SCHOOL OF
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Bachelor's Programme in Economy and Society

The Patterns of Use of Private Digital Primary Healthcare and Its Implications to Region Skåne

A Case Study of Bachelor Students at Lund University School of Economics and Management (LUSEM)

by

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Abstract: The research aims to investigate and identify private digital primary healthcare usage patterns, introduced in Sweden in early 2016. The research has been limited to LUSEM bachelor students and its financial implications for the region of Skåne. The research takes a quantitative approach by using an online survey. Further, the study aims to provide insights into the region's finances and incentivize policymakers to adapt the healthcare system based on the findings, considering the efficiencies digital technologies offer healthcare delivery, especially since COVID-19. However, the risk of getting COVID–19 during a physical healthcare visit had little to no effect on whether students have used private digital healthcare. The data analysis revealed that many LUSEM students trust public physical healthcare more than private digital healthcare. However, they still opt for private digital healthcare due to its convenience. Students seeking private digital healthcare are often redirected to public physical healthcare centers, duplicating healthcare issues through out-of-county costs. Therefore, region Skåne should focus on establishing an efficient and student-centric digital healthcare system to avoid out-of-county costs. However, the results showed limited statistical significance, yet the data results are still relevant to understanding private digital healthcare and highlight the topic's importance.

Keywords: Digital Primary Healthcare, Health Digitalization, Health Transition, Health Economics, Lund, Sweden, Lund University Bachelor School of Economics and Management Students.

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Definition of Fundamental Concepts

Digital Healthcare…

Refers to remote and digital healthcare contact with synchronous (in real-time) and asynchronous (with a delay) (Socialstyrelsen, 2018). It is any digital communication between a patient and healthcare professional, for example, through digital platforms such as mobile applications, video links, chats, and image messages (Socialstyrelsen, 2018).

Digital Health Literacy…

Refers to effectively accessing and understanding digital health information and using technologies. Digital health literacy is the skill to navigate and evaluate health information to establish an individual's well-being and, further, the ability to communicate healthcare issues through digital platforms (Knitza et al. 2020).

Digital Natives

Refers to an individual who has grown up in the digital age and has been exposed to digital technologies from an early age. Therefore, they are comfortable using digital technologies daily (Prensky, 2001). According to Prensky (2001), digital natives are associated with younger generations, such as millennials.

Health Economics…

Refers to a branch of economics used to understand, analyze, and assess healthcare systems, interventions, and allocating healthcare resources; Further, health economics involves evaluating the distribution and consumption of healthcare goods and services considering the behavior of individuals, healthcare providers, and governments (Folkhälsomyndigheten, 2023). Therefore, it examines factors influencing healthcare decision-making, such as costs, benefits, efficiency, and potential trade-offs (WHO, 2023).

Primary Healthcare…

Refers to essential and fundamental healthcare services accessible to individuals. It is usually the initial point of contact with the healthcare system, and primary healthcare focuses on providing comprehensive healthcare (WHO, 2008).

List of Abbreviations

Artificial intelligence	AI
Digital health literacy	DHL
Digital primary healthcare	DPH
Hälso- och sjukvårdslagen [The Health Care Act]	HSL
Inspektion för vård och omsorg [Inspection for Health and Care]	IVO
Lag om valfrihetssystem [The Act on Systems of Choice]	LOV
Lunds Universitet [Lund University]	LU
Lund University School of Economics and Management	LUSEM
Patientlagen [Patient Act]	PA
Sveriges Kommuner och Regioner [Swedish Association of Local Authorities and Regions]	SKR

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1 Introduction

The digital healthcare industry has grown immensely in Sweden since its introduction in mid-2016. Digital Primary Healthcare (DPH) refers to digital contact with a healthcare professional. Public and private providers provide DPH in Sweden, whereas popular private providers are companies such as *Kry*, *Doktor.se*, and *Doktor24*. Private DPH uses online doctors, who, similar to physical doctors, can solve milder diseases, write referrals, and prescribe prescriptions (Ekman, 2018). The positive effects of digital healthcare have been apparent since many Swedish citizens use digital healthcare services, and it has become a part of the standard Swedish healthcare system. DPH allows individuals easy access to primary healthcare and patients to become more involved in their healthcare as long as they can access the internet and have an electronic device such as a mobile phone, tablet, or computer (Blixt & Jeansson, 2018; Ekman et al. 2019). On the other hand, private DPH has financial implications for the healthcare regions due to the out-of-county compensation, as regions need to financially compensate for their patients' visits to private digital healthcare providers.

The research question follows "What are the patterns in using private digital primary healthcare among Lund University School of Economics and Management (LUSEM) bachelor students throughout their studies? How does this affect the financial situation of Region Skåne?". The methodology for the research takes a quantitative approach, and the data will be conducted in an online Google Forms survey.

1.1 Research Problem

Swedish citizens are legally allowed to seek healthcare anywhere in Sweden, no matter where the individual is listed for healthcare. Therefore, private DPH visits are considered out-of-county, healthcare visits in other regions than where the person is listed, and the out-of-county healthcare visits are financially compensated by the region the patient is listed. The out-of-county compensation implies unforeseen expenses for healthcare regions in Sweden. Therefore, as private DPH leads to unpredictable costs for different healthcare regions, the topic is interesting for maintaining a sustainable healthcare economy.

The out-of-county compensation model allows private DPH providers to operate, and private DPH has resulted in a larger supply of primary healthcare for the Swedish population. However, critiques towards private DPH are commonly related to whether private DPH providers utilize the out-of-county visit compensation model and are incentivized by profits. A further concern is a need for a shared healthcare system between public and private healthcare. Therefore, using private DPH risks causing gaps in the Swedish healthcare system. As private DPH has become prevalent, it is interesting to investigate the characteristics of users of digital healthcare and for what issues digital healthcare services are used.

1.2 Research Aim and Scope

The bachelor thesis aims to understand the pattern in the use of digital healthcare among bachelor students. Due to the scope of a bachelor thesis, the research concerns the region of Skåne. Specifically, bachelor students at Lund University School of Economics and Management (LUSEM) will be investigated. University students are known to live a stressful lifestyle; therefore, digital healthcare is a feasible alternative for students seeking healthcare. Furthermore, nowadays, students are digital natives and will comprise the older population of the future. Therefore, the utilization patterns of LUSEM students will serve as a benchmark for Lund University (LU) students' usage of DPH. Further, this benchmark will serve as a means of determining the costs a LU student implies for region Skåne during their studies.

1.3 Research Implications

The first research implication is to understand bachelor students' use patterns and attitudes towards private DPH. Further, LUSEM bachelor students may reflect on their healthcare behaviors by answering the survey questions. Therefore, the second research implication refers to this specific case. In contrast, the monetary costs of the students' out-of-county healthcare visits to private DPH imply, during their studies, have implied for region Skåne. Therefore, it is interesting to address the potential issues of private DPH due to the out-of-county compensation and as students do not contribute to the welfare through taxes, except students working students who pay taxes. Therefore, one could assume that students have a negative impact on region Skåne's healthcare budget. Thus, this research can help region Skåne understand students' use of

private DPH and incentivize region Skåne to form a solution that meets the needs of students' healthcare issues, which is possible if trends in usage are found and understood.

1.4 Relevance for BSc in Economy and Society

The topic of private DPH providers is a relevant and recurrent topic for a bachelor thesis (BSc in *Economy and Society*) as it incorporates multiple central perspectives: What impact do digitalization, innovation, and development within the healthcare sector have on individuals and how it affects the financial situation of Swedish healthcare. Furthermore, the topic of digital healthcare allows for analysis and discussion.

2 Context

2.1 Decentralized Healthcare System

Sweden is divided into 21 regions working autonomously with primary healthcare to meet the population's needs within each region (Socialstyrelsen, 2022; Sweden Country Health Profile, 2021). Therefore, different regions have different proceedings that may result in inconsistencies within the system, resulting in inequalities. On the other hand, a national framework for primary healthcare exists, and several laws protect individuals to ensure they can access high-quality healthcare. For example, "Hälso- och sjukvårdslag (2017:30)" [healthcare act] claims healthcare should be accessible and equal for all (Sveriges Riksdag, 2017).

According to Blixt and Jeansson (2018), two critical issues within Swedish healthcare are the lack of accessibility and inconsistency within the system. Therefore, utilizing private digital healthcare providers can facilitate primary healthcare, as a problem within the Swedish health system is allocating limited resources (Arwidson & Lidé, 2018). Inconsistencies in the healthcare system are related to quality, availability, and the challenges faced as regions work autonomously.

2.2 Digital Healthcare in Sweden

The traditional procedure for obtaining primary care in Sweden is to visit a primary healthcare center or use 1177.se [a gathered website for information and services for healthcare guidance, a collaboration between all healthcare regions] (Ekman, 2018; Johansson, 2020). Equal access to healthcare is one of the core focuses for Swedish healthcare, as the Swedish government claims individuals, no matter socioeconomic backgrounds, should have the same prerequisites (eHälsomyndigheten, 2023).

The use of DPH within the Swedish healthcare system has increased since mid-2016 in Sweden (Blixt & Jeansson, 2018; Ekman et al. 2019; Nordqvist et al. 2022), and the DPH industry is expected to increase in terms of scale and scope (Ekman, 2018). Sweden's healthcare system is, as mentioned, decentralized. Swedish healthcare is funded by taxes, and generally, considered high-quality (Swedish Institute, 2021). Compared to the rest of the EU, Sweden is one of the

countries spending the highest share of their GDP, 11.21%, on healthcare in 2021 (World Bank, 2023).

2.3 The Expansion of Digital Healthcare in Sweden

The rise of DHP has been possible due to various laws and regulations, for example, *Lag (2008:962) om valfrihetssystem* (LOV) [the act on systems of choice], and *Patientlagen (2014:821)* [patient act], establishes that individuals are legally allowed to choose their healthcare. Therefore, out-of-county visits are possible, and private digital healthcare providers are obligated to compensation. Without LOV, private digital doctors could not operate (Blixt & Jeansson, 2018). Digitalization within the public sector has evolved relatively slowly and late compared to other countries; private providers have been the leading developers for DPH (Ekman, 2018; Blixt & Jeansson, 2018).

An example of the utilization of the system is the case of *Doktor.se* (Blixt & Jeansson, 2018). *Doktor.se* is a private healthcare provider offering both digital and in-office healthcare services (Doktor.se, 2023). The company purchased a healthcare facility in Sörmland, formerly the only region with free-of-charge primary healthcare for adults. Therefore, since individuals have the lawful right to seek healthcare in any region, all people in Sweden could access free primary healthcare at the beginning of 2018. Consequently, about two to three months after this, Sveriges Kommuner och Landsting (SKL) established a minimum pay for digital healthcare in Sweden to prevent this imbalance (Blixt & Jeansson, 2018).

Generally, patients seem satisfied with DPH (Blixt & Jeansson, 2018; Ekman, 2018; Ekman et al. 2018). Whether digital healthcare providers indirectly promote exaggerated use show that it depends on how digital healthcare is systematized (Blixt & Jeansson, 2018; Lagerros et al. 2019).

