcare centers and do not want my County Council to have to pay a private operator. If the County Council itself had an app, I could imagine using it.
9. I am doubtful - and a little insecure - the doctor's authenticity and handling of my records. It is quite sensitive data.
10. I would rather meet a doctor face to face
11. Calling 11717 for advice is good, but a proper examination should be done in person, so that the doctor can feel, hear and see.
12. Improve the healthcare center instead and put the money on it!
13. Afraid that the risk of digital medical care will lead to missed diagnoses / treatments
14. Better to invest in accessibility in primary care
15. That money is taken from the wrong places to benefit small things is not something I like. however, if the region of Skåne provides its own app, I could use that.
16. Unnecessary cost to society
17. In its current form, digital medical care takes resources from the healthcare instead of contributing, by costing a lot, but does not add much, when many seek for problems that are not medical demanding. Those who have healthcare demanding problems are often referred to a physical care provider.

## Appendix C – Original Electronic Interviews

Doctor A:

- Har du erfarenhet av bedömning via bilder/video sedan tidigare?
  - Ja
- Upplever du att de digitala vårdgivare som finns kan ge samma hjälp via videosamtal som ett vanligt läkarbesök?
  - Oftast inte
- Tycker du att digitala läkarbesök är någonting som gynnar sjukvården?
  - Kan vara ett bra komplement i en del utvalda fall.
- Skulle du själv kunna tänka dig att ge vård via videosamtal? Varför / varför inte?
  - Ja, för patienter som jag träffat live tidigare, ex eksem patienter som blivit sämre eller akne patienter som kanske inte blivit helt bra.
- Upplever du att det finns samma sekretess via videosamtal som under ett vanligt läkarbesök?
  - Ja, ifall både jag och patienten sitter ostört och det sker via säker linje.
- Tror du att du som läkare skulle känna samma trovärdighet för patienten via videosamtal? Till exempel vid utskrivning av receptbelagda läkemedel.
  - Svårt att svara på, ibland.

Doctor B:

- Har du erfarenhet av bedömning via bilder/video sedan tidigare?
  - Nej inte i kliniskt arbete, men i utbildningssituationer
- Upplever du att de digitala vårdgivare som finns kan ge samma hjälp via videosamtal som ett vanligt läkarbesök?
  - Nej, ett personligt möte tillför mycket.
- Tycker du att digitala läkarbesök är någonting som gynnar sjukvården?
  - Ja , det finns många fördelar för enklare standardiserade diagnoser eller där man har långa avstånd till sjukvården.
- Skulle du själv kunna tänka dig att ge vård via videosamtal? Varför / varför inte?
  - Ja, Jag föredrar det personliga mötet, men som i fråga 3 finns det situationer när det självklart skulle tillföra mycket och förenkla. Däremot anser jag inte att det är utvärderat vid vilka tillfällen som en digital vårdgivare är att föredra. Det skulle kunna bli mycket fokus på tex snabb tillgänglighet, omedelbara svar på mer banala åkommor, dvs en överkonsumtion av vård. Vi lever i en tid med många stressade människor, den psykiska ohälsan ökar hos många, särskilt ungdomar. Det diskuteras mycket hur stor del "digitala stress" påverkar oss. Så man ska inte införa nya arbetsmetoder snabbt eller i en större skala. Och sen alltid utvärdera vad det är man gör och backa om det blev fel, gå vidare när man visat att det blev rätt.

Det kommer i många år framöver att finnas människor med funktionsnedsättning, eller som inte växt upp med den nya tekniken och inte kan/vill hantera den

- Upplever du att det finns samma sekretess via videosamtal som under ett vanligt läkarbesök?
  - Känner inte till hur man hanterar sekretess under videosamtal, men om hela samtal skulle sparas låter det som att det skulle vara en utmaning att hantera så att man kan garantera att inte obehöriga kan ta del av detta. Både patient och vårdgivare skulle nog uppleva att det är situationer som man inte vill sparas.
- Tror du att du som läkare skulle känna samma trovärdighet för patienten via videosamtal? Till exempel vid utskrivning av receptbelagda läkemedel.
  - Ja, man står alltid för den vård man ger.

## Appendix D – Translated Electronic Interviews

### Doctor A:

- Do you have any experience of evaluation or assistance with pictures/video before?
  - Yes.
- Do you think that the established digital healthcare providers can provide the same assistance through a video conference as an regular doctor's appointment?
  - Usually not.
- Do you think that digital doctor's appointments benefit the regular healthcare?
  - It could be a good compliment in some selected cases.
- Could you imagine yourself providing assistance through a video conference? Why/why not?
  - Yes, for those patient that I have assist face to face before. It could be for example patients with eczema that has become worse, or a patient with acne that did not get the expected result from the medicine.
- Do you think that the confidentiality is the same when using a video conference in comparison to an regular doctor's appointment?
  - Yes, if both the patient and I are in locations that is undistracted, and the conference is hold on a safe telephone line.
- Do you, as a doctor, think that you can feel the same trust for the patient through a video conference as in comparison to an regular doctor's appointment? For example with prescription of drugs?
  - That is difficult to answer, sometimes.

