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Digital transformation in healthcare: how the pandemic affected patients' use of telemedicine in Portugal

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Master's in Management of Services and Technology

Supervisor:

Ph.D, Henrique O'Neill, Associated Professor, ISCTE Business School

Department of Marketing, Operation and Management

October, 2021



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To my family, particularly my parents. They are the ones who offered me the possibility to pursue my education in the best conditions possible and always made sure that I followed my interests and dreams. They always pushed me to do my best, not only throughout these months but since I can remember, and were always ready to help and support me in any way they could. Their support makes all the difference.

To my friends, who were there everyday asking about the evolution of this research, offering their help and pushing me through this journey. They are always present in the most important moments of my life and this one is no exception. Their presence and support were, and are, really appreciated.

Resumo

A transformação digital tem tido um impacto tremendo no setor da saúde ao longo dos anos. Um conjunto de novas tecnologias têm surgido ao longo do tempo, permitindo que as unidades de saúde prestem o melhor atendimento aos seus pacientes.

Ao longo do último ano e meio, o impacto da pandemia covid-19 tem sido inegável. O setor da saúde nunca parou de trabalhar, sendo o setor mais afetado em termos de falta de recursos. Desta forma, os hospitais ficaram sobrecarregados com pacientes infetados com covid-19 e tiveram que encontrar uma forma de evitar atingir a sua capacidade máxima geral.

A telemedicina (como por exemplo: teleconsultas, teleradiologia, etc.) está presente há muitos anos, permitindo que os pacientes tenham acesso a cuidados de saúde onde quer que estejam. No entanto, os pacientes nunca a viram como primeira escolha quando se trata de tratamento médico. Com a disseminação do coronavírus, os hospitais passaram a incorporar mais as teleconsultas nas suas atividades diárias, com o objetivo principal de evitar idas desnecessárias ao hospital.

Esta tese, centrada nas teleconsultas em Portugal, tem como objetivo avaliar como os pacientes percecionam as mesmas, antes e durante a pandemia, e como têm sido as suas experiências até ao momento. Adicionalmente, visa analisar as suas expectativas para o futuro e entender se os pacientes começariam ou continuariam a aderir a teleconsultas.

Para aprofundar este tema, foi desenvolvido um questionário e distribuído à população portuguesa. No final, as conclusões são expostas e outras recomendações e limitações são apresentadas.

Palavras-chave: transformação digital; setor da saúde; telemedicina; teleconsulta; pandemia; perceção dos pacientes

Códigos de classificação JEL: I12 (Health Behaviour); M10 (Business Administration – General)

Abstract

Digital transformation has had a tremendous impact in the healthcare sector throughout the years. A set of new technologies have been emerging that allow health facilities to deliver the best care to their patients.

Throughout the last year and a half, the impact of the covid-19 pandemic has been undeniable. The healthcare sector never stopped working, being the most affected sector of our society in terms of lack of resources. Thus, hospitals were overflowed with covid-19 patients and had to find a way to prevent reaching its maximum overall capacity. While doctors were occupied treating covid-19 patients, they were forced to find other ways to treat patients with different and less critical diseases.

Telemedicine (e.g., teleconsultations, teleradiology, etc.) has been around for many years, allowing patients to access healthcare from wherever they are. However, patients have never seen it as a first choice when it comes to medical treatment. With the coronavirus spreading, hospitals began to incorporate more teleconsultations in their daily activities, with the main goal to avoid unnecessary trips to the hospital.

This thesis, focused on teleconsultations in Portugal, aims to evaluate how patients perceived them before and during the pandemic, and how their experience has been so far. Moreover, it aims to analyse their expectations for the future and understand if they would start or continue to use it.

To better understand this matter, a survey was developed and distributed to the Portuguese population. In the end, conclusions are displayed, and further recommendations and limitations are portrayed.