***Table 1*: Healthcare Regions in Sweden**

Blekinge	Kalmar län	Värmland
Dalarna	Kronoberg	Västerbotten
Gotland	Norrbotten	Västernorrland
Gävleborg	Skåne	Västmanland
Halland	Stockholms län	Västra Götaland
Jämtland Härjedalen	Sörmland	Örebro län
Jönköpings län	Uppsala län	Östergötland

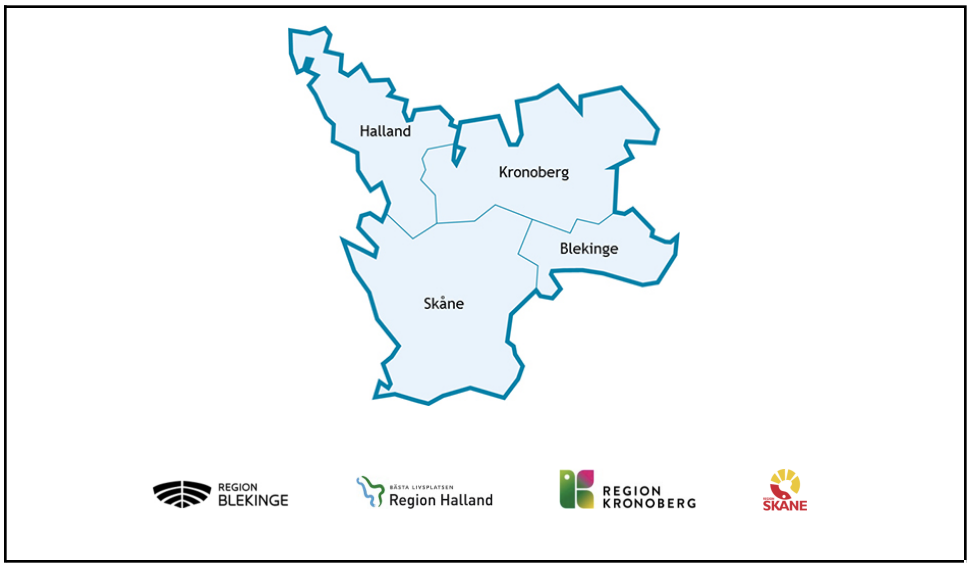
Source: 1177.se (2023)

2.4 Out-of-County Healthcare Visits and the Compensation Model

The out-of-county compensation means DPH providers have the right to compensation for taking care of patients; this results in unpredictable primary care visits that are hard to foresee, and the regions where people are listed have to compensate the DPH provider (Nordqvist et al. 2022). The out-of-county compensation for a DPH meeting (with a doctor) is 500 SEK, and there is no limit to the number of visits a digital healthcare provider can accept (Nordqvist et al. 2022). Therefore, the more visits a digital healthcare provider accepts, the more compensation they will receive. For example, Dahlberg (2022) explains that most of *Kry's* digital healthcare meetings are for unlisted patients listed in other regions. Meanwhile, there is a risk of excessive use of private DPH as, according to Läkarförbundet, private DPH providers promote what Läkarförbundet considers unnecessary use of healthcare, for example, that it is unnecessary to contact a doctor for a cold (Cederberg, 2019b). Therefore, there is a risk private DPH providers potentially drain the region's budget for primary healthcare.

Södra sjukvårdsregionen consists of region Blekinge, region Halland, region Kronoberg, and region Skåne (*Figure 1*), and, therefore, the out-of-county healthcare compensation is the same in these regions. In *Table 2,* the out-of-county cost for meeting a digital doctor was approximately 1500 SEK between 2016 and 2017; however, with the expansion and accessibility of digital healthcare, the out-of-county compensation has decreased to 500 SEK for meeting a digital doctor. The same pattern, the out-of-county costs decreasing, can be seen in meeting other

healthcare professionals, nurses, and psychologists. The reduction in out-of-county compensation has been stagnant since the decrease from 2019 to 2020 (*Table 2*), which can be explained by the understanding from policymakers that the digital healthcare system could be utilized.



Source: (Södra sjukvårdsregionen, 2023)

***Figure 1*: Södra Sjukvårdsregionen [Southern Healthcare Region]**

***Table 2*: Out-of-county Compensation in SEK for Digital Healthcare Over Time Södra Sjukvårdsnämnden [Southern Healthcare Board]**

	Nurse	Doctor	Psychologist
2016	Data missing	1500	Data missing
2017	Data missing	1539	Data missing
2018	300	650	600
2019	300	650	600
2020	275	500	435
2021	275	500	435
2022	275	500	435
2023	275	500	435

Source: Södra Regionvårdsnämnden (2016; 2017; 2018; 2019; 2020; 2021; 2022; 2023)

2.5 Challenges Digitalization Implies on Primary Healthcare

There is a systematic problem that private DPH providers and in-office healthcare are financed with different compensation models. Digital healthcare providers are compensated for the number of visits, and in-office health centers are mainly paid per patient [kapiteringsersättning]; however, both providers operate in the same market with the same patients (Nordqvist et al. 2022). Furthermore, it is hard for physical, primary healthcare providers to follow up on the patient's healthcare status due to out-of-county DPH visits; it becomes vague who is responsible for the patient's health, and since private DPH providers and physical, public healthcare centers do not work parallel (Ekman, 2018; Lagerros et al. 2019).

According to Nordqvist et al. (2022) and Luts and Bergling (2021), there has been a decrease in in-office-based healthcare visits since 2019, partly explained by the COVID–19 pandemic. However, the authors claim physical visits to healthcare facilities started to decline before the expansion of digital primary healthcare providers. Due to the outbreak of COVID–19 and the decline in physical healthcare visits before digital healthcare providers became popular, it is hard to determine to what extent DPH has replaced traditional physical primary healthcare.

Dahlberg (2022) emphasizes that it is problematic that private actors earn large profits, however, do not fulfill patients' needs, leaving the rest of the medical process to the public healthcare providers. To solve such a problem, Blixt and Jeansson (2018) suggest adjusting the healthcare system by allocating resources efficiently. Further, Blixt and Jeansson (2018) explain that one main advantage of digital healthcare is addressing patients to the correct departments. Cederberg (2019a) states that artificial intelligence (AI) helps direct patients. Other authors, such as Arwidson and Lidé (2018), support digitalization within healthcare as the solution to adapt to patients' new needs. Other arguments supporting digital healthcare are minimized risk of contamination of infectious diseases when there is no need for a physical meeting and the accessibility it provides for people who cannot afford or have the possibility to leave work, which is beneficial for employers and employees (Blixt & Jeansson, 2018).

Based on the data by region Skåne (2021), there was a 10% budget increase in spending on "Köp av verksamhet, material och tjänster" [purchase of business, materials, and services] from 2020

to 2021. Accordingly, the budget for this category was exceeded by 1 474.4 million SEK, as the budget for 2021 was 9 952.6 million SEK. The increase in spending contributed to a negative result for the healthcare sector. Region Skåne explains the budget was exceeded; for instance, due to the purchase (out-of-county compensation), the region had to pay private digital healthcare providers, and the inability of region Skåne to fulfill their patient needs, with the healthcare patients are guaranteed.

2.6 Vision e-hälsa 2025 [Vision e-Health 2025]

Many agree that digitalization can improve efficiency. Thus, according to eHälsomyndigheten (2016) [coordinates the government's initiatives on e-health], Sweden aims to be the world's leading country for utilizing digitalization as a tool to enhance and construct a more efficient healthcare system by 2025, a declared action in March 2016 called *Vision e-hälsa 2025* [Vision e-health 2025]. Digitalization has the potential to promote development in the healthcare sector. However, an adequate model for DPH needs to be established to achieve the goals of *Vision e-hälsa* by 2025.

3 Theory

3.1 Literature Review

The existing literature on digital healthcare is commonly related to the lack of digital health literacy (DHL) for medical students. However, there is a gap in knowledge between students' use of digital healthcare and its costs. Several studies show that the attitude toward digital healthcare is positive; on the other hand, the literature commonly addresses concerns related to security. Generally, there is consensus in the literature that more research is needed.

According to an analysis by Ekman (2018), digital healthcare has cost advantages and efficiency gains compared to traditional in-office visits. The benefits apply to both the users and the payers; in 2017, the economic cost for a digital consultation was 1 960 SEK. Meanwhile, the cost for a traditional office-based meeting costs 3 348 SEK. Further, Ekman (2018) claims an in-office visit is longer than a DPH visit. According to Blixt and Jeansson (2018), digital meetings lead to the efficient use of doctors, as, for example, net doctors are not restricted geographically. Further, Ekman et al. (2019) explain the primary users of digital healthcare are young adults aged 18-29 and parents of young children and that women are overrepresented as users. However, as the Swedish population faces demographic changes and is becoming older, a strong focus should be placed on addressing digital healthcare for the older population (Arwidson & Lidé, 2018); This is challenging as a study by PricewaterhouseCoopers (PWC) showed that older people do not prefer digital healthcare visits. Meanwhile, younger people consider the digitalization of healthcare a given fact as they have grown up during the digital age (Arwidson & Lidé, 2018). The use of DPH does not necessarily reflect the care needs in Sweden; therefore, fewer in-office-based healthcare visits may lead to less physical healthcare, resulting in injustice in accessibility to healthcare (Lagerros et al. 2019). Accessibility and lower costs explain why people opt for digital healthcare over physical healthcare. When comparing traditional in-office healthcare visits to digital healthcare visits, digital meetings imply lower costs for individuals, for example, in terms of time; therefore, digital healthcare has become used to a more significant extent.

3.1.1 Medical Students: Future Healthcare Professionals

Mosch et al. (2020) investigated perceived knowledge and opinions of digital health among 451 medical students from 39 European countries in 2018. The paper's main findings concluded that digital health literacy (DHL) and digital skills among future healthcare professionals, and medical students, are essential for utilizing the potential of digital technologies. Overall, the findings revealed that most medical students are positive towards digitizing healthcare and want to play an active role in advancing digital healthcare; however, medical students need more skills for digital health.

Mosch et al. (2020) explain digital health technologies as a critical solution to the challenges COVID–19 has revealed. As digital healthcare changes the potential to deliver healthcare, the authors argue that digital healthcare can lead to better well-being among millions of people. The study showed that most medical students saw potential in using digital tools for healthcare. However, although 40.6% (183/451) of the medical students felt prepared to work in a digitalized healthcare system, 53.2% (240/451) considered their digital skills poor or very poor. The statistics indicate a gap between the medical curricula and medical students' requirements.

Nevertheless, among the respondents, 84.9% (383/451) agreed or strongly agreed to implement digital healthcare knowledge in the medical curricula. As the study shows a lack of digital health-related knowledge, such as DHL, for European medical students (Mosch et al. 2020), one can assume the same applies to other students at other faculties, who, assumingly, are the expected users of digital healthcare. (own). Further, this study indicates that digital healthcare is beneficial; however, the future working force needs to feel more prepared.

Mosch et al. (2020) findings indicate a gap between the willingness to use digital healthcare tools among medical students and the abilities received by the medical faculties. In short, more training on digital health is needed before these European medical students enter their professional life. Mosch et al. (2020) believe their findings should be a starting point for further research in the digital healthcare area.

Wilson et al. (2020) review the literature on students' digital healthcare experiences. Their conclusions indicate the importance of preparing medical students for the future challenges a digital workplace encounters, significantly enhancing and maintaining the quality of patient care delivered. Therefore, Wilson et al. (2020) emphasize how higher education institutions managing medical education curricula should be improved by integrating digital technology into education.

A study by Thapa et al. (2021) in Saudi Arabia concluded that out of 154 medical students, 115 (74.7%) were willing to use digital tools in patient care. Thapa et al. (2021) claim that digital healthcare tools may reduce the demand for in-office consultations, prevent unnecessary hospitalization, and improve postoperative monitoring of patients. On the other hand, it is challenging to adopt digital healthcare systems due to their complexity, and digital healthcare faces a variety of barriers, for example, systematic (Thapa et al. 2021).

Thapa et al. (2021) claim that digital healthcare's quality and effectiveness depend on the type of service and setting. Among the students, Thapa et al. (2021) found that being further into one's studies, for example, being a third-year or senior student, indicated an increase in willingness to use digital tools in patient care. Generally, most respondents had a positive attitude toward digitalization in the healthcare sector; the medical students were positive due to the potential to increase the quality of patient care (Thapa et al. 2021).

The Saudi Arabian study also investigated healthcare professionals' attitudes toward digital healthcare. The findings showed that, similarly to the university students, the healthcare professionals had a positive attitude towards digital healthcare, hence, were willing to adopt new systems (Thapa et al. 2021). The positive attitudes were related to positive impacts on patients and their sense of self-efficacy (Thapa et al. 2021). Willingness to use digital tools has varied among healthcare professionals, whereas sociodemographic characteristics, such as age and gender, have been influential. According to Thapa et al. (2021), Menachemi and Brooks (2006) reported that the willingness to use digital healthcare tools was significantly higher among male healthcare professionals and those with long years of experience. However, concerns related to digital healthcare were related to the quality and security of digital healthcare tools. Furthermore,

Thapa et al. (2021) indicate that the challenges of digital healthcare limit the adoption of new systems.