### Doctor B:

- Do you have any experience of evaluation or assistance with pictures/video before?
  - Not in clinical work, only for educational purpose.
- Do you think that the established digital healthcare providers can provide the same assistance through a video conference as an regular doctor's appointment?
  - No, a personal meeting means to much.
- Do you think that digital doctor's appointments benefit the regular healthcare?
  - Yes, there are many benefits for simpler standardized diagnoses, and where you have long distances to health care.
- Could you imagine yourself providing assistance through a video conference? Why/why not?
  - Yes. I personally prefer the face to face assistance, but as I said in question number 3, there are some situations where a video conference could simplify and contribute a lot.  
However, I do not think that it has been evaluated enough in which situations a digital healthcare provider is preferable. It could be more focus on e.g. availability, immediate response to trivial complaints, which is an

overconsumption of healthcare. We live in a time area with many over stressed people, the mental ill-health increases a lot, especially among young people. There are an ongoing discussion about “digital stress” and how much that affect us. So do not rush the introduction to a new work method or a big concept to fast. Then, always remember to evaluate what you do, and step back if something does not goes as planned. Move forward if you can prove that it is the right thing to do.

For many years to come, there will be people with disabilities, and people that did not grow up with this technology and therefore have problems to understand it/refuse to use it.

- Do you think that the confidentiality is the same when using a video conference in comparison to an regular doctor's appointment?
  - I am not aware of the confidentiality in a video conference, but if the whole conference should be saved, it seems like a big challenge to guarantee that no unauthorized person will take part of the material. Both patient and doctor should probably prefer that this situations are not to be saved.
- Do you, as a doctor, think that you can feel the same trust for the patient through a video conference as in comparison to an regular doctor's appointment? For example with prescription of drugs?
  - Yes, you should always stand up for the healthcare that you provide.

## Appendix E – Original answers from questionnaire

Tidstämpel	1. Din ålder?	2. Visste du att man kan söka läkare via en app?	3a. Har du någon gång sökt läkare via en app?	3b. Om du har sökt läkare via en app, vilken app använde du dig av då?	4. Vilken av följande stämmer bäst in på varför du senast genomförde ett digitalt läkarbesök?	5. Hur upplevde du värdetjänsten som helhet?	6. Hur upplevde du kommunikationen mellan dig och läkaren?	7. Hur upplevde du att läkaren förstod och lyssnade på ditt problem?	8. Hur skulle du uppskatta den tid du fick för läkaren?	9. Hur skulle du uppskatta att du lärde på den hjälp du fick av läkaren?	10. Fick du den hjälp som du förväntade dig?	11. Var det lätt att förstå och navigera sig i appen innan och under värdetjänsten?
2019-03-07 09:19:26	melan 25-45	Ja	Ja	Kommer inte ihåg	Influensaförkyning	4	4	4	3	3	Ja	3
2019-03-08 16:08:49	under 25	Ja	Nej									
2019-03-09 07:26:47	melan 25-45	Nej	Nej									
2019-03-10 20:33:17	melan 45-65	Ja	Nej									
2019-03-10 20:45:59	melan 45-65	Ja	Nej									
2019-03-11 12:24:22	under 25	Ja	Nej									
2019-03-12 08:55:37	under 25	Ja	Ja	Kry	Ögonbesvär	4	4	5	4	4	Nej	4
2019-03-12 21:26:04	under 25	Ja	Ja	Kry	Hudbesvär	3	3	5	4	4	Nej	5
2019-03-19 09:38:08	melan 25-45	Ja	Nej									
2019-03-19 09:46:47	melan 25-45	Ja	Nej									
2019-03-19 09:47:01	under 25	Ja	Nej									
2019-03-19 09:59:10	melan 25-45	Ja	Ja	Kry	Övrig åkomma	4	3	4	5	3	Ja	5
2019-03-19 10:02:55	under 25	Ja	Ja	Kry	Ögonbesvär	4	5	4	4	3	Ja	5
2019-03-19 10:20:05	melan 25-45	Ja	Nej									
2019-03-19 10:21:20	under 25	Ja	Nej									
2019-03-19 10:29:23	under 25	Ja	Nej									
2019-03-19 10:33:32	under 25	Ja	Ja	Kry	Övrig åkomma	5	5	5	5	5	Ja	5
2019-03-19 10:42:27	under 25	Ja	Nej									
2019-03-19 10:53:55	melan 45-65	Nej	Nej									
2019-03-19 10:56:58	under 25	Ja	Nej									
2019-03-19 11:03:51	under 25	Ja	Ja	Kry	Övrig åkomma	5	5	5	4	5	Ja	2