Keywords: digital transformation; healthcare sector; telemedicine; teleconsultation; pandemic; patients' perception

JEL Classification Codes: I12 (Health Behaviour); M10 (Business Administration – General)

Index

Acknowledgments	i
Resumo	iii
Abstract.....	v
Figures Index	ix
Tables Index.....	xi
Glossary	xiii
1. Introduction	1
1.1 Theme’s contextualization	1
1.2. Research Aim, Objectives and Questions	4
1.3. Dissertation Structure	5
2. Literature Review	7
2.1. Digital Transformation	7
2.1.1. Digital Transformation in the healthcare sector.....	8
2.2. Pandemic in the healthcare sector	10
2.3. Telemedicine	12
2.3.1. Telemedicine in Portugal	14
3. Methodology.....	17
3.1. Research Design.....	17
3.2. Data Collection.....	17
3.2.1. Questionnaire development	17
3.2.2. Primary Data	19
3.2.3. Secondary Data	19
4. Data Analysis and Results	21
4.1. Socio-demographic description.....	21
4.1.1. Gender.....	22
4.1.2. Age group.....	22

4.1.3.	District of residency	22
4.1.4.	Education level.....	23
4.1.5.	Professional situation	23
4.1.6.	Health unit frequented.....	23
4.2.	Security in access to healthcare – current situation.....	23
4.3.	Access to teleconsultation – before the pandemic	25
4.4.	Access to teleconsultation – during the pandemic	29
4.5.	Teleconsultation – general perceptions	34
4.6.	Access to teleconsultation – future intentions.....	38
5.	Conclusion.....	41
5.1.	Main conclusions – Questionnaire	41
5.2.	Limitations and Recommendations.....	42
6.	References	45
7.	Annexes	49
	Annex A.....	49
	Annex B.....	52
	Annex C.....	54
	Annex D.....	55
	Annex E.....	66
	Annex F	67

Figures Index

Figure 1.1: Monthly evolution of teleconsultations in Portugal – year 2020 compared to 2019.....	2
Figure 1.2: Monthly evolution of teleconsultations in Portugal – year 2021 compared to 2020.....	3
Figure 2.1: The e-Health Tree	9
Figure 2.2: Proportion of hospitals that carry out telemedicine by type of activity performed in Portugal (2004-2014)	15
Figure 4.1: Willingness to access healthcare in person	23
Figure 4.2: Barriers in accessing healthcare in person	24
Figure 4.3: Level of agreement on how the pandemic affected the access to healthcare..	25
Figure 4.4: Familiarization with the concept of teleconsultation before the pandemic.....	25
Figure 4.5: Teleconsultations conducted before the pandemic	26
Figure 4.6: Reasons why respondents had a teleconsultation before the pandemic	26
Figure 4.7: Reasons why respondents did not have any teleconsultation before the pandemic	27
Figure 4.8: Teleconsultation scheduling.....	28
Figure 4.9: Type of teleconsultation(s) carried out	28
Figure 4.10: How the teleconsultation was carried out	28
Figure 4.11: Location where the teleconsultation was carried out	29
Figure 4.12: Intentions to keep having teleconsultation(s).....	29
Figure 4.13: Familiarization with the concept of teleconsultation during the pandemic ..	30
Figure 4.14: Teleconsultations conducted during the pandemic	30
Figure 4.15: Reasons why respondents had a teleconsultation during the pandemic.....	31
Figure 4.16: Reasons why respondents did not have any teleconsultation during the pandemic	32
Figure 4.17: Teleconsultation scheduling.....	33
Figure 4.18: Type of teleconsultation(s) carried out	33
Figure 4.19: How the teleconsultation was carried out	33
Figure 4.20: Location where the teleconsultation was carried out	34
Figure 4.21: Type of disease that led to the teleconsultation	34
Figure 4.22: Difficulties felt during the teleconsultations	37
Figure 4.23: Overall degree of satisfaction with teleconsultations.....	37
Figure 4.24: Intentions to start having/maintain teleconsultation(s)	38