Seeman et al. (2022) conducted a study in Berlin, Germany, about the knowledge and attitudes toward digital healthcare tools for medical students, showing a gap in the medical curricula and future work. Furthermore, according to Seemann et al. (2022), the COVID–19 pandemic has been a catalyst for digitizing healthcare and contributed to developing digital healthcare technologies. Among the respondents, 90% of the medical students (31/34) believed digital medicine would influence their future medical work. Nevertheless, when asked about their current medical students, more than 85% (29/34) considered digital medicine insufficient in the medical curricula. Seemann et al. (2022) highlight that medical students need more competencies in using digital healthcare tools, as it is expected to be a part of their future medical work. Therefore, developing the overall medical curricula to educate digitally competent medical professionals is crucial.

3.1.2 Students: Users of Digital Healthcare

A study conducted by Montagni et al. (2018) in France in 2017 explores the opinions of university students on digital health use. Montagni et al. (2018) explain that students are digital natives and, therefore, familiar internet users for obtaining health information. Overall, students rely primarily on official and institutional websites. Montagni et al. (2018) claim there were significantly different characteristics in using digital health related to the field and year of study, and demographics such as gender, whereas the most common users were women.

Montagni et al. (2018) found that more than half of the students who obtained online health information did not seek further healthcare as the available health information was sufficient for making personal decisions about the health issue. On the other hand, the students who sought healthcare after obtaining information online still consulted a health professional because the information confirmed their health issues were ‘real’ and needed to be treated. The findings Montagni et al. (2018) present suggest that online health information motivates young people to consult their health issues with a health professional if the problem is rather severe.

The study by Montgni et al. (2018) demonstrates the importance of online health information provided by official institutions for students to address their health issues correctly. Therefore, by using online information, the workload for healthcare systems can be supported. On the other hand, concerns related to digital healthcare are related to security issues.

According to Vrdelja et al. (2021), digital health literacy (DHL) is essential when discussing online health. Accordingly, Slovenian students need help finding and selecting health information and assessing reliable information (Vrdelja et al. 2021). Vrdelja et al. (2021) conducted a study in Slovenia. When asked about their current medical students, more than 85% (29/34) considered digital medicine insufficient in the medical curricula; meanwhile, students with a lack of knowledge of DHL tend to use social media for healthcare information. Therefore, it would be beneficial to intervene with students to promote skills that allow students to find reliable and relevant information online (Vrdelja et al. 2021). Vrdelja et al. (2021) present that many students agree they need help finding relevant information; furthermore, the Slovenian students expressed concerns when choosing from all available information.

According to the World Health Organization (WHO) (2020), infodemic was a relevant problem that became apparent during the rise of the COVID–19 pandemic. Infodemic refers to rapidly spreading information, including misinformation and rumors (WHO, 2020). Therefore, as people have been overwhelmed with COVID–19 information during the past few years, it may have been complex for individuals to understand the issues due to poor health literacy (Vrdelja et al. 2021). Continuing, sufficient health literacy can help individuals understand health care information to a better extent and prevent panic reactions.

3.1.3 National Surveys

An Australian study by Lee et al. (2022) addressed the use of digital healthcare after the COVID–19 pandemic. The study concluded that participants were skeptical about health information being tracked digitally, and this pattern was accentuated if it concerned private or for-profit health businesses. In the study, a survey with 1 778 respondents above 18 years old was collected, and 19% were unwilling to use digital health technologies. Therefore, Lee et al. (2022) conclude that improving digital health literacy (DHL) for individuals, especially those

with lower educational attainment, is crucial to further convince the use of digital healthcare. Respondents with lower educational attainment indicated a negative attitude towards digital healthcare compared to those with a bachelor's degree or above. (Lee et al. 2022). The COVID–19 pandemic has made most of the Australian population open to adopting digital alternative methods of care (Lee et al. 2022). The authors question whether people can incorporate digital healthcare into their regular healthcare beyond using digital tools for medical appointments. (Lee et al. 2022). However, to successfully integrate digital healthcare alternatives as a part of the standard Australian healthcare system, improving DHL, and raising awareness for the benefits and risks associated with digital healthcare technologies, must be addressed.

Sounderajah et al. (2021) conducted a national survey in the United Kingdom (U.K.) to investigate the readiness for digital health strategies for COVID–19. The sample size was 2 040 respondents. Sounderajah et al. (2021) questioned if using digital public health tools concerning COVID-19 potentially marginalize specific populations from accessing information. For example, Sounderajah et al. (2021) highlight that different demographic groups may be at risk for digital exclusion, such as age, social grade, educational attainment, and ethnic minorities. However, the results showed that amongst 2 040 respondents, 99% (2 024/2 040) have access to a digital device. Further, of all respondents aged 18-19, 87% (651/746) had access to digital devices, compared to the ages 60+, 85% had access to digital health (522/615); these results show that with regards to age, access to digital devices was relatively equal.

The results of the study by Sounderajah et al. (2021) showed that 41% (836/2 024) of the respondents used their digital device to obtain COVID–19–specific information; among the answers, younger people had a higher tendency. Further, 70% (1 423/2 040) of respondents felt confident using online or app-based information to make personal health decisions. However, among these, females over 60 years and in a lower social grade were less confident using online or app-based information to make personal health decisions. Similarly, respondents of lower social grades and educational attainment felt significantly less confident knowing how to use the Internet to answer health-related questions. Therefore, the study concluded that whether the respondents felt less prepared to adopt digital health strategies regarding COVID–19 was related to older age, lower social grade, and educational attainment. Concerns related to the adoption of

digital healthcare tools were privacy and security. Further, Sounderajah et al. (2021) findings aim to incentivize policymakers and healthcare providers to consider the use patterns of digital healthcare tools for future pandemics.

A qualitative study by Banks et al. (2018) conducted in England between 2015 and 2016 investigated whether e-consultations effectively made clinical decisions. The results concluded that it was insufficient in some cases. Instead, Banks et al. (2018) emphasized that e-consultations added to the workload. In addition, the technology needed to be developed more to justify investments in the e-consultation system. However, as the study was conducted a few years ago, it is essential to consider that technology is constantly developing; however, some clinical decisions still need physical consultations.

3.1.4 Conclusion of Literature Review

The existing literature on digital healthcare shows that many people have access to digital devices, feel confident using health applications, and are willing to use digital healthcare, especially due to COVID–19. However, although the literature claims online platforms help address healthcare issues, there is an issue of poor DHL, especially for lower socioeconomic groups; hence, it is important not to marginalize these groups as the digital healthcare industry expands. Further, despite the frequent use of digital healthcare, people seem skeptical about the security of digital healthcare and if private, for-profit providers provide the healthcare.

Digital healthcare can be divided into two perspectives: providers and users, whereas the future providers are medical students and the prospective users are students. However, most of the existing literature on digital healthcare is related to DHL from the medical student's perspective. As the literature claims, medical students familiar with healthcare terminology feel a lack of DHL; assumingly, healthcare users have even poorer DHL. Therefore, for a broader understanding of the topic, it is essential to investigate the future users, students other than medical students, in-depth.

There is a consensus in the literature that more research and investigation within the field of DPH establishes effectiveness compared to traditional healthcare (Ekman, 2018; Ekman et al. 2019; Lagerros et al. 2019). However, further research is necessary to demonstrate the DPH's effectiveness and fill the literature gap associated with the costs of using digital healthcare.

3.2 Theoretical Approach

In the context of digital primary healthcare, several relevant theories and concepts are applicable. Foremost, the concept of *Digitalization* and *Connected Health* is essential considering the topic of digital healthcare. Further relevant theories are the *Theory of Demand and Supply,* the *Price Elasticity of Demand,* the *Theory of Market Failure*, and the *Transaction Cost Theory*.

Digitalization refers to adopting digital technologies by, for example, an organization or industry (Brennen & Kreiss, 2016). Antikainen et al. (2018) state that *Digitalization* can help the transformational shift toward a sustainable circular economy. Digital transformation enables companies to streamline their operations by, for example, reducing costs (Antikainen et al. 2018). *Digitalization* improves manual systems for entertainment and essential administrative factors in society. *Digitalization* implies adapting manual systems to operate digitally using computers and the internet. It has allowed businesses to change their models and created new operating opportunities, such as reducing costs. According to Pattichis and Panayides (2019), *Connected Health* is a sociotechnical model for healthcare. The concept is related to the delivery and management of healthcare targeted to develop efficient and effective interventions in digital healthcare (Pattichis and Panayides, 2019). In the context of this bachelor thesis, by using *Digitalization* and *Connected Health* and applying the findings per the paper to form a suitable system related to the patterns of use of digital healthcare. From the customers' perspective, the digital transformation has allowed easy access to information through online websites, mobile applications, and digital payment systems. Therefore, *Digitalization* has become an essential part of modern life for businesses and consumers. However, concern regarding *Digitalization* is often related to data safety. *Digitalization* and *Connected Health* are crucial concepts in forming a

prominent digital healthcare using the findings per this paper. *Connected Health* is also related to the aim of achieving Vision e-hälsa.

The *Theory of Demand and Supply* is considered a fundamental concept within economics. It describes the behavior and interaction between consumers and producers in an economy (Randall & McGuire, 2019). Demand refers to the goods and services consumers are willing to pay at times; The individuals' need depends on several aspects, such as income, preferences, and the availability of substitutes (Randall & McGuire, 2019). The law of demand refers to an inverse relationship between price and quantity demanded; hence, when assuming all things remain constant [ceteris paribus] and the cost of a good or service increases, the amount required will fall, and vice versa (Randall & McGuire, 2019). Further, supply refers to the number of goods and services available and depends on factors such as the cost of production, technology, and policies (Randall & McGuire, 2019). Similar to demand, the law of supply refers to an inverse relationship between price and supply; when all other factors remain constant [ceteris paribus], and there is a price increase, there will be an increase in the quantity supplied, and vice versa (Randall & McGuire, 2019).

The interaction between demand and supply results in an equilibrium price and quantity of the good or service, where the quantity demanded equals the amount supplied. If the price of a good or service is set too high, above the equilibrium price, there will be a surplus of the good or service; then, producers will reduce the cost to sell the excess go until the equilibrium price. On the other hand, if the price is set too low, below the equilibrium price, there will be a shortage of the good or service, then consumers will increase the price through competitive demand until the equilibrium price attains. (Randall & McGuire, 2019). The higher demand for digital healthcare services as people live a stressful life and may not want to spend too much time going to the doctor physically, as it also implies external costs in terms of, for example, time, energy, and the evaluation of the healthcare issue is significant enough to seek healthcare for. The supply of digital healthcare providers, in this case, has sparked a higher demand as private digital healthcare providers market themselves as available at all times; For example, the private provider *Doktor 24* and *Kry* claim patients can reach out to them around the clock (Doktor24,

2022; Kry, 2023). On the other hand, Cedberg (2019b) claims Läkarförbundet criticizes private DPH providers for promoting, what Läkarförbunden considers, unnecessary use of healthcare.

The *Price Elasticity of Demand r*efers to the sensitivity of a good or service as the price changes. An inelastic demand is when a price change has little impact on the quantity demanded; Necessities of goods and services are usually associated with an inelastic demand (Wedig, 1998). Therefore, no matter the price of a good or service, people still need the good or service. An elastic demand is when a price change affects the quantity demanded (Wedig, 1998). Affordability and accessibility are related to the price elasticity of demand (Wedig, 1998); digital healthcare helps determine the price for digital healthcare services. If the price elasticity of demand for digital healthcare services is low (inelastic), and people need healthcare services no matter the price, then providers of digital services could potentially increase their prices. In such cases, improving private digital healthcare would lead to less affordable and accessible healthcare for a larger population. Therefore, laws and regulations for healthcare are not easily adjusted. Therefore, the prices for primary healthcare are relatively equal for people in different regions (Sverige Kommuner och Regioner, 2023).

Source: Own illustration
Data: Macroeconomics by N. Mankiw, Mark Taylor (2020)

***Figure 2*: Inelastic Demand**

Figure 2 portrays a low elasticity of demand (inelastic demand); A significant price change (vertical large red arrow) indicates a slight change in quantity demanded (horizontal small red arrows).