12. Upplevde du en avsaknad av den fysiska undersökningen?	13a. Kan du tänka dig att använda dig av digitala vårdbesök igen?	13b. Vill du utveckla varför eller varför inte du skulle använda dig av ett digitalt läkarbesök igen?	14. Vilken av följande stämmer mest in på varför du skulle avstå från att söka läkavård via en app?	15a. Anser du att digital sjukvård gynnar samhället?	15b. Vill du utveckla ditt svar?
Ja	Ja	Beroende på vad det gäller, men att slippa stå i kö och att det går snabbare	Har ingen uppfattning om varför jag skulle avstå	Ja	Minskar köer
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	Ja, men det är inte svart och vitt.
			Förstår inte konceptet av läkavård i en app	Ja	Jag tror att digital läkavård kan underlätta väldigt mycket för sjukvården men även patienter. Vid mindre symptom eller liknande hade det varit bra om man sluppit ta sig ut till t ex vårdcentralen när man i stället kunde få svar direkt i en app.
			Har ingen uppfattning om varför jag skulle avstå	Har ingen uppfattning	
			Har ingen uppfattning om varför jag skulle avstå	Har ingen uppfattning	Det beror nog på hur kostnaderna slår för landstingen, blir vård mer lättillgängligt via appar söker kanske fler personer vård som annars kanske inte hade sökt, vilket i sig kan vara positivt, kan vara en fördel för tex patienter med psykisk ohälsa, patienter med sexuellt överförbara sjukdomar. Personligen tycker jag att digital sjukvård är bra, om den kombineras med läkarbesök. Det digitala systemet når ju ut bättre på glesbygden.
			Förstår inte konceptet av läkavård i en app	Har ingen uppfattning	
Nej	Ja	Enkelheten att söka vård	Litar inte på läkarens kompetens	Ja	
		När jag väl söker vård så är det ofta något jag anser vara oklart. Upplever det svårt att få fram eller visa mina problem för en läkare i en app via chatt eller videosamtal. Fördelar då helte ett fysiskt möte då läkaren faktiskt kan ta en ordentlig titt på mitt problem.	Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Har ingen uppfattning	Jag tror absolut att det kan gynna samhället till viss del. Däremot tror jag också att vårt samhälle börjar bli lite för digitaliserat och att uppsöka läkare borde vara något vi fortsätter göra fysiskt. Men å andra sidan, det är inte speciellt lätt att en läkartid idag och då kan givetvis appen underlätta.
	Nej		Har ingen uppfattning om varför jag skulle avstå	Ja	
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Förstår inte konceptet av läkavård i en app	Har ingen uppfattning	
Nej	Ja	Stönt att slippa lämna sitt hem om man är sjuk. Stor bonus att man kan vänta hemma istället för i ett väntrum.	Litar inte på hur mina personuppgifter hanteras	Ja	Jag tycker det är viktigt att kunna träffa en läkare om man vill. Men för lättare problem är en app ett bra sätt att minska köer och få snabb hjälp utan att lämna hemmet. Bra med videosamtal så man kan se den man pratar med.
		Smidigt att slippa ta sig till en vårdcentral och sitta i kö hela dagen, genom digital vård kan jag få hjälp direkt oberoende vart jag befinner mig. I mitt fall där det gällde mina ögon var det inget jätteakut besök vilket gjorde att jag kunde befinna mig på jobbet och genomföra mitt dagliga arbete samtidigt som jag väntade på hjälp.	Litar inte på hur mina personuppgifter hanteras	Ja	Genom att vi kan få snabbare vår direkt så kan sjukvården också hjälpa fler utsatta personer vilket är bra, däremot har jag upplevt att det blivit "lättare" att få läkemedel utskrivet vilket kan resultera i ett ökat läkemedelsintag vid tillfällen där du kanske hade kämpat dig igenom smärtan istället om du hade behövt gå till en vårdcentral som tar betydligt längre tid
Nej	Ja		Litar inte på läkarens kompetens	Ja	Tror att det bidrar till snabbare hjälp i många fall och minskade värdköer. För lättare fall som förnyelse av recept. I mer svårbedömda fall bör läkaren hänvisa till närmaste vårdcentral, så patienten får rätt behandling så snabbt som möjligt.
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Litar inte på läkarens kompetens	Har ingen uppfattning	
Nej	Ja		Har ingen uppfattning om varför jag skulle avstå	Ja	När vårdcentralen inte hade tid att hjälpa mig och bara skickade runt mig, tog kry hand om mig & hjälpte mig på direkten.
			Litar inte på hur mina personuppgifter hanteras	Har ingen uppfattning	
			Litar inte på hur mina personuppgifter hanteras	Har ingen uppfattning	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Har ingen uppfattning	
Nej	Ja	Jag använde Kry till att förnya mitt preventivmedel, vilket jag alltid annars behövt åka till UMO för. Tycker just till ett sådant enkelt besök underlättade mycket för mig att kunna använda appen.	Kränglig app/förstår inte funktionaliteten	Har ingen uppfattning	Jag tycker att det är bra till små och enkla grejer som får läkare och sjuksköterskor att kunna fokusera mer på "allvarigare" besök. Men jag är samtidigt ganska säker på att det kan komma att medföra en del etiska konsekvenser, vilket får mig att inte riktigt kunna ställa mig i frågan om det kommer gynna vården eller ej, långsiktigt.

Tidstämpel	1. Din ålder?	2. Visste du att man kan söka läkare via en app?	3a. Har du någon gång sökt läkare via en app?	3b. Om du har sökt läkare via en app, vilken app använde du dig av då?	4. Vilken av följande stämmer bäst in på varför du senast genomförde ett digitalt läkarbesök?	5. Hur upplevde du vårdbesöket som helhet?	6. Hur upplevde du kommunikationen mellan dig och läkaren?	7. Hur upplevde du att läkaren förstod och lyssnade på ditt problem?	8. Hur skulle du uppskatta att du litar på den hjälp du fick av läkaren?	9. Hur skulle du uppskatta att du litar på den hjälp du fick av läkaren?	10. Fick du den hjälp som du förväntade dig?	11. Var det lätt att förstå och navigera sig i appen innan och under vårdbesöket?
2019-03-19 11:05:03	under 25	Ja	Nej									
2019-03-19 11:33:28	under 25	Ja	Nej									
2019-03-19 11:36:04	melan 45-65	Ja	Nej									
2019-03-19 12:12:34	melan 25-45	Ja	Nej									
2019-03-19 12:12:35	under 25	Nej	Nej									
2019-03-19 12:43:09	melan 25-45	Ja	Nej									
2019-03-19 17:45:04	melan 25-45	Ja	Nej									
2019-03-19 17:53:21	melan 45-65	Ja	Ja	Kommer ej ihåg	Influensa/förkyllning	3	3	3	3	3	Ja	3
2019-03-19 19:02:06	melan 25-45	Ja	Nej									
2019-03-19 19:59:02	under 25	Nej	Nej									
2019-03-19 22:00:13	melan 25-45	Ja	Nej									
2019-03-19 22:57:59	melan 25-45	Ja	Ja	Min Doktor	Influensa/förkyllning	5	5	5	5	5	Ja	5
2019-03-19 23:58:04	melan 25-45	Ja	Nej									
2019-03-20 07:44:47	melan 25-45	Ja	Nej									
2019-03-20 08:16:59	melan 25-45	Ja	Nej									
2019-03-20 10:16:32	melan 25-45	Ja	Nej									
2019-03-20 15:56:05	melan 45-65	Ja	Nej									
2019-03-20 17:37:10	under 25	Ja	Nej									
2019-03-20 19:45:30	under 25	Ja	Ja	Kry, Min doktor	Övrig åkomma	4	4	5	5	4	Ja	5
2019-03-21 09:46:52	under 25	Ja	Nej									
2019-03-21 09:50:59	melan 25-45	Ja	Ja	Kry	Kronisk sjukdom	5	5	5	5	5	Ja	5
2019-03-21 09:53:56	melan 25-45	Ja	Nej									
2019-03-21 10:00:17	under 25	Ja	Ja	Kry	Astmatalergi	3	3	3	3	1	Nej	5