Figure 4.25: Preferred type of teleconsultation(s) 38
Figure 4.26: Intentions to consider teleconsultation(s) as the first option..... 39

Tables Index

Table 4.1: Respondents’ socio-demographic classification..... 22

Glossary

SNS: Sistema Nacional de Saúde

1. Introduction

1.1 Theme's contextualization

Digital transformation is a concept that has been incorporated in our society throughout the years. This concept can be applied to different forms of management, industries and sectors (European Parliament Research Service, 2019). The healthcare sector is no exception when it comes to adopting certain measures that will improve productivity and patient satisfaction. Thus, digital transformation in the healthcare sector should represent better commodities for the patients and accurate diagnosis supported by health records available (Belliger, A., & Krieger, D. J., 2018).

A few years ago, institutions in the healthcare sector started to provide patients and users different ways to access medical records, schedule appointments, and other things meant to simplify the patient's life. Nowadays, due to the COVID-19 pandemic, hospitals have been forced, more than ever, to change and optimize their usual way to deliver their services (Gopal et al., 2018). Although these changes may be positive, there is also a downside to it.

Ever since the population worldwide was advised to quarantine, patients could not simply go to the hospital to have a normal consultation. This happened because hospitals were mainly focused on treating patients with coronavirus. Thus, other type of not so severe diseases had to follow a different flow of diagnosis and treatment (World Health Organization, 2019). So, physical consultations suffered a shift to telemedicine (i.e. teleconsultations): on one hand, there are many benefits such as convenience and cost savings, etc.; on the other hand, it has its limitations such as physical examination and lack of technologies available for both the hospital and the patient. Although telemedicine is becoming more mainstream due to the coronavirus, it has been around for a few years. Right now, patients may not see it as the primary form of treatment, but it allows doctors to treat people at a distance, allowing it to be more convenient for both parties (Weinstein et al., 2013).

Since the pandemic started, health facilities (e.g., hospitals, health centres) were forced to adopt new measures to control the virus spreading. In the beginning, when the information about the virus (the way it spread, the severity, and other implications) was reduced, there was an uncertainty about what the world was dealing with. Doctors were focused on treating covid patients, and patients who had not contracted covid faced a decrease on physical exams and consultations due to the hospitals' overcapacity being reached. Thus, telemedicine became very useful when trying to deliver the best care to patients in the safest and most efficient way

possible to every type of patient (covid related or not). When we talk about diseases like diabetes that require a continuous care, telemedicine may be the answer to a more comfortable way of delivering this type of care, since the patient does not need to leave the house: the doctor can review and evaluate the patient’s important values through distant monitoring. Thus, there will be less trips to the hospital, which will prevent the virus spreading and convenience to the patient.

However, telemedicine was not something present on a day-to-day basis for most people. Although it has been around for about 20 years, only a few people had experienced it before the pandemic. As mentioned before, hospitals were forced to adapt and try to lower the number of people who visited hospitals due to this infectious disease no one really knew anything about. In this sense, doctors started to perform teleconsultations in order to treat non covid-19 patients, battling for these people to continue having access to healthcare despite all the barriers to do so. Even though telemedicine did not appear only when the pandemic started, it was the first time doctors and hospitals (both from the private and public sector) were seeing such a high flow of teleconsultations in a short period of time.

Figure 1.1 below, demonstrates the evolution of telemedicine consultations (i.e., teleconsultations) in the SNS in 2020, comparing to 2019. Every month (except October) had a positive evolution, with these consultations’ numbers growing. Beginning in March, the growth started to get even higher, as we entered our first lockdown and covid-19 got serious and delicate. In 2020, the total number of consultations was 44.475 (first consultations were 18.004 and subsequent consultations had a higher influx with 26.471, meaning people had more follow up consultations rather than first ones).