The *Transaction Cost Theory* by William (1979) refers to incurred costs in exchanging goods or services. For example, the cost of finding and evaluating information, the quality of a good or service, making agreements, and enforcing contracts (Young, 2013). The *Transaction Cost Theory* claims that an optimum organizational structure results in economic efficiency (Young, 2013). In digital healthcare, various transaction costs can be avoided, for example, the transportation time saved as the patients do not need to visit a physical healthcare center. Further, addressing the potential transaction costs within the healthcare system and eliminating these will contribute to efficiency in the digital healthcare system.

On the other hand, the *Theory of Market Failure* is an economic situation that suggests an inefficient distribution of goods and services in the market (Pauly, 1986). The *Theory of Market Failure* refers to markets not always leading to optimal outcomes due to factors such as information asymmetry, et cetera; it occurs when the market fails to adapt to changes in demand and supply, and there is a misallocation of resources (Pauly, 1986). When the market fails to allocate resources, it fails to maximize societal welfare. For example, an individual's incentive does not necessarily reflect the best outcome for society (Pauly, 1986); for instance, if a person uses digital and physical healthcare, it is often costly for society and may prevent other patients in need from help. The *Theory of Market Failure* suggests that the free market may not allocate resources efficiently, and, therefore, in the context of digital healthcare, government intervention is necessary to avoid this (Pauly, 1986).

4 Method

The method used for the thesis was quantitative, with primary data collection from a cross-sectional study. The dataset is based on an online survey answered by bachelor students from LUSEM. First, to understand the problems, the author reviewed the existing literature (Section 3.1, *Literature Review*). After reviewing previous literature, the author formulated relevant questions and added these questions to a Google Forms survey (Appendices). Second, the author sent the survey to LUSEM bachelor students. Third, students answered the survey between April 4th, 2023, and April 30th, 2023. Fourth, the author used the answers in the statistical software program *Stata* and the spreadsheet software program *Microsoft Excel*. Fifth, the data were analyzed and interpreted to answer the research question.

4.1 Data Collection

The anticipated sample size was 100 students ($n = 100$); however, in the end, the final number of respondents was 81 ($n = 80$). The responding students in the data are from different bachelor's programs provided by LUSEM:

1. *International Business* (taught in English)
2. Economy *and Society* (taught in English)
3. Design *of Information Systems* (taught in Swedish)
4. Business *and Economics* (taught in Swedish)

Various approaches were used to connect with LUSEM bachelor students from the different programs. For example, the course convenor for *Economy and Society* sent the online survey to students through *Canvas* [an online platform used by LU students]. Similarly, the *Design of Information Systems* course coordinator published the survey through *Canvas*. Furthermore, to reach other LUSEM bachelor students, the survey was sent in WhatsApp group chats to reach *International Business* students and published in a Facebook group with *Business and Economics students*.

4.2 Survey Questions

The survey was planned to be concise, with direct questions and multiple-choice questions, to prevent respondents from ending the survey due to being long and complicated. First, questions related to the respondents' demographic characteristics were asked: age and gender, as the research questions aim to investigate patterns of the use of private digital healthcare. Further, the respondents were asked whether they have used private digital healthcare and for what kind of issue and reason for choosing private digital healthcare. Hence, what type of healthcare professional the respondents have met during their studies, and how many times. An important question was whether the respondents that have been in contact with a private digital healthcare provider and had been redirected to a public physical healthcare center instead; this information will be used to calculate a duplicated cost students imply for region Skåne when seeking both private digital healthcare and public physical healthcare.

4.3 Statistical Analysis

The author ran commands in *Stata* to find patterns using private digital healthcare and relationships between variables. One of the methods used was descriptive statistics to obtain the mean value, standard deviation, minimum value, and maximum value of the respondents' ages. Cross-tabulations were run to create contingency tables, showing the frequency of observations, with two rows and two columns to reveal patterns of categorical data in terms of the respondents' answers. Further, univariate analyses will be used by running Pearson chi-squared tests of independence to test whether there is an association, whether one variable affects an outcome, and in this case, between gender and whether the person has been in contact with a private digital healthcare provider, and, gender and the number of visits to a private digital healthcare doctor, nurse, or psychologist By running a Pearson chi-squared test a p-value is obtained; the threshold value for statistical significance is apparent if the p-value is less than 0.05. The p-value results from *Stata* will then be compared to see if there is any statistical significance between gender and the use of private digital healthcare in general, and in-depth if there is any statistical significance for using different healthcare professions (nurse, doctor, or psychologist).

The gathered data from the online survey was modified to analyze the statistical significance from a broader perspective. Therefore, the association between gender and the number of visits to a private digital healthcare professional divides into “0”, “1-2”, and “3+” visits. Notably, considering the financial calculations, students not listed for healthcare in region Skåne will be excluded, as these students do not affect the out-of-county compensation region Skåne has to pay.

Further, Microsoft Excel uses the data collected to create relevant charts. In *Excel,* pie and bar charts were made for a clear presentation. The pie charts show the gender distribution of respondents and the year of respondents’ studies. Further, the bar charts will visually portray whether a private digital healthcare provider has ever recommended patients to seek healthcare assistance elsewhere and for what kind of issues students have contacted private digital healthcare providers, and the main reasons why they have chosen private digital healthcare providers instead of physical healthcare providers. Furthermore, two bar charts show the respondents’ trust rate for public physical healthcare providers and private digital healthcare providers for comparison.

Additionally, to estimate the out-of-county costs for the region, Skåne has had to compensate for this specific sample ($n = 75$); the average number of visits to a particular profession of healthcare will be multiplied by the out-of-county cost (*Table 8*, *Table 9*, and *Table 10*); the out-of-county prices for meeting different healthcare professional has been the same between 2020 (the year when the respondent started studying) and 2023 (when the survey was published) (*Table 2*). Further, to estimate the potential duplicated costs (out-of-county compensation and the cost for providing public healthcare) region Skåne has had to pay when students have been redirected to a regional physical healthcare provider by a private digital healthcare provider will be exemplified with the average number of visits to a digital doctor, multiplied with the percentage of students that have been redirected by the private providers’ public physical healthcare.

4.4 Limitations

4.4.1 Bachelor Thesis Limitations

Limitations for this bachelor thesis relevance are potential policy changes during the research process and the relatively low response rate. It is also questionable whether it is possible to compare private digital healthcare and public physical healthcare since public healthcare also provides digital healthcare. However, as mentioned in Section 2.3, *The Expansion of Digital Healthcare in Sweden*, private providers are leaders in providing digital healthcare. Another limitation is that the survey does not ask whether the student is listed for public or private healthcare. However, when moving around in Sweden, people are automatically listed at the nearest physical healthcare center (1177.se, 2022). Hence, the research assumes the responding students are listed at public physical healthcare centers.

Further, as Sweden faces demographic changes with an aging population (Statista, 2023), it would be interesting to investigate the attitudes of the elderly population toward digital healthcare, despite the main users of digital healthcare being the younger population. Therefore, adapting digital health technologies may marginalize specific populations where the requirement for medical assistance increases. Yet still, it is relevant to investigate from the perspective of students as they, as mentioned, are digital natives and will compromise the older population in the future. Nowadays, students will be more willing to use digital healthcare tools as they get older. The patterns found in using private digital healthcare will serve as an indication for LU students in general. However, it is questionable whether the patterns of LUSEM bachelor students apply to bachelor students at other faculties at LU and whether these students are representative enough.

4.4.2 Method Limitations

One of the primary concerns is the relatively small sample size ($n = 80$), and there is a concern whether the number of students from the different programs provided by LUSEM is relatively equal; thus, the results may only be representative of some of the student population, especially to the program *Economy and Society* and *Design of Information Systems*, as that is were the study was published through the platform Canvas. Furthermore, the survey's scope is limited

because some respondents may not be listed in region Skåne for healthcare and those who have done part of their studies in other regions before attending LU. Therefore, their answers will only add to the trends and patterns of a LUSEM bachelor student and be excluded from the financial calculations (*Table 8, Table 9, and Table 10*). Additionally, respondents may trust private digital and public physical; however, they do not use healthcare services. Therefore, their answers are relevant when analyzing attitudes, and their use is appropriate; however, they will not add to the financial implications for region Skåne.

Issues of honesty in the online survey, for example, *Question 16* ("*Are you familiar with out-of-county compensation (utomlänsersättning)?*"), respondents may be dishonest as they do not want to portray themselves as uneducated. On the other hand, honesty may not be the only issue as the respondents may not remember details about questions such as "*Number of visits ... during the duration of your studies?*". Further, when asked about the students' number of visits to different healthcare professionals, if the respondent chose the alternative "6+", they may have had more than six visits. Hence, the calculations for the number of visits to a nurse (*Table 8*), doctor (*Table 9*), and psychologist (*Table 10*) may be somewhat incorrect. However, these limits were determined considering the scope of a bachelor thesis and that the respondents answer questions for their study duration, a timeframe of a maximum of three years. Further, the survey was related to personal and sensitive health issues such as depression and sexuality, for example, sexually transmitted (STDs) and contraceptives. Respondents may not want to answer the survey honestly, which is another limitation of the results.

Another potential issue is that the survey refers to private digital healthcare to private providers such as *Kry*, *Doktor.se*, and *Doktor24*; some students may have misunderstood that the survey refers to private healthcare providers and answers "yes" to *Question 8* if they have been in contact with a private digital healthcare provider. However, these students may generally refer to digital healthcare and have been using public digital healthcare.

There is also a language barrier as the online survey was in English, and the respondents (LUSEM students) include Swedish-speaking students. Therefore, the language barrier might affect students' understanding of the questions. Furthermore, the literature review addresses

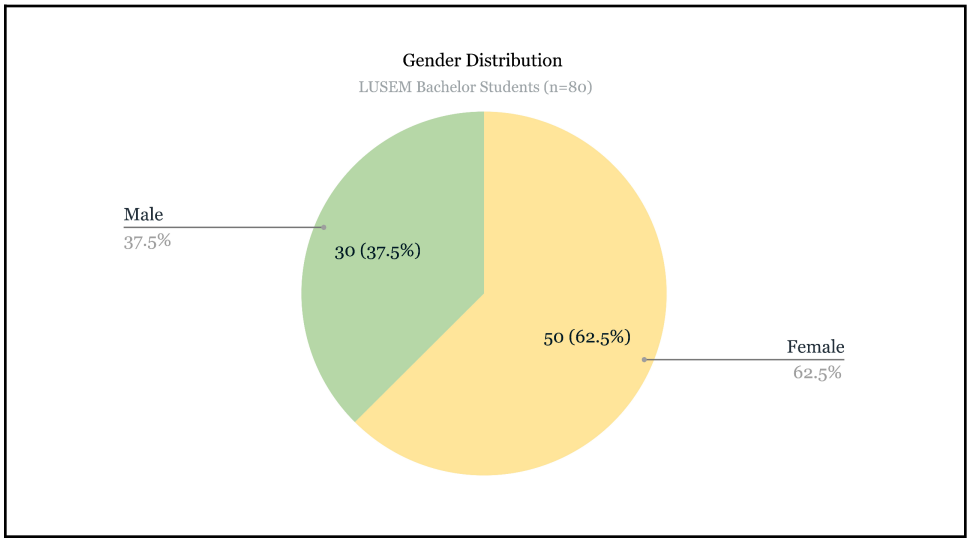
digital health literacy (DHL) as an issue for understanding digital healthcare. Therefore, students unfamiliar with or uninterested in digital healthcare may not have understood the questionnaire's aim.

As students have academic workloads, it implies time constraints. Therefore, some students may have answered the questionnaire carelessly. For example, the number of people who have been in contact with a private digital healthcare provider varies in *Table 5* and *Figure 5*. Further, if more specific would have been asked, for example, if other options were added to the multiple-choice questions, the survey would take longer to answer. Therefore, there is a risk fewer students would have an incentive to answer or complete the survey.

It would be interesting to conduct a longitudinal study on the topic to view changes over time. However, due to the scope of a bachelor thesis and its time constraints a cross-sectional study was conducted. Despite all limitations of the survey, the data still provides valuable insights into students' healthcare needs and preferences, although further research is necessary to elaborate on the findings.