12. Upplevde du en avsaknad av den fysiska undersökningen?	13a. Kan du tänka dig att använda dig av digitala vårdbesök igen?	13b. Vill du utveckla varför eller varför inte du skulle använda dig av ett digitalt läkarbesök igen?	14. Vilken av följande stämmer mest in på varför du skulle avstå från att söka läkarvård via en app?	15a. Anser du att digital sjukvård gynnar samhället?	15b. Vill du utveckla ditt svar?
			Har ingen uppfattning om varför jag skulle avstå	Har ingen uppfattning	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	Tror det kan vara en stor hjälp till de personer som har svårt att ta sig till ett sjukhus och därför drar sig från att söka hjälp i tid. Om de istället kan få hjälp digitalt kanske de kan få hjälp i tid och där av minska påföljderna som en väntan hade kunnat orsaka.
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Har ingen uppfattning om varför jag skulle avstå	Nej	
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Förstår inte konceptet av läkarvård i en app	Nej	Ett video samtal innebär att man begränsar mängden information som är tillgång för läkaren. Läkare ska enligt mig hantera sjukdomar som är mer komplicerade än en förkylning/fotövamp, och behöver därför mycket information för att göra en fullgod bedömning. Vid enklare åkommor där video samtal är ett fullgott alternativ (dvs mindre information är nödvändigt) så kan det mer eller mindre skötas av någon annan än just en läkare.
			Har ingen uppfattning om varför jag skulle avstå	Ja	För individen så tror jag att digital e-hälsa kan skapa trygghet för patienter. Ett sjukhus är en väldigt utsatt plats att befinna sig i för många och kan skapa ångslan eller ångest. Att då förflytta sjukvården till folks egna hem har möjlighet att motverka detta. Det finns även möjligheter för att ge sjuka människor en smidigare och mer kontinuerlig kommunikation mellan sjukvården och patienter. För samhället och sjukvården i stort så kan det tex minska värdkost på sjukhus vilket ger vården lättare möjligheter att prioritera och kunna ge bättre vård. Med god användarvänlighet och integritet skydd så tror jag att man kan skapa tillit med digitala system för hälsa. Min åsikt är dock att digital teknik aldrig kan ersätta den fysiska sjukvården, utan ska snarare sikta mot att förstärka den.
Nej	Ja		Har ingen uppfattning om varför jag skulle avstå	Ja	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	
			Kämlig app/förstår inte funktionaliteten	Ja	
			Förstår inte konceptet av läkarvård i en app	Har ingen uppfattning	
			Har ingen uppfattning om varför jag skulle avstå	Ja	
Nej	Ja	Smidigt, snabb vård när den behövs	Har ingen uppfattning om varför jag skulle avstå	Ja	Man slipper ta sig till sjukvårdsinrättning och man kan få hjälp snabbt och smidigt
			Har ingen uppfattning om varför jag skulle avstå	Ja	Det behövs fler alternativ när det sällan finns tillgång till tider på vanliga vårdcentralen.
			Har ingen uppfattning om varför jag skulle avstå	Har ingen uppfattning	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	Jag tror att man på ett mer effektivt sätt kan få läkarvård digitalt. På så sätt minskar tiden uteblivet arbete vilket i sig är bra för samhället. Dessutom hoppas jag att ledtiderna blir snabbare med digital läkarvård vilket även det skulle bidra till en positiv samhällsutveckling.
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	Inte idag. Det finns potential för att gynna samhället med digital vård, men då att den integreras i vården istället för att ses som ett alternativ/konkurrent. Just nu är det slöseri med skattepengar eftersom de digitala plattformarna suger ut den fysiska vården pga hur regelverks/ersättningsmodellen är uppbyggd.
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Förstår inte konceptet av läkarvård i en app	Nej	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	
Ja	Ja	Det är smidigt, bättre öppetider och kort väntetid	Har ingen uppfattning om varför jag skulle avstå	Ja	Det avlastar de fysiska vårdcentralerna som redan har extremt långa väntetider för besök.
			Förstår inte konceptet av läkarvård i en app	Ja	
Nej	Ja		Litar inte på läkarens kompetens	Ja	Jag tycker att det kan gynna mindre samhällen där folk kanske inte kan åka till en läkare, eller för äldre som har svårt att åka iväg
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	
Ja	Ja				