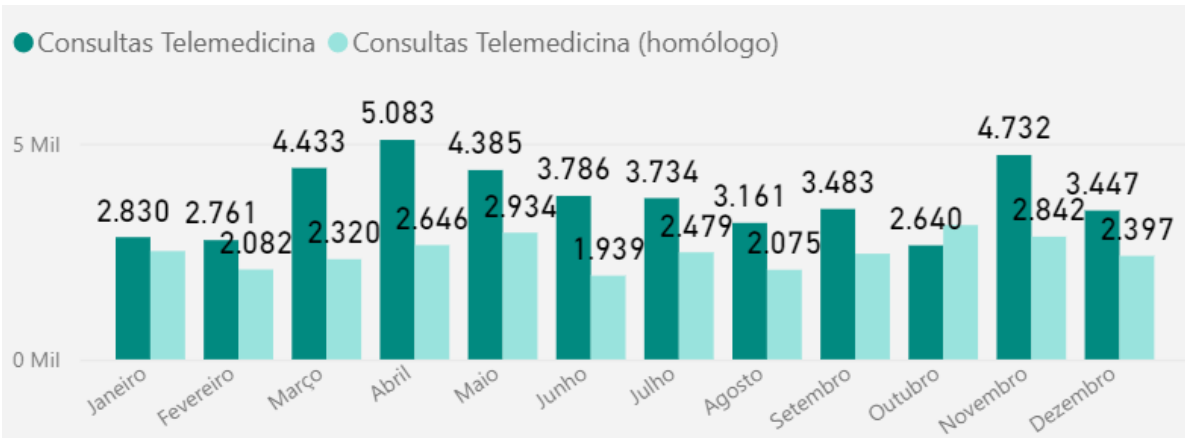


Figure 1.1: Monthly evolution of teleconsultations in Portugal – year 2020 compared to 2019

Source: Serviço Nacional de Saúde website

However, in 2021, these numbers grew exponentially. Figure 1.2 below represents all the data gathered until September regarding telemedicine consultations, comparing to 2020. These consultations grew in an unpredictable way, with February scoring the highest number with 36.752 consultations. These high numbers show that SNS invested heavily in this format in order to decrease in person consultations and is focused on transitioning to a more digital healthcare system; also, between January and March, Portugal faced a strong wave of new cases, with numbers as high as ever. According to the most recent information, until September 2021 the total number of consultations was 234.694 (first consultations were 58.362 and subsequent consultations had a higher influx again with 176.332, showing one more time that subsequent consultations are more common than first ones, whether it is a doctor’s choice or the patient’s preference). Thus, comparing the total number of teleconsultations until September 2021 (234.694) to September 2020 (33.656), the variation was around 597%, demonstrating an enormous growth; only two months into 2021, consultations’ numbers had already exceeded the total of 2020.