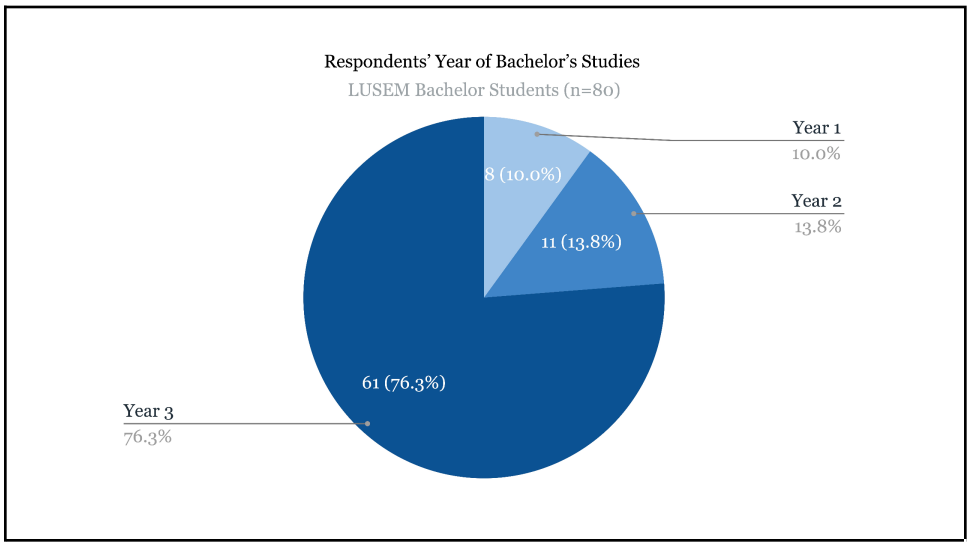
5 Empirical Analysis

5.1 Data Results



*Note: Includes all 80 observations.
Source: Allde (2023)

***Figure 3*: Respondents' Gender Distribution**
LUSEM Bachelor Students *(n=80)*



*Note: Includes all 80 observations.
Source: Allde (2023)

***Figure 4*: Respondents' Year of Bachelor Studies**
LUSEM Bachelor Students *(n=80)*

***Table 3*: Number of respondents listed for healthcare in Region Skåne**
LUSEM Bachelor Students *(n = 80)*

	Frequency
Yes	75
No	5
Total	80

**Note: Includes all 80 observations.*
Source: Allde (2023)

Figure 3 shows that amongst all students who participated in the survey, 62.5% (50/80) were female, and 37.5% (30/80) were male. Regarding the stage of their studies, as shown in *Figure 4*, 76.3% (61/80) of respondents were bachelor students studying their third and last year at LUSEM. If the respondent is currently in their third and last year, the person began their studies in 2020, respondents in their second year started in 2021, and respondents in their first year started in 2023. Out of the 80 respondents, five students were not listed for healthcare in region Skåne (*Table 3*); therefore, these respondents are excluded from questions related to the out-of-county cost for region Skåne (*Table 8, Table 9, Table 10, Table 16, and Table 17*).

***Table 4*: Descriptive Statistics Respondents' Age**
LUSEM Bachelor Students *(n = 80)*

Variable	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
Age	80	22.9375	3.074368	18	44

**Note: Includes all 80 observations.*
Source: Allde (2023)

***Table 5*: Chi-Square (X^2) Test**
Respondents' gender and whether the respondent has been in contact with a private, digital healthcare provider

Gender	*Question 8*. Have you been in contact with a private, digital healthcare provider (such as *Kry*, *Doktor.se*, *Doktor24*) during the duration of your studies? LUSEM Bachelor Students *(n = 80)* Yes	No	Total
Female	36 75.00	14 28.00	50 100.00
Male	19 63.33	11 36.67	30 100.00
Total	55 68.75	25 31.25	80 100.00
Pearson chi2(1) = 0.6555 | Pr = 0.418			

**Note: Includes all 80 observations.*
Source: Allde (2023)

Table 5 shows that the majority, 68.75% (55/80), of all respondents tend to contact private digital healthcare providers during their studies. Percentage-wise, 75% (36/50) of women contact private digital healthcare, compared to 63.33% (19/30) of men.

***Table 6*:**
***Question 17*. If you have had interaction with private, digital healthcare, on average, how satisfied were you?**

***If you have not had any interaction with a private, digital healthcare provider, please leave this field blank.**

LUSEM Bachelor Students *(n = 54)*

	Frequency	Percent	Cumulative
1	4	7.41	7.41
2	7	12.96	20.37
3	12	22.22	42.59
4	19	35.19	77.78
5	12	22.22	100.00
Total	54	100.00	

**Note: Lower values refer to not satisfied healthcare and higher values refer to satisfied. The number of answers is 54 students who have been in contact with a private digital healthcare provider.*
Source: Allde (2023)

Table 6 reflects the satisfaction level of students' digital meetings with private digital healthcare providers; lower values refer to not satisfied, and higher values refer to satisfied. Generally, the students who have had interaction with private digital healthcare seem relatively satisfied with the healthcare provided as the frequency is higher for higher values; 22.22% (12/54) students chose to rate private digital healthcare with the highest rating of "5", followed by, 35.19% (19/54) students decided to rate private digital healthcare with the second highest rating of 4. As the question (*Question 17*) was optional in the online survey, the number of responses differs from the rest.

***Table 7*:**
***Question 5*. In general, do you prefer physical or digital primary healthcare?**
LUSEM Bachelor Students *(n = 75)*

	Frequency	Percent	Cumulative
1	26	34.67	34.67
2	22	29.33	64.00
3	11	14.67	78.67
4	10	13.33	92.00
5	6	8.00	100.00
Total	75	100.00	

**Note: Lower value refers to physical healthcare, and higher values refer to digital healthcare. The number of answers is 75 students listed for healthcare in region Skåne.*
Source: Allde (2023)

As seen in *Table 7*, most students prefer physical healthcare, yet still, most students have used digital healthcare during their studies (*Table 5*).

***Table 8*:**
***Question 10*. Number of visits to a private, digital healthcare NURSE during the duration of your studies**

LUSEM Bachelor Students *(n = 75)*

	Frequency	**Percent**	**Cumulative**
0	39	52.00	52.00
1	11	14.57	66.67
2	14	18.67	85.33
3	6	8.00	93.33
4	2	2.67	96.00
5	1	1.33	97.33
6+	2	2.67	100.00
Total	75	100.00	

**Note: Only includes (75) students listed for healthcare in region Skåne.*
Source: Allde (2023)

Table 8 shows that amongst the students, 36 have been in contact with a private digital healthcare nurse, and the total number of visits was 82. Therefore, the total cost for visits with private healthcare nurses is 82 visits x 275 SEK = 22 550 SEK. Most of the 14 students in contact with a digital nurse have made two visits (18.67%). Therefore, the average number of visits to a private digital nurse, if "6+" is considered six visits, is 82 / 75 = 1.0933.

***Table 9*:**
***Question 9*. Number of visits to a private, digital healthcare DOCTOR during the duration of your studies**

LUSEM Bachelor Students *(n = 75)*

	Frequency	**Percent**	**Cumulative**
0	36	48.00	48.00
1	13	17.33	65.33
2	12	16.00	81.33
3	5	6.67	88.0
4	6	8.00	96.00
5	1	1.33	97.33
6+	2	2.67	100.00
Total	75	100.00	

**Note: Only includes (75) students listed for healthcare in region Skåne.*
Source: Allde (2023)

Table 9 shows that 40 of the students listed for healthcare in region Skåne have visited a private digital doctor. Most of these students have been in contact once (17.33%). The total number of visits was 93, and the average number of visits to a private digital doctor, if "6+" is considered six visits, is 93/75 = 1.24. Therefore, the total cost for the respondents meeting a private digital doctor is 93 visits x 500 SEK = 46 500 SEK.

***Table 10*:**
***Question 11*. Number of visits to a private, digital healthcare PSYCHOLOGISTS during the duration of your studies**
LUSEM Bachelor Students *(n = 75)*

	Frequency	Percent	Cumulative
0	57	76.00	76.00
1	2	2.67	78.67
2	1	1.33	80.00
3	2	2.67	82.67
4	3	4.00	86.67
5	2	2.67	89.33
6+	8	10.67	100.00
Total	75	100.00	

**Note: Only include (75) students listed for healthcare in region Skåne.*
Source: Allde (2023)

Table 10 refers to the total number of students in contact with a private digital healthcare psychologist was 28.75% (23), and among these students, most of them had been in contact with psychologists more than six times. The average number of visits to a private digital psychologist, "6+", is considered six visits, is 80/75 = 1.067. Therefore, the total cost LUSEM bachelor students imply for region Skåne during their studies by meeting private digital healthcare psychologists corresponds to 80 visits x 425 SEK = 34 000 SEK.

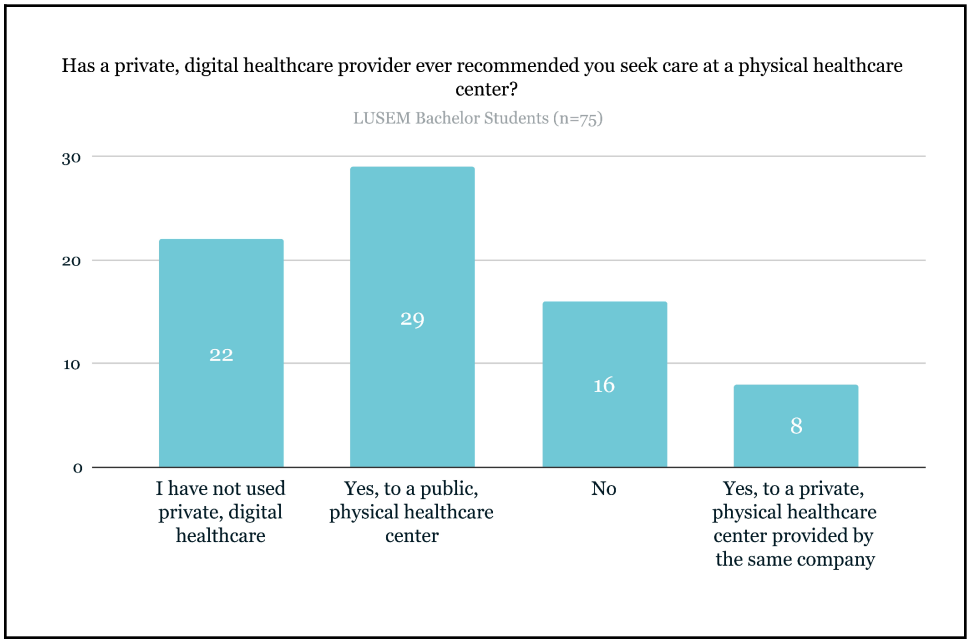
Comparing *Table 8*, *Table 9*, and *Table 10* generally, the most common private digital healthcare professionals LUSEM bachelor students have met are doctors, followed by nurses, followed by psychologists. As mentioned, per students listed for healthcare in region Skåne, the approximate number of visits to a doctor during their studies is 1.24, compared to meeting a nurse's 1.0933 visits and a psychologist's 1.067 visits.

***Table 11*:**
***Question 16*.**
Are you familiar with out-of-county compensation (utomlänsersättning)?
LUSEM Bachelor Students *(n = 80)*

	Frequency	Percent	Cumulative
Yes	19	23.75	23.75
No	61	76.25	100.00
Total	80.00	100.00	

**Note: Includes all 80 observations.*
Source: Allde (2023)

Table 11 highlights the fact that many students 76.25% were unaware of the out-of-county compensation region Skåne has to pay private digital healthcare providers for digital healthcare meetings.