Tidstämpel	1. Din ålder?	2. Visste du att man kan söka läkare via en app?	3a. Har du någon gång sökt läkare via en app?	3b. Om du har sökt läkare via en app, vilken app använde du dig av då?	4. Vilken av följande stämmer bäst in på varför du senast genomförde ett digitalt läkarbesök?	5. Hur upplevde du vårdbesöket som helhet?	6. Hur upplevde du kommunikationen mellan dig och läkaren?	7. Hur upplevde du att läkaren förstod och lyssnade på ditt problem?	8. Hur skulle du uppskatta att du fick se läkaren?	9. Hur skulle du uppskatta att du fick se läkaren?	10. Fick du den hjälp som du förväntade dig?	11. Var det lätt att förstå och navigera sig i appen innan och under vårdbesöket?
2019-03-21 10.01.26	under 25	Ja	Nej									
2019-03-21 10.01.26	melan 25-45	Ja	Nej									
2019-03-21 10.05.24	melan 25-45	Ja	Nej									
2019-03-21 10.05.42	melan 25-45	Ja	Ja	Kiya	Övrig åkomma		4	4	4	4	4 Ja	4
2019-03-21 10.05.59	melan 25-45	Ja	Nej									
2019-03-21 10.09.38	melan 25-45	Ja	Nej									
2019-03-21 10.11.51	under 25	Ja	Nej									
2019-03-21 10.14.54	under 25	Ja	Nej									
2019-03-21 10.15.50	melan 25-45	Ja	Nej									
2019-03-21 10.27.02	melan 45-65	Ja	Nej									
2019-03-21 10.34.08	melan 25-45	Ja	Nej									
2019-03-21 10.37.17	melan 25-45	Ja	Nej									
2019-03-21 10.37.47	melan 25-45	Ja	Nej									
2019-03-21 10.39.14	melan 45-65	Ja	Nej									
2019-03-21 10.42.19	melan 25-45	Ja	Nej									
2019-03-21 10.49.45	melan 25-45	Ja	Nej									
2019-03-21 11.06.50	melan 45-65	Ja	Nej									
2019-03-21 11.33.06	melan 25-45	Ja	Ja	Kiy	Hudbesvär		1	2	1	1	2 Nej	4
2019-03-21 12.47.46	melan 25-45	Ja	Nej									
2019-03-21 13.33.06	över 65	Ja	Nej									
2019-03-21 13.43.45	melan 25-45	Ja	Nej									
2019-03-21 13.49.06	under 25	Nej	Nej			Kommer inte ihåg	3	4	4	4	3 Ja	3

12. Upplevde du en avsaknad av den fysiska undersökningen?	13a. Kan du tänka dig att använda dig av digitala vårdbesök igen?	13b. Vill du utveckla varför eller varför inte du skulle använda dig av ett digitalt läkarbesök igen?	14. Vilken av följande stämmer mest in på varför du skulle avstå från att söka läkare via en app?	15a. Anser du att digital sjukvård gynnar samhället?	15b. Vill du utveckla ditt svar?
			Litar inte på läkarens kompetens	Har ingen uppfattning	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	
			Litar inte på läkarens kompetens	Ja	För att gnälliga människor med "hitte på ont" belastar den vanliga vården/akuten. Dessa kan istället mälra sin oro digitalt. Sen finns det en del människor som har lättare "riktiga" åkommor som snabbt kan få hjälp genom en app.
Nej	Ja		Litar inte på hur mina personuppgifter hanteras	Ja	Kortare kö tid. Men synd att dem satt i privata kläder. Man vet ju inte i verklighet via en kamera om dem är läkare eller sköterskor
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Litar inte på hur mina personuppgifter hanteras	Ja	Det gynnar samhället i den mån att det är lättare att få kontakt med en läkare/sjuksköterska/undersköterska. Däremot så är det en enorm kostnad för landstingen därifrån många får remiss för mindre och ofarliga saker vilket i sin tur missgynnar samhället på lång sikt. Jag är klugen till för- och nackdelar.
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Litar inte på läkarens kompetens	Ja	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Har ingen uppfattning	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	Allt får inte bli FÖR digitalt styrt via mobil...det personliga mötet är fortfarande 2019 en bättre upplevelse än via videosamtal.
			Forstår inte konceptet av läkare via en app	Nej	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	Mjösamt och effektiviserande
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Har ingen uppfattning	
			Litar inte på läkarens kompetens	Nej	Allt blir mer o mer opersonligt i dagens samhälle. Vård o omsorg är något jag anser måste vara personlig. Är också orolig för bristande kompetens o svårigheter att granska kompetensen.
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	Kommer inte att vara ett bra alternativ förän viss teknik finns att tillgå. Så som att ta olika vården via telefonen. Stor sannolikhet att för många ärenden blir skickade till vårdcentralen, vilket är ett av huvudsyftena med digital sjukvård att motverka.
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	Jag vill värna om vårdcentraler och vill inte att mitt Landsting ska behöva betala en privat aktör. Om Landstinget själva skulle ha en app skulle jag kunna tänka mig använda den.
			Har ingen uppfattning om varför jag skulle avstå	Har ingen uppfattning	
Ja	Nej	Tror inte kompetensen hos läkare är såpass bra att de kan bedöma problem via bilder/video. Dessutom tror jag att läkare generellt väljer "den lätta vägen" då ett eventuellt återbesök för återkoppling är tidskrävande. Slutligen tror jag eventuell provtagning lätt hoppas över då det är mer komplicerat än vid ett fysiskt besök.	Litar inte på läkarens kompetens	Nej	I vissa fall, super. Då enklare besvär lätt kan avhjälpas, vissa hudåkommor osv. Men tror generellt att det är en oroad utveckling som leder till att vården tar genvägar vilket leder till missvisande diagnoser och i vissa fall överdriven medicinering. Tills möjligheten finns att faktiskt skicka med blodvärden osv. Bör man vara försiktig.
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	Hjälper till att avlasta vårdcentraler o akutavdelningar
			Litar inte på läkarens kompetens	Ja	
Ja	Ja		Litar inte på läkarens kompetens	Ja	