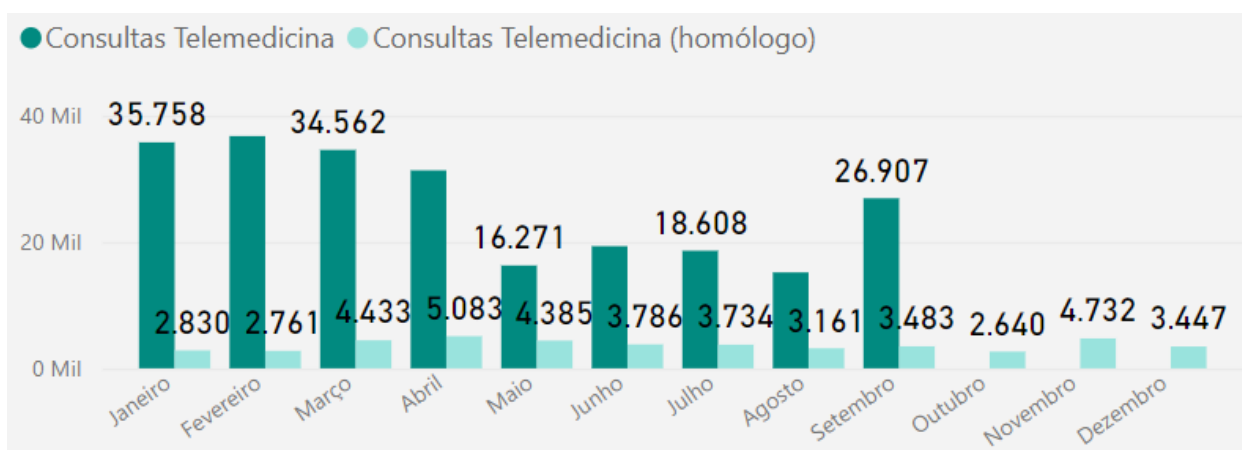


Figure 1.2: Monthly evolution of teleconsultations in Portugal – year 2021 compared to 2020

Source: Serviço Nacional de Saúde website

As we seen, mostly due to this pandemic, telemedicine can be a good alternative to conventional consultations and other forms of medicine, in some cases. It is important to understand its past and current state, how people are perceiving it and their opinion of their own experiences. Although we are seeing some positive changes towards covid-19 with a decrease of new cases and vaccination taking place at a good pace, this is a good starting point to start seeing telemedicine as a new alternative. Both patients, doctors and hospitals can benefit with it as it will be better explained further in this thesis.

So, this thesis aims to review the existent literature, and after that, assess how Portuguese patients perceive telemedicine, as described in the last paragraph. This assessment will be made through a questionnaire focused on synchronous (real time) medicine – one specific type of telemedicine: in other words, understand how patients perceive teleconsultations in Portugal. For research purposes, these insights could be useful when assessing whether telemedicine has space to grow in Portugal or not and what actions to take to make it more appealing for sceptical patients. Furthermore, the objective is also to compare telemedicine's use before and after covid-19 in order to understand its evolution and understand future intentions of adopting this not-so-new form of medicine.

Telemedicine and all its fields have a tremendous potential to grow. Thus, in the future, healthcare providers will possibly be able to provide more complete healthcare, with access to better features for the patient's convenience. Moreover, not only the patient would be benefited, but the healthcare provider would also incur in less costs (depending on the investment made) and be more efficient.

1.2. Research Aim, Objectives and Questions

Research Aim

The aim of this research is to evaluate how patients felt about telemedicine before and throughout the pandemic, what are their opinions about its quality nowadays, study if there were variations comparing the periods before and throughout the pandemic regarding patients' perception of telemedicine and understand if they would choose telemedicine as a first choice in the future.

Research Objectives:

- To classify the main concepts that underly this research;
- To describe in depth the different types of telemedicine;
- To understand the current state of telemedicine in Portugal and present relevant data about it;
- To develop a survey and analyse patients' perception about telemedicine before and throughout the pandemic, its quality nowadays, how patients' perception has changed since before until throughout the pandemic and their expectations for the future;
- To collect the results and synthesize the main conclusions;
- To make further recommendations regarding telemedicine.

Research Questions:

RQ₁: How did patients perceive telemedicine before the pandemic?

RQ₂: How did patients perceive telemedicine throughout the pandemic (until nowadays)?

RQ₃: What is the patients' opinion regarding telemedicine's quality (nowadays)?

RQ₄: To what extent did patients' perception of telemedicine changed comparing two periods of time (before and throughout the pandemic)?

RQ₅: To what extent are patients more likely to use telemedicine as a first choice in the future?

1.3. Dissertation Structure

As mentioned before, the main goal of this dissertation is to understand patients' perception of telemedicine in Portugal (more specifically, synchronous medicine). In order to do so, a specific structure will be followed: first and foremost, a brief contextualization about the theme and its importance was presented, as well as the research questions, aim and objectives; after that, the literature regarding the main topics that will contribute to this thesis will be reviewed in order to have a theoretical basis to conduct the desired research; after that, relevant data about telemedicine and its current state in Portugal will be presented, unrevealing the actual numbers of this practice; next, the methodology for the present research will be explained, in order to understand the design of the questionnaire and its main topic; lastly, the results will be displayed and analysed, and further recommendations will be made.