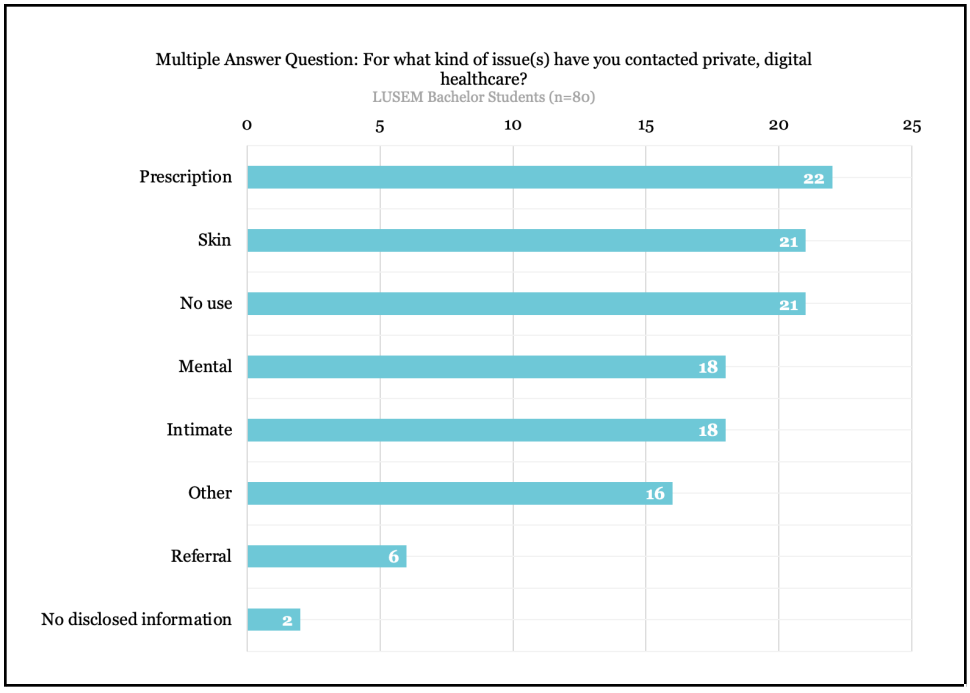


**Note: Only includes (75) students listed for healthcare in region Skåne.*
Source: Allde (2023)

***Figure 5*:**
***Question 18*. Has a private, digital healthcare provider ever recommended you seek care at a physical healthcare center?**
LUSEM Bachelor Students *(n = 75)*

Figure 5 indicates a systematic issue in the healthcare system: after consulting a private digital healthcare provider, 38.67% (29/75) patients are recommended to seek further help at a public physical healthcare center, and 10.67% (8/75).

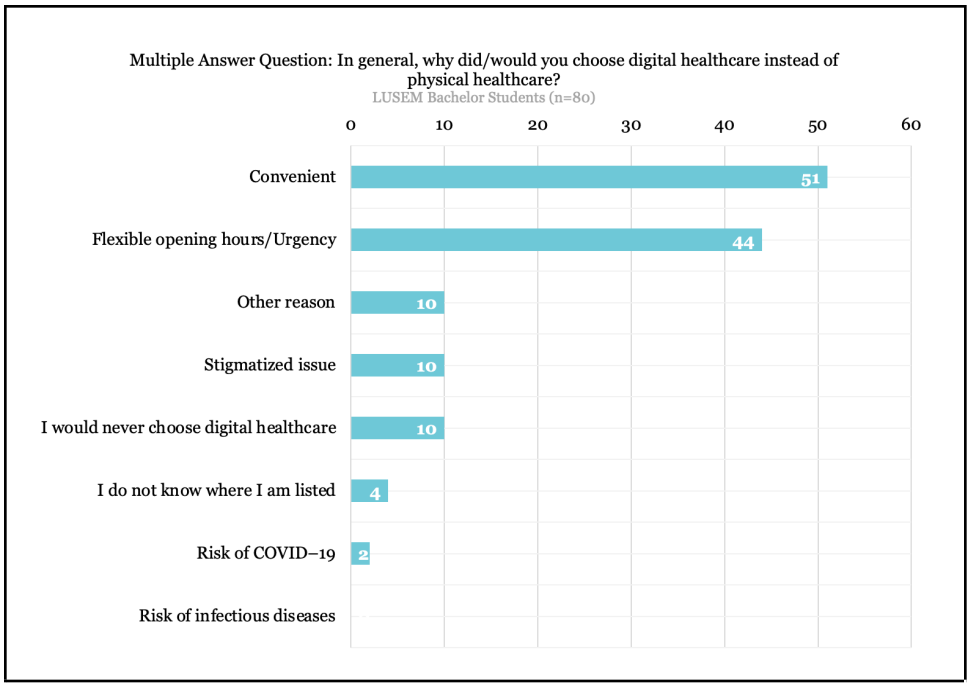
Therefore, the costs for seeking healthcare at a private digital healthcare provider do not solely imply an out-of-county compensation region Skåne has to pay; region Skåne also has to finance the health they provide the patient. Therefore, a healthcare issue implies several costs for region Skåne if the patient has contacted private digital healthcare primarily.



**Note: Includes all 80 observations. Respondents could select multiple options.*
Source: Allde (2023)

***Figure 6*:**
Multiple Answer Question
***Question 13*. For what kind of issue(s) have you contacted private, digital healthcare?**
LUSEM Bachelor Students *(n = 80)*

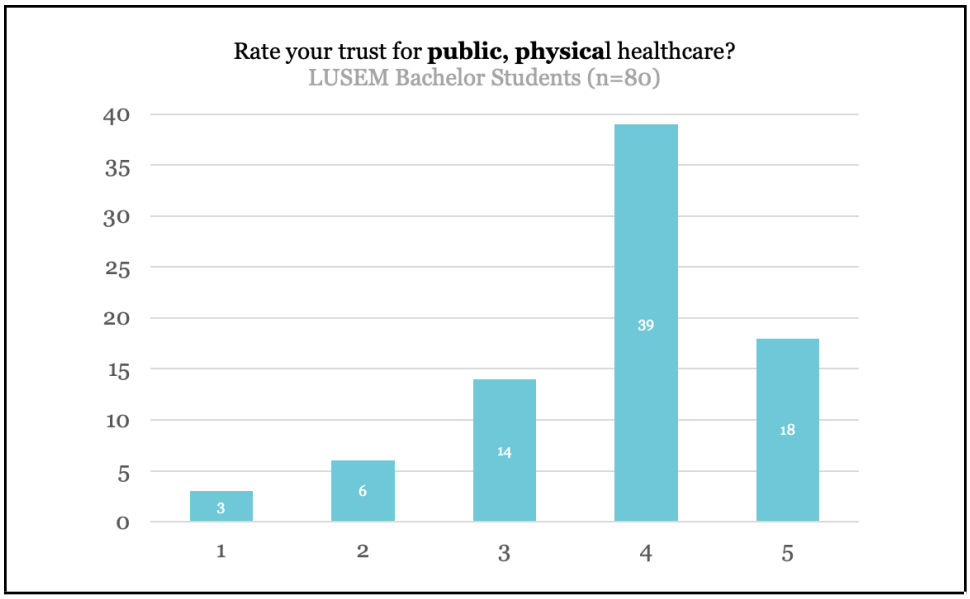
Figure 6 shows that prescribing prescriptions is the most common reason for health issues students seek in digital healthcare is prescribing prescriptions. The second most common reason was skin issues, Followed by mental and intimate issues (such as contraceptives and pregnancy).



**Note: Includes all 80 observations. Respondents could select multiple options.*
Source: Allde (2023)

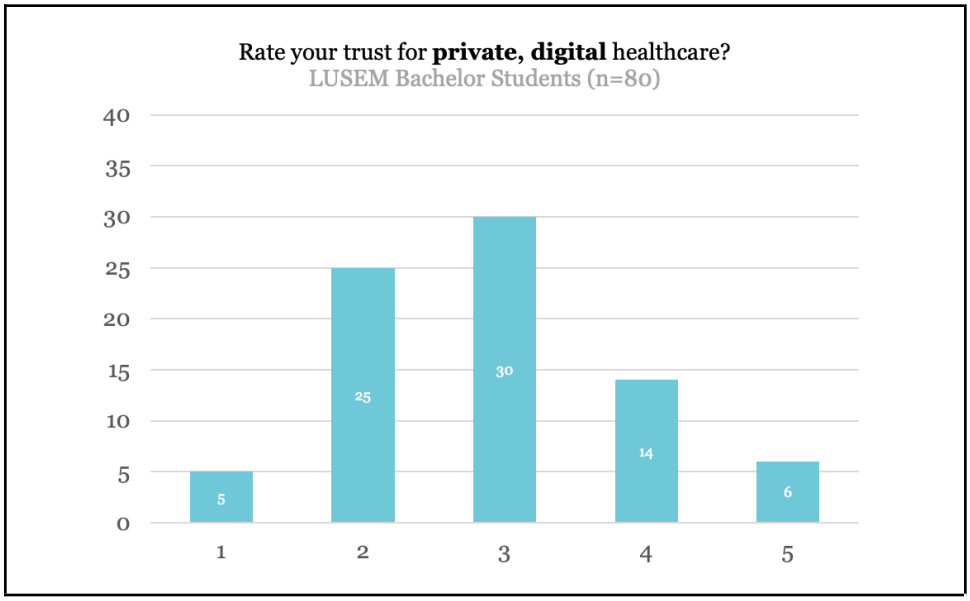
***Figure 7*:**
Multiple Answer Question
***Question 12*. In general, why did/would you choose digital healthcare instead of physical healthcare?**
LUSEM Bachelor Students *(n = 80)*

In *Figure 7*, it is apparent that the most incentivizing reasons why LUSEM students seek private digital healthcare are related to its convenience and flexible opening hours. Further, being a stigmatized issue (for example, STD related) was also significant. On the other hand, the risk of getting COVID–19 has not been a critical part of digital healthcare.



*Note: Includes all 80 observations.
Source: Allde (2023)

***Figure 8*:**
***Question 6*. Rate your trust for public, physical healthcare?**
LUSEM Bachelor Students *(n = 80)*



*Note: Includes all 80 observations.
Source: Allde (2023)

***Figure 9*:**
***Question 7*. Rate your trust for private, digital healthcare?**
LUSEM Bachelor Students *(n = 80)*

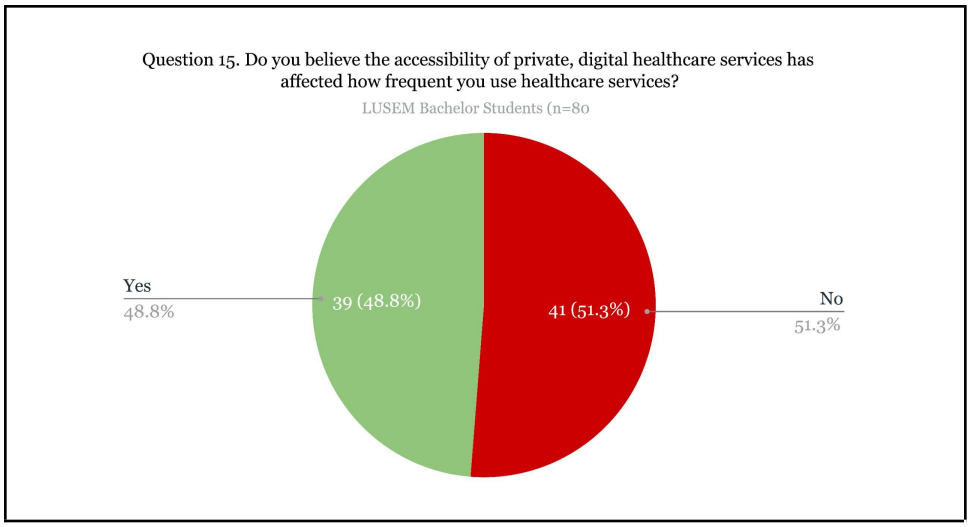
Comparing *Figure 8* and *Figure 9*, respondents have a higher trust for public physical healthcare than private digital healthcare.

Table 12:
***Question 14*. Does the requirement for visual demonstration of your medical condition influence your selection of healthcare provider?**
LUSEM Bachelor Students *(n = 80)*

Gender	No, it does not affect my choice	Yes, I am more likely to visit a digital healthcare center	Yes, I am more likely to visit a physical healthcare center	Total
Female	40% (20)	6% (3)	54% (27)	50
Male	26.66% (8)	0% (0)	73.33% (22)	30
Total	28	3	49	80

Note: Includes all 80 observations.
Source: Allde (2023)

Table 12 answers whether the requirement for a visual demonstration of a medical condition affects whether a person seeks digital or physical healthcare; 73.33% (22/30) of the male students are more likely to visit a physical healthcare center if their healthcare issue requires visual demonstrations, compared to 54% (27/50) of the female students. However, for both genders, 0% (0/30) and 6% (3/50) were likely to choose to visit a digital healthcare center. 40% (20/50) of women and 26.66% (8/30) of men were “not affected” whether their health issues required visual demonstration.