Tidstämpel	1. Din ålder?	2. Visste du att man kan söka läkarend via en app?	3a. Har du någon gång sökt läkarend via en app?	3b. Om du har sökt läkarend via en app, vilken app använde du dig av då?	4. Vilken av följande sättnar lätst du på varför du senast genomförde ett digitalt läkarbesök?	5. Hur upplevde du läkarbesöket som helhet?	6. Hur upplevde du kommunikationen mellan dig och läkaren?	7. Hur upplevde du att läkaren förstod och lyssnade på ditt problem?	8. Hur skulle du uppskatta den till du fick för läkaren?	9. Hur skulle du uppskatta att du litar på den hjälp du fick av läkaren?	10. Fick du den hjälp som du förväntade dig?	11. Var det lätt att förstå och navigera sig i appen innan och under läkarbesöket?
2019-03-21 14.24.44 mellan 25-45		Ja	Nej									
2019-03-21 14.26.14 mellan 25-45		Ja	Ja	Min doktor, Medico, KRY	Övrig åkomma		5	5	5	5	5 Ja	5
2019-03-21 14.50.29 över 65		Ja	Nej									
2019-03-21 15.17.00 mellan 25-45		Nej	Nej									
2019-03-21 15.32.04 mellan 25-45		Ja	Nej									
2019-03-21 15.41.55 mellan 25-45		Ja	Ja	Kry appen	Övrig åkomma		3	2	2	2	3 Nej	5
2019-03-21 16.45.19 mellan 25-45		Ja	Nej									
2019-03-21 17.11.15 mellan 25-45		Ja	Ja	Mins inte namnet	Hudbesvär		1	1	1	1	1 Nej	4
2019-03-21 17.55.22 mellan 25-45		Ja	Nej									
2019-03-21 18.01.57 över 65		Ja	Nej									
2019-03-21 18.09.56 över 65		Ja	Nej									
2019-03-21 18.31.19 mellan 45-65		Ja	Nej	Vårdcentral								
2019-03-21 18.51.08 mellan 25-45		Nej	Nej									
2019-03-21 18.51.26 mellan 25-45		Ja	Nej									
2019-03-21 19.53.47 mellan 25-45		Ja	Ja		Hudbesvär		4	5	5	4	4 Ja	5
2019-03-21 20.06.23 mellan 25-45		Ja	Nej									
2019-03-21 20.08.49 över 65		Ja	Nej									
2019-03-21 20.18.40 mellan 25-45		Ja	Nej									
2019-03-21 20.29.45 mellan 25-45		Ja	Nej									
2019-03-21 21.31.13 mellan 25-45		Nej	Nej									
2019-03-22 16.45.27 mellan 25-45		Nej	Nej									
2019-03-22 18.30.59 under 25		Ja	Nej									
2019-03-22 20.38.17 mellan 25-45		Ja	Nej									
2019-03-23 00.14.57 mellan 25-45		Ja	Nej									

12. Upplevde du en avsaknad av den fysiska undersökningen?	13a. Kan du tänka dig att använda dig av digitala vårdbesök igen?	13b. Vill du utveckla varför eller varför inte du skulle använda dig av ett digitalt läkarbesök igen?	14. Vilken av följande stämmer mest in på varför du skulle avstå från att söka läkare/vård via en app?	15a. Anser du att digital sjukvård gynnar samhället?	15b. Vill du utveckla ditt svar?
			Litar inte på hur mina personuppgifter hanteras	Ja	Lättare att komma i kontakt med en läkare. Slipper sitta i kö på vårdcentralen.
Nej	Ja		Har ingen uppfattning om varför jag skulle avstå	Ja	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Har ingen uppfattning	
			Litar inte på läkarens kompetens	Ja	Minskar risken för infektions- och sjukdomsspridning vid sjukhus/vårdcentral eftersom färre behöver söka sig dit. Minskar väntetidskö. Minskar arbetsbördan för personal genom att enklare åkommor hanteras snabbt på distans.
			Har ingen uppfattning om varför jag skulle avstå	Ja	
Ja	Ja	Det beror på lite vad det handlar om. Det är väldigt skönt att slippa ta sjuka barn till vårdcentralen	Har ingen uppfattning om varför jag skulle avstå	Har ingen uppfattning	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	Det är bra för de personer som är sjuka på det sättet att det smittar eller att man kanske vill få råd eller så. Det kan även vara bra om man har utslag osv.
Ja	Nej	Födelsemärke som läkaren inte alls ville ta bort men vid riktig undersökning togs beslut att den visst skulle bort	Litar inte på läkarens kompetens	Nej	
			Har ingen uppfattning om varför jag skulle avstå	Ja	Kan avlasta den primärvården
			Förstår inte konceptet av läkare/vård i en app	Har ingen uppfattning	
			Har ingen uppfattning om varför jag skulle avstå	Ja	Är säkert bra i dagens stressade samhälle där det ibland även är svårt att komma till vårdcentral men jag har aldrig utnyttjat det själv
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Litar inte på hur mina personuppgifter hanteras	Har ingen uppfattning	På fråga 14: jag är tveksam till - och lite otrygg - läkarens äkthet och hantering av mina journaler. Är ju rätt känslig data.
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	Både och. På ett sätt så får ju människor hjälp snabbare via en app (de som har tillgång till en smartphone och kan hantera den) men samtidigt tror jag att de flesta vill träffa en läkare om inte problemet lätt kan åtgärdas t ex förnyelse av recept.
Nej	Ja		Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Har ingen uppfattning	Jag träffar nog helst en läkare face to face
			Har ingen uppfattning om varför jag skulle avstå	Har ingen uppfattning	
			Litar inte på läkarens kompetens	Har ingen uppfattning	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	Man kan ringa 1177 för rådgivning men en riktig undersökning bör göras av en läkare för att känna, höra och se.
			Kränglig app/förstår inte funktionaliteten	Ja	
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Har ingen uppfattning om varför jag skulle avstå	Ja	Lättillgänglighet för patienter. Snabbare besöksider för patient och behandlare. Kostnadseffektivt för vården. Kostnadseffektivt för patient som kanske inte behöver ta ledigt från jobbet för ett vårdbesök.
			Har ingen uppfattning om varför jag skulle avstå	Ja	Man slipper ta sig hemifrån vilket kan vara jobbigt för vissa. Dessutom kan läkaren antagligen jobba hemifrån som också kan underlätta.