2. Literature Review

2.1. Digital Transformation

For decades now, digital technologies have been transforming our world. Digital transformation represents the impact that new technologies have on our society, as well as the adoption of digital technologies by enterprises. These technologies comprehend innovative digital platforms, blockchain technologies and others. Modern economies can no longer ignore the importance of this new paradigm, since it can directly affect well-known sectors such as transports, telecommunications and healthcare (European Parliament Research Service, 2019).

According to Schwertner, K. (2017), digital transformation is “the application of technology to build new business models, processes, software and systems that result in more profitable revenue, greater competitive advantage, and higher efficiency.”. Thus, as Christensen, J. (2016) also states, this will impact how organizations perceive and manage their assets, since their products and services’ digital features increase their own value. It is important to highlight that the use of information and communication technologies is crucial to the companies’ success in this field, since it allows to minimize the information’s asymmetry, automatize certain activities that will increase the intangible value linked to more modern companies and have a more direct way to exchange ideas contributing to the companies’ prosperity (Moroz, M., 2018).

As stated in Schwertner’s, K. (2017) definition of digital transformation, it is important for companies to focus on building new business models, more specifically a new digital business model. This business model focuses on digital technologies which will create and capture value for its stakeholders, customers and the firm itself (Verhoef & Bijmolt, 2019). Based on this, the later authors define digital transformation as a three-step process leading to the new digital business model. In the first phase designated “digitization”, firms usually change some processes by embracing digital technologies; in the second phase designated “digitalization”, they improve specific functions to each service of the firm; lastly, in the third phase designated “digital transformation”, companies change their value creation by incorporating digital features in their activities.

Over the past few years, digital transformation has had a tremendous impact on how traditional companies work and has forced numerous markets to disrupt. Consequently, consumers’ expectations have been increasing when it comes to services provided since they now have access to multiple digital touchpoints throughout their customer journey (Verhoef, et al., 2019). The healthcare sector is no exception when it comes to a new digital world.

2.1.1. Digital Transformation in the healthcare sector

According to Belliger, A., & Krieger, D. J. (2018), “healthcare is no longer primarily something that takes place in the intimacy and confines of the doctor-patient relationship. Instead, health care is distributed throughout a complex network of both human and nonhuman actors such as databases, hospital information systems (...)”.

Digital transformation allowed population all over the world to have access to better healthcare but, at the same time, the costs associated are escalating, putting healthcare providers and patients in a sensitive situation. Nevertheless, smartphones nowadays allow patients to access more data and analytics, representing “minimedical devices” (e.g. *AppleWatch* allows people to monitor their heart rate). Thus, in the future, physicians will be able to understand which patients need more hours of treatment, opposing to others that can be virtually taken care of (Gopal et al., 2018).

However, as mentioned before, that are still a lot of constrains such as: economic cost burden, since this transformation relies on expenditure from governments and health organizations; populations are ageing, with elderly people requiring more medical care; chronic diseases are increasing due to a more sedentary lifestyle, requiring more mid and long-term medical care (World Economic Forum). By 2019, 463 million people had diabetes, with these numbers representing 10% of global health expenditure (IDF Diabetes Atlas, 2019). This information just goes to show these chronic diseases will consume a lot of resources (monetary and personnel) throughout the next years.

A few constrains were mentioned but of course the future ahead brings new improvements points which will be beneficial for all the parties involved. Nowadays, is more common for a patient to go to a health facility to seek for treatment. Nonetheless, telemedicine will allow (and in some places is already allowing) patients to receive this treatment at home through telephone or other device, having access to all the information necessary. Using devices like a smartphone that can monitor, for instance, your respiratory rate and oxygen level, will make ambulatory (diagnosis to treatment) visits less frequent except for more complex diseases. For instance, when it comes to diabetes, as mentioned before (or other chronic disease), this will improve the course of treatment, since home-based treatments are more effective than periodically physical consultations (Mitchell, M., & Kan, L., 2019).