Note: Includes all 80 observations.
Source: Allde (2023)

Figure 10:
***Question 15*. Do you believe the accessibility of private, digital healthcare services has affected how frequent you use healthcare services?**
LUSEM Bachelor Students *(n = 80)*

***Table 13*: Chi-Square (X^2) Test**
Respondents' gender and number of visits to a private digital healthcare nurse during their studies

Gender	*Question 10*. Number of visits to a private digital healthcare NURSE during the duration of your studies? LUSEM Bachelor Students *(n = 80)*			
	0 visits	1-2 visits	3+ visits	Total
Female	24 48.00	18 36.00	8 16.00	50 100.00
Male	17 56.67	9 30.00	4 13.33	30 100.00
Total	41 51.25	27 33.75	12 15.00	80 100.00
Pearson chi2(2) = 0.5637 | Pr = 0.754				

**Note: Includes all 80 observations.*
Source: Allde (2023)

According to *Table 13* the Pearson chi-squared test of independence shows whether there is an association between gender and the number of visits to a private digital healthcare nurse. Therefore, the columns represented a different number of visits to a private digital nurse ("0 visits, 1-2 visits, or 3+ visits) by gender. Amongst women, the number of visits was higher than for men. Out of the 50 female participants, 24 had no visits, 18 had "1-2 visits", and eight had "3+ visits" to a private digital nurse; This represents 48%, 36%, and 16% of the female participants, respectively. Of the 30 male participants, 17 had no visits, nine had "1-2 visits", and four had "3+ visits" to a nurse; This represents 56.67%, 30%, and 13.33% of the male participants, respectively. However, the Pearson chi-square shows no statistically significant association between gender and the number of visits to a private digital nurse (p-value is 0.754).

***Table 14*: Chi-Square (X^2) Test**
Respondents' gender and number of visits to a private digital healthcare doctor during their studies

Gender	*Question 9*. Number of visits to a private digital healthcare DOCTOR during the duration of your studies? LUSEM Bachelor Students *(n = 80)*			
	0 visits	1-2 visits	3+ visits	Total
Female	20 40.00	17 34.00	13 26.00	50 100.00
Male	18 60.00	9 30.00	3 10.00	30 100.00
Total	38 47.50	26 32.50	16 20.00	80 100.00
Pearson chi2(2) = 4.0713 | Pr = 0.131				

**Note: Includes all 80 observations.*
Source: Allde (2023)

Table 14 shows the relationship between women's and men's use of private digital healthcare doctors, whereas each column represents the number of visits to a private digital doctor ("0 visits, 1-2 visits, or 3+ visits) by gender. Comparing percentages, for example, for "3+" visits, 26% > 10%, indicating that more visits to a private digital doctor are related to the characteristics of being a woman. The same pattern applies for "1-2 visits", of which the percentage of women's use is higher than men's, 34% > 30%. Further, for "0 visits", men are less likely to meet digital

doctors since 60% > 40%. However, the Pearson chi-squared test showed that the observed association between gender and the number of visits to a private digital healthcare doctor was not statistically significant.

***Table 15*: Chi-Square (X^2) Test**
Respondents' gender and number of visits to a private digital healthcare psychologist during their studies

Gender	*Question 11*. Number of visits to a private digital healthcare PSYCHOLOGIST during the duration of your studies? LUSEM Bachelor Students *(n = 80)*			
	0 visits	1-2 visits	3+ visits	Total
Female	35 70.00	4 8.00	11 22.00	50 100.00
Male	24 80.00	0 0.00	6 20.00	30 100.00
Total	59 73.75	4 5.00	17 21.25	80 100.00
Pearson chi2(2) = 2.6895 | Pr = 0.261				

**Note: Includes all 80 observations.*
Source: Allde (2023)

Table 15 is a Person chi-square showing the distribution of visits to a private digital healthcare psychologist during the respondents' studies by gender. Each column represented the number of visits to a psychologist ("0 visits, 1-2 visits, or 3+ visits) by gender. Among females, 70% (35/50) had made no visits to private digital psychologists, and amongst men, 80% (24/30) had no visits. However, when comparing "1-2 visits" and "3+ visits" for both women and men, more respondents have made "3+ visits" to a digital psychologist compared to "1-2 visits". 8% (4/50) of the women have made "1-2 visits", and 0% of the men have made "1-2 visits". Further, 22% (11/50) of the women have made "3+ visits", and 20% (6/30) of the men have made "3+ visits". In total, 73.75% (59/80) of the participants have made "0 visits", 5% (4/80) have made "1-2 visits", and 21.25% (17/80) have made "3+ visits". However, according to the Pearson chi-square test, these differences were above the threshold for statistical significance as the association between gender and the number of visits to a private digital psychologist chi2(2) =2.6895 and p = 0.26.

***Table 16*:**

Duplicated cost – Students who have contacted private digital healthcare doctors and have been redirected to seek further help at a public physical healthcare center

53 students have used private digital healthcare (*Figure 5*)
53 students have used private digital healthcare (*Figure 5*) x 1.24 average no. visits to a private digital healthcare doctor (*Table 9*) = 65.72 no. of visits to a private digital healthcare doctor
62.72 no. of visits to a private digital healthcare doctor x 38.67% of the 75 students listed for healthcare in region Skåne have been redirected to seek further help at a public physical healthcare center = 25.41 no. of visits
(500 SEK x 65.72 no. visits) + (1 905 SEK x 24.41 no. of visits) = 32 800 SEK + 46 482 SEK = 79 282 SEK is the duplicated cost

***Table 17*:**

Saved cost – Students who have contacted private digital healthcare doctors and have not been redirected to seek further help

53 students have used private digital healthcare (*Figure 5*)
53 students have used private digital healthcare (*Figure 5*) x 1.24 average no. visits to a private digital healthcare doctor (*Table 9*) = 65.72 no. of visits to a private digital healthcare doctor
65.72 no. of visits to a private digital healthcare doctor x 21.33% have not been advised to seek further help at a public physical healthcare center = 14.02 no. visits
14.02 no. of visits x (1 905 SEK – 500 SEK) = 19 698.1 SEK

6 Discussion and Analysis

The main findings of the online survey were that women (comparing percentages) use digital healthcare to a more significant extent, and generally, getting new prescriptions was the most common reason (*Figure 6*). On the other hand, there seems to be no statistically significant association between gender and whether the student has been in contact with a private digital healthcare provider or type of use, meeting a doctor, nurse, or psychologist, of digital healthcare services. However, the data shows that the use of digital healthcare professionals is higher amongst women for all visits ("1-2 visits" and "3+ visits"). Furthermore, comparing the percentage of women and men who have been in contact with private digital healthcare providers during their studies, a higher rate of women, 75%, have been in contact with private digital healthcare providers such as *Kry*, *Doktor.se*, and *Doktor24*, compared to 63.33% of the men (*Table 5*). *Figure 6* supports this as one of the most common reasons why people use digital healthcare is due to prescribing new prescriptions and intimate issues, such as contraceptives. Therefore, the common use of digital healthcare amongst women could be due to the possibility of getting help with intimate issues, such as contraceptives, and prescribing new prescriptions. Contrariwise, the high share of contraceptives and intimate issues among the most common reasons for using private digital healthcare could be related to the fact that most respondents were women; therefore, more women answering the survey is a potential limitation of the data result.

The main reason why students prefer digital healthcare is primarily due to its convenience, flexible opening hours, or due to urgent problems (*Figure 7*). As many public primary healthcare centers in Sweden are closed during evenings and weekends, digital healthcare becomes a feasible option for those who cannot or do not want to set aside time for a health issue. Other common reasons for choosing private digital healthcare were due to stigmatized issues, for example, sexually transmitted diseases related, such as chlamydia, as such health issues are stigmatized issues. Nowadays, it is easy to test yourself with an at-home test for chlamydia and gonorrhea, et cetera (1177.se, 2021). Skin issues are also why students seek private digital healthcare, which aligns with the literature in Section 2, *Context*.

Suppose that the students' healthcare issues require visual demonstration; both women, 54% (27/50), and men, 73.33% (22/30), are more likely to visit a physical healthcare center (*Table 12*). In such a case, this supports the main reason students choose private digital healthcare is due to convenience. Interestingly, only two students chose the risk of getting COVID–19 as a reason they would select digital healthcare instead of physical healthcare. Therefore, in this aspect, the risk of getting COVID–19 was an insignificant reason why students have chosen to use digital healthcare. Although, most of the respondents (third-year students) have been studying during the peak of COVID–19 (2020-2022). However, concerning respondents' ages (mean age ≈ 22.94), COVID–19 as an insignificant reason may not be surprising as the younger population was not as vulnerable to COVID–19 as elders, for example.

Table 4 shows most students are 22-23 years old. Only one person aged 44 took part in the survey. Therefore, the sample group is younger adults, and one can assume it is less common to discuss pregnancy issues with digital healthcare providers (for example, abortions). As mentioned, the younger population is considered digital natives, and digital technologies will likely replace the analog course of action in obtaining healthcare. However, *Figure 10* shows whether the accessibility of digital healthcare has increased their health visits; 48.8% answered "Yes", and 51.3% answered "No". Therefore, the accessibility of healthcare by digital providers has increased due to *Digitalization*, which can help explain the changes in demand for digital healthcare. Still, the percentage difference is slight and not considered statistically significant.

Most respondents have been in contact with a private digital healthcare provider during their studies (*Table 5*). The most common healthcare professional to meet among the respondents was a digital doctor (*Table 9*); the average number of visits to a digital doctor out of the respondents was 1.24, followed by 1.0933 visits to a digital nurse, followed by 1.067 visits to a digital psychologist. The survey showed that the most frequent number of visits to a digital psychologist was six or more, which eight respondents had, for those who have been in contact with a digital healthcare provider. A potential explanation for a larger share of visits could be that when seeking care at, for example, *Mindler* [online psychologists], patients admitted for treatment get a customized treatment plan (Mindler, 2023).

According to Jermsten (Konkurrensverket), out-of-county compensation implies that healthcare regions must pay for visits and services they do not order. Out-of-county visits concern healthcare visits the regions cannot affect nor control and are aware of when the region receives a bill from the different private digital healthcare providers. The out-of-county cost LUSEM bachelor students have implied for region Skåne during their studies by meeting private digital healthcare providers, in this specific case, including the students listed for healthcare in Lund, 75/80; the out-of-county cost for meeting a nurse, doctor, and psychologists were 22 550 + 46 500 + 34 000, respectively, which implies a cost of 103 050 SEK. Therefore, when adding up the total out-of-county costs, it is apparent that private digital healthcare costs impact the region Skåne, especially considering the small sample size of the bachelor thesis. Therefore, if LUSEM bachelor students' use of private digital healthcare patterns can be applied to other LU students' use of healthcare, the cost would be more apparent for the region Skånes healthcare budget.

A further problem related to out-of-county costs is the potential of duplicated costs region Skåne faces. *Figure 5* indicates that among the respondents, 62% (31/80) have been redirected to seek healthcare at a public physical healthcare center after consulting a private digital healthcare provider. The cost for visiting a doctor in region Skåne is 1 905 SEK (Södra Regionvårdsnämnden, 2023). However, suppose a student first seeks private digital healthcare and is advised to seek further help at a public physical healthcare center. In that case, it results in both an out-of-county cost and the cost of providing a doctor for region Skåne. Therefore, in such a case, the cost for a patient receiving healthcare is 1 905 + 500 = 2 405 SEK. Again, on a small scale, this sum may not be considered a determinant for the region Skånes' budget; however, on a large scale, it has much more influence on the public healthcare budget. When comparing the calculations for the potential duplicated cost of 78 282 SEK (*Table 16*) and the saved cost of 19 698.1 SEK (*Table 17*), it is apparent that the cost of a potential duplicate issue, students who have been redirected to seek physical public healthcare, has a more significant impact on region Skånes finances compared to the saved costs, students who have used digital healthcare and not been redirected to seek further help with their health issue in this specific case.