Tidstempel	1. Den älder?	2. Visste du att man kan söka läkarvård via en app?	3a. Har du någon gång sökt läkarvård via en app?	3b. Om du har sökt läkarvård via en app, vilken app använde du dig av (st)?	4. Vilken av följande uttarmen bäst in på varför du senast genomförde ett digitalt läkarbesök?	5. Hur upplevde du videobesöket som helhet?	6. Hur upplevde du kommunikationen mellan dig och läkaren?	7. Hur upplevde du att läkaren förstod och lyssnade på ditt problem?	8. Hur skulle du uppskatta den tillid du fick för läkaren?	9. Hur skulle du uppskatta att du litar på den hjälp du fick av läkaren?	10. Fick du den hjälp som du förväntade dig?	11. Var det lätt att förstå och navigera sig i appen innan och under videobesöket?
2019-03-23 08:07:06	melan 25-45	Ja	Ja	Kry	Ogörsbesvär		5	5	5	5	5 Ja	5
2019-03-24 23:44:14	melan 25-45	Ja	Ja	Kry	Övrig åkomma		4	4	4	4	4 Ja	5
2019-03-25 10:43:07	melan 25-45	Ja	Nej									
2019-03-25 20:11:06	under 25	Ja	Nej									
2019-03-28 14:28:49	melan 45-65	Ja	Nej									
2019-03-28 14:29:26	melan 25-45	Ja	Nej									
2019-03-28 14:31:35	under 25	Ja	Ja	kry, min doktor	Gynekologiska-kirurgiska besvär		4	5	3	4	5 Ja	5
2019-03-28 14:31:35	melan 45-65	Ja	Nej									
2019-03-28 14:32:21	melan 25-45	Nej	Nej									
2019-03-28 14:33:07	melan 25-45	Ja	Nej									
2019-03-28 14:36:24	melan 45-65	Ja	Ja	Kommer ej ihåg	Övrig åkomma		1	1	1	1	4 Nej	4
2019-03-28 14:39:23	melan 25-45	Ja	Ja	min doktor	Övrig åkomma		2	4	4	4	4 Nej	5
2019-03-28 14:39:45	under 25	Ja	Ja	Min doktor	Hudbesvär		5	4	5	5	5 Ja	4
2019-03-28 14:40:52	melan 25-45	Ja	Nej									
2019-03-28 14:43:48	melan 45-65	Nej	Nej									
2019-03-28 14:44:10	melan 25-45	Ja	Nej									
2019-03-28 14:44:38	under 25	Ja	Nej									
2019-03-28 14:45:37	melan 45-65	Ja	Nej									
2019-03-28 14:46:04	melan 25-45	Ja	Nej									
2019-03-28 14:46:39	melan 25-45	Ja	Ja		Övrig åkomma		2	2	2	1	2 Nej	3
2019-03-28 14:46:45	melan 25-45	Ja	Nej									
2019-03-28 14:51:01	melan 25-45	Ja	Nej									
2019-03-28 14:54:45	melan 25-45	Ja	Ja	Kry	Astmaläkning		3	3	3	3	2 Nej	4