As mentioned in section 1.5, *Research Implications*, many people want to study in Lund and attend LU; hence, students stay a few years during their studies. Further, since many students were unaware, 76.25%, of the out-of-county compensation and potentially do not contribute with taxes to region Skåne unless the student is employed, the issue of out-of-county compensation should be highlighted for region Skåne to avoid unnecessary costs. A simple approach to inform students of out-of-county costs would be sending a letter, physically or digitally, to new students in Lund. Especially as Cederberg (2019b) suggests, private digital healthcare providers promote excessive use of healthcare, which is problematic, especially as the private digital healthcare industry grows. One person's use should not reduce the healthcare available to others. However, as the resources for healthcare is limited, there is high pressure on healthcare providers, which leads to longer waiting time for patients. Then, if there are a lot of unnecessary healthcare visits, it may imply that people with real healthcare issues cannot access healthcare services.

The survey showed that, in general, most students prefer physical primary healthcare. Approximately 48 students chose option 1 (26 students) or option 2 (22 students), where lower values referred to public physical healthcare and higher values referred to private digital healthcare (*Table 7*). Further, the respondents rated their trust for public physical healthcare on a scale of 1-5 (*Figure 8*), and most students placed their trust as either "4" or "5" compared when asked to rate their trust for private digital healthcare on a scale of 1-5 (*Figure 9*). The results showed that the rate of trust was lower than for public physical healthcare, and most students choose "2" (25 students) or "3" (30 students). Yet still, 68.75% (55/80) of students have been in contact with a private digital healthcare provider during their studies (*Table 5*). Although most respondents prefer public physical healthcare over private digital healthcare, it is apparent that many have used digital healthcare, 68.75% (55/80) (*Figure 4*), probably due to its convenience (*Figure 7*). As students prefer public physical healthcare (*Table 7)* and trust public physical healthcare (*Figure 8)* to a more significant extent than private digital healthcare (*Figure 9)*, the main problem is the lack of accessibility to public healthcare.

The drivers of digital technology are related to competitive pressure within healthcare and regulations and policies relatable to Vision e-Hälsa [Vision e-health]. Vision e-Health has prompted *Digitalization* as Sweden aims to be the best in the world using digital technologies for

healthcare. Therefore, the Swedish government is incentivized to invest in digital healthcare to achieve the goals of Vision e-health. To achieve Vision e-Hälsa, the utilization of *Connected* is essential as the concept focuses on delivering and managing healthcare efficiently to provide effective digital healthcare. Furthermore, as transactions costs are barriers to an efficient healthcare industry, and the *Transaction Cost Theory* suggests that barriers can lead to suboptimal outcomes (Young, 2013), it is crucial to overcome these barriers to achieve the goal of Vision e-Hälsa by utilizing *Digitalization* efficiently by applying the concept of *Connected Health*. Therefore, public healthcare should focus on developing and investing in prominent digital and physical healthcare systems to attract users and avoid the out-of-county cost of people seeking healthcare from private digital healthcare providers. Therefore, the results from this bachelor thesis, an understanding of the healthcare issues and due to the frequent use due to convenience, can help public healthcare shape a digital healthcare platform corresponding to students' needs and use of digital healthcare.

For example, a solution to for public healthcare could be having physical nurses and doctors at the different faculties in Lund, where students can make appointments and drop-in time slots, and provide a digital platform for students focusing on the common reasons why students have chosen private digital healthcare (prescriptions, skin issues, mental issues, and intimate). Such a system would be prominent as students may already study at university buildings. Hence, the transaction costs (*Transaction Cost Theory*) of going to the doctor would be avoided regarding transportation time, time in general, and convenience. Further, such a system would allow the region Skåne to make it easy for students to choose public physical healthcare. Hence region Skåne would gain a better overview of the healthcare needs in general. Furthermore, in such a case, the region Skåne would supply adequate healthcare to meet the demands.

Depending on the region, primary healthcare has a patient fee between 100-300 SEK (Sverige Kommuner och Regioner, 2023). For example, in region Skåne, it costs 200 SEK for a primary healthcare visit (Sverige Kommuner och Regioner, 2023), which is relatively cheap. Therefore, if the price for a digital primary healthcare visit increases, individuals may choose physical healthcare instead, preventing the cost for regions. However, a change in price for private digital healthcare services may not affect the demand as healthcare has an inelastic demand.

Furthermore, healthcare is often considered a necessity, and people require medical assistance to maintain health, regardless of the prices (Wedig, 1998). Further, there is a lack of substitutes for healthcare services, so healthcare is unique when individuals require a medical profession. Therefore, healthcare is not easily substituted, hence vital, regardless of the price.

In the context of the price of digital healthcare, the *Theory of Market Failure* can support the need for government intervention to address the market failures caused by digital healthcare technologies. Digital healthcare is a feasible alternative for the individual. However, the costs (out-of-county) it implies for region Skåne and the rest of the society are not necessarily considered by the individual. Further, as public and private healthcare providers do not collaborate, there is imperfect information, which refers to the situation where there is incomplete information about the service traded. Therefore, the transaction cost of evaluating information is even more difficult for the individual. Hence, consumers' knowledge about the quality of services is limited as there are inconsistencies in the healthcare system. If there is information asymmetry in the healthcare industry, it implies a risk of failing to adapt to changes in demand and supply. Consequently, due to information asymmetry, it is challenging to maximize societal welfare (Pauly, 1986).

7 Conclusion

The research aim of this bachelor thesis was to investigate the difference in the use of private digital healthcare by LUSEM students and give an approximation of how students' use of digital healthcare affects region Skåne financially, as the research question followed "What are the patterns in using private digital primary healthcare among Lund University School of Economics and Management (LUSEM) bachelor students throughout their studies? How does this affect the financial situation of Region Skåne?". Further, this paper highlights the findings to provide insights into how digital healthcare affected the region financially and suggestions for forming a suitable system.

In conclusion, the data analysis suggests that the region of Skåne should prioritize investments in accessible digital healthcare for students. Many students seek private digital healthcare and are often redirected to a public physical healthcare center, resulting in a duplicate issue. Furthermore, given that most students are short-term inhabitants in Lund and do not contribute with taxes, it is crucial to address the financial implications of private digital healthcare to prevent potential losses for region Skåne. Most students said they trust public physical healthcare more, yet still opt for private digital healthcare due to convenience. Therefore, it is essential to deliver alternative healthcare for these students by providing precise and comprehensive guidance to ensure that students make informed decisions considering their healthcare and know the benefits of choosing public physical healthcare.

Moreover, as the main driver behind students' preference for digital healthcare is convenience, region Skåne should focus on establishing efficiency, such as a student-centric digital healthcare system; in such cases, the demand for private digital healthcare can be reduced and potentially mitigate unnecessary out-of-county costs. Furthermore, if Skåne implemented a digital healthcare system, it would enable the region to monitor the amount of healthcare being ordered and required. In such a case, region Skåne could ensure that the healthcare needs of students are met without compromising financial stability. Therefore, by investigating accessible digital healthcare for students and providing clear guidance, with convenience as a driving factor, region

Skåne would prevent unnecessary costs and enhance the overall healthcare experience for students in Lund.

Due to the small scale of this research, the findings have small significant inputs to private digital healthcare. However, it is essential to address the topic as new private DHP are joining the healthcare sector, which may result in a heavier financial burden for region Skåne as out-of-county healthcare visits may increase. Therefore, further research and investigation are needed to be conducted on the topic.

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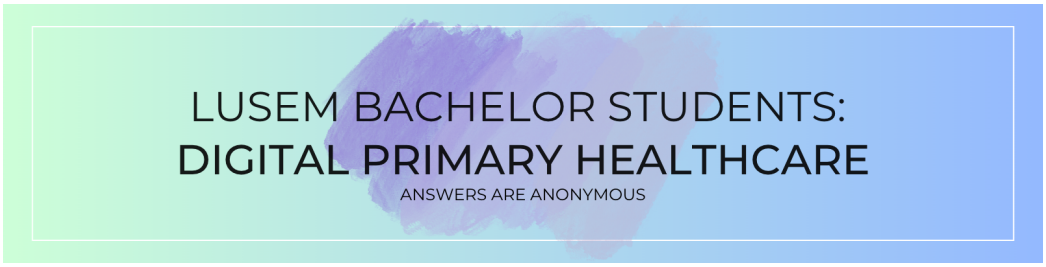
9 Appendix



1. Gender

- ☐ Female
- ☐ Male
- ☐ Other
- ☐ Prefer not to say

2. Age
***Please write your name in numbers, example: 23**

Short answer text

3. What year of your bachelor's studies are you currently in?

- ☐ Year 1
- ☐ Year 2
- ☐ Year 3

4. Are you listed for healthcare in region Skåne?
***Listed refers to the healthcare center (vårdcentral) you belong to (either public or private)**

- ☐ Yes
- ☐ No

5. In general, do you prefer physical or digital primary healthcare?

	1	2	3	4	5	
Physical	○	○	○	○	○	Digital

6. Rate your trust for public, physical healthcare?

	1	2	3	4	5	
Not trustful	○	○	○	○	○	Trustful

7. Rate your trust for private, digital healthcare?

	1	2	3	4	5	
Not trustful	○	○	○	○	○	Trustful

8. Have you been in contact with a private, digital healthcare provider (such as Kry, Doktor.se, Doktor24) during the duration of your studies?

- ☐ Yes
- ☐ No

9. Number of visits to a private, digital healthcare DOCTOR during the duration of your studies?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6+

10. Number of visits to a private, digital healthcare NURSE during the duration of your studies?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6+

11. Number of visits to a private, digital healthcare PSYCHOLOGIST during the duration of your studies?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6+

12. In general, why did/would you choose digital healthcare instead of physical healthcare?

- ☐ I would never choose digital healthcare
- ☐ I do not know where I am listed
- ☐ It is more convenient
- ☐ Risk of getting infectious diseases
- ☐ Risk of getting COVID–19
- ☐ Flexible opening hours/Urgency

- [ ] Stigmatized issue (for example: STD related)
- [ ] Other reason

13. For what kind of issue(s) have you contacted private, digital healthcare (such as Kry, Doktor.se, Doktor24)?

- [ ] I have not used private, digital healthcare
- [ ] Mental (for example: stress, anxiety)
- [ ] Skink issues (for example: eczema, skin infections)
- [ ] Intimate/Contraceptives/Pregnancy
- [ ] Renew prescription
- [ ] Referral for specialist care (remiss)
- [ ] Other
- [ ] I do not want to share this information

14. Does the requirement for visual demonstration of your medical condition influence your selection of healthcare provider?

- [ ] Yes, I am more likely to visit a physical healthcare center
- [ ] Yes, I am more likely to visit a digital healthcare center
- [ ] No, it does not affect my choice

15. Do you believe the accessibility of private, digital healthcare services has affected how frequent you use healthcare services?

- [ ] Yes, I am more likely to use healthcare services
- [ ] No

16. Are you familiar with out-of-county compensation (utomlänsersättning)?

Example: If you visit a doctor at Kry digitally, but are listed at a public healthcare provider in Skåne, then region Skåne has to compensate Kry with 500 SEK for your digital visit.

***There are different costs depending on the nursing staff you meet.**

- [ ] Yes
- [ ] No

17. If you have had interaction with private, digital healthcare, on average, how satisfied were you?

***If you have not had any interaction with a private, digital healthcare provider, please leave this field blank.**

	1	2	3	4	5	
Not satisfied	○	○	○	○	○	Satisfied

18. Has a private, digital healthcare provider ever recommended that you seek care at a physical healthcare center?

- [ ] Yes, to a private, physical healthcare center provided by the same company
- [ ] Yes, to a public, physical healthcare center
- [ ] No

☐ I have not used private, digital healthcare
19. Have you ever visited a physical, healthcare center for further assistance with a medical issue after consulting a private, digital healthcare provider?
☐ Yes ☐ No ☐ I have not used private, digital healthcare
Source: Allde (2023)