12. Upplevde du en avsaknad av den fysiska undersökningen?	13a. Kan du tänka dig att använda dig av digitala vårdbesök igen?	13b. Vill du utveckla varför eller varför inte du skulle använda dig av ett digitalt läkarbesök igen?	14. Vilken av följande stämmer mest in på varför du skulle avstå från att söka läkarvård via en app?	15a. Anser du att digital sjukvård gynnar samhället?	15b. Vill du utveckla ditt svar?
Nej	Nej		Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	Digital vård bidrar till att underlätta den fysiska vården
Nej	Ja		Tror att mitt problem/åkomma är för komplex för att ta över videosamtal Har ingen uppfattning om varför jag skulle avstå	Ja	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	Jag tror det är ett bra komplement till ett fysiskt besök. Det kan fungera som en trätt in i övriga vården. Många besvär går att diagnostisera relativt väl endast baserat på anamnesen, eller åtminstone utifrån denna fatta ett beslut kring vilka vidare undersökningar som behöver göras. Då kan patienten i ex efter denna första bedömning av läkaren uppsöka sin vårdcentral för att lämna blodprover, men behöver ett mindre fysiskt besök med läkaren.
			Förstår inte konceptet av läkarvård i en app	Nej	Forbättra vårdcentralen istället och lägg pengarna på det!
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	
Nej	Ja	snabbt, smidigt och enkelt, negativt är att de inte kan skriva ut ett preventivmedel ska vara subventionerat	Har ingen uppfattning om varför jag skulle avstå	Ja	
			Förstår inte konceptet av läkarvård i en app	Nej	Rädd för att risken med digital läkarvård medför missade diagnoser/behandlingar
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Kärlig app/förstår inte funktionaliteten	Ja	bra komplement till "vanlig vård" vid lättare åkommor
Nej	Nej	Läkaren förstod inte det svenska språket, och språkförbistring är en stor fara!	Litar inte på läkarens kompetens	Nej	
Ja	Nej	gav ingen hjälp, fick inte penicillin till min son, rent politiskt tycker jag det är slöseri med skattepengar, apparna kostar mycket för landstingen, det som jag tror kunde fungera är psykologisk hjälp	Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	bättre att satsa på tillgängligheten i primärvården
Nej	Ja	att använda digitalt underlättar eftersom jag kunde göra det hemifrån och inte behövde lämna jobbet för att söka hjälp	Har ingen uppfattning om varför jag skulle avstå	Ja	För att du inte behöver ta ledigt från jobb, utan du kan istället söka hjälp när du kommer hem digitalt istället
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	för de som känner sig bekväm med att möta sin läkare via skärm är det säkert väldigt smidigt. Kan kanske på sikt avlasta vårdcentralerna, bra i så fall
			Har ingen uppfattning om varför jag skulle avstå	Ja	jag kan tänka mig att använda app och digital läkarvård, visste inte att det fanns som app
			Förstår inte konceptet av läkarvård i en app	Nej	att pengar tas från fel ställen för att gynna småsaker är inget jag gillar. däremot om region skänker egen app
			Har ingen uppfattning om varför jag skulle avstå	Ja	
			Har ingen uppfattning om varför jag skulle avstå	Ja	
Ja	Nej		Har ingen uppfattning om varför jag skulle avstå	Har ingen uppfattning	
			Förstår inte konceptet av läkarvård i en app	Nej	
			Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	onödigt kostnad för samhället
			Förstår inte konceptet av läkarvård i en app	Nej	I nuvarande form tar digital läkarvård resurser från vården istället för att bidra, genom att kosta mycket men tillför inte mycket då många söker för besvär som inte är sjukvårdskrävande. de som har besvär som är sjukvårdskrävande hänvisas ofta ändå en fysisk vårdgivare.
Ja	Ja	Smidigt. Går fort.	Litar inte på läkarens kompetens	Ja	För lättare åkommor och problematik som tex utretts tidigare är det ett smidigt sätt att få läkarkontakt. Särskilt när det nuförtiden är svårt att få en läkartid på vc.

Tidstämpel	1. Din ålder?	2. Visste du att man kan söka läkare via en app?	3a. Hur du någon gång sökt läkare via en app?	3b. Om du har sökt läkare via en app, vilken app använde du dig av då?	4. Vilken av följande stämmer bäst in på varför du senast genomförde ett digitalt läkarbesök?	5. Hur upplevde du vårdbesöket som helhet?	6. Hur upplevde du kommunikationen mellan dig och läkaren?	7. Hur upplevde du att läkaren förstod och lyssnade på ditt problem?	8. Hur skulle du uppskatta den tid du fick för läkaren?	9. Hur skulle du uppskatta att du lär på den hjälp du fick av läkaren?	10. Fick du den hjälp som du förväntade dig?	11. Var det lätt att förstå och navigera sig i appen innan och under vårdbesöket?
2019-03-28 15.45.47	melan 25-45	Ja	Ja	<a href="#">doktor.se</a>	Influensa/förkyllning	5	4	4	5	5	Ja	5
2019-03-28 16.22.47	melan 25-45	Ja	Ja	Ureksollen	Gynekologiska- urologiska besvär	5	4	4	4	4	Ja	5
2019-03-28 19.08.14	melan 25-45	Ja	Nej									

12. Upplevde du en avsaknad av den fysiska undersökningen?	13a. Kan du tänka dig att använda dig av digitala vårdbesök igen?	13b. Vill du utveckla varför eller varför inte du skulle använda dig av ett digitalt läkarbesök igen?	14. Vilken av följande stämmer mest in på varför du skulle avstå från att söka läkare via en app?	15a. Anser du att digital sjukvård gynnar samhället?	15b. Vill du utveckla ditt svar?
Nej	Ja		Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Nej	digital sjukvård är bra för tillgängligheten, men också väldigt kostsamt för samhället
Nej	Ja	Otroligt smidigt när jag var på resande fot några dagar innan nyårsaffon.	Tror att mitt problem/åkomma är för komplex för att ta över videosamtal	Ja	Småbarnsföräldrar där barn får enklare åkommor slipper logistiken att ta sig till VC, administrering av regelbundna recept etc.
			Förstår inte konceptet av läkare via en app	Nej	Angående fråga 14, jag förstår konceptet men jag tror inte på det. Jag förstår varför man ur en företagssynpunkt vill bedriva den typen av vård. Jag förstår bara inte varför vi som skattebetalare ska betala för denna typ av vård. Det vore rimligare om de som önskar läkare via app betalar för den vården själva. Jag tror att vi behöver möta läkaren. Problematiken som uppstår vid dålig teckning, stor miljö, etc kan enkelt bli ett hinder i kommunikationen vilket kan medföra fel vid diagnostisering. All form av förenklare är inte alltid rätt väg att gå.