But, in fact, how can we understand how information flows? The e-health Tree (Belliger, A., & Krieger, D. J., 2018) is a “normal” tree composed by its roots, trunk and branches and fruits. It represents the digital flow in the healthcare system.

The roots represent connectivity, in other words, the capability to connect “everything to everything”, as the *Internet of Things* demonstrates. The present *era* is based on “digital information and communication technologies”, capable of turning closed systems into “open and flexible networks” with access to all kinds of free information. The trunk includes new norms & values, such as “transparency and authenticity” from all parties involved such as individuals or large corporations, and new technologies that arise. This combination represents the actual change in society’s practices and in technological innovation. In the end, it branches some fruits translating in “new forms of communication and participation”, such as: health apps, big data and predictive analytics, personalized medicine, new forms of communication between doctors and patients, among others. These represent the result of new values and new technology, as well as how information and knowledge in the healthcare sector is being freely generated.

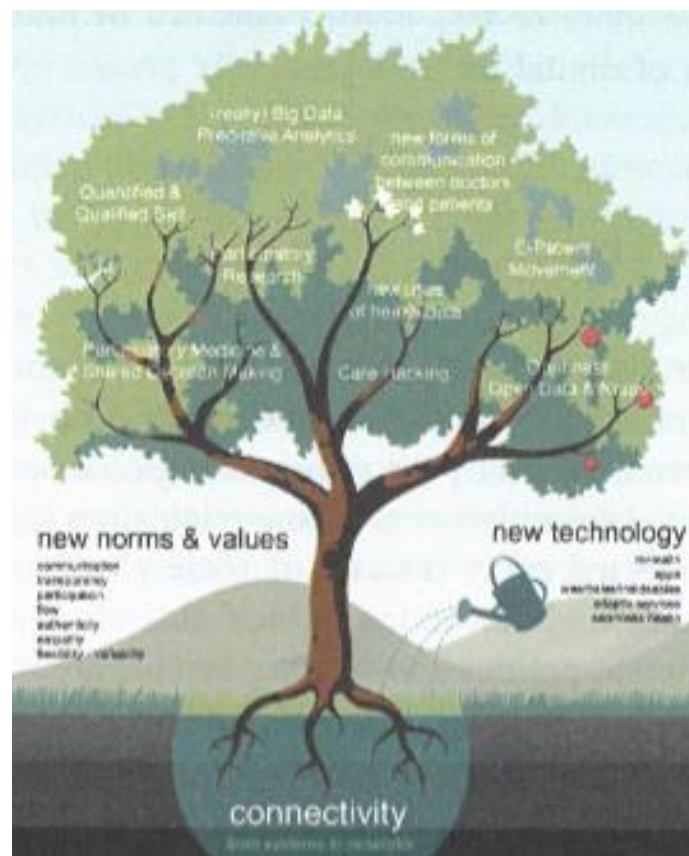


Figure 2.1: The e-Health Tree

Source: The Digital Transformation of Healthcare

(Belliger, A., & Krieger, D. J., 2018)

2.2. Pandemic in the healthcare sector

It is known that this pandemic affected all areas of people's lives and even in developed countries, they are finding it hard to balance everything.

In the USA (United States of America), a lot of Americans found themselves without health care coverage because they were unemployed. Even before the pandemic, having a health insurance still meant having a lot of costs. Thus, Americans who had insurance, still refused treatment sometimes because the costs associated were too high. Of course, now this situation got even more sensitive with people losing their income and Congress having to step in to make agreements with private insurers and start medical funds to assist on testing (King, J. S., 2020). This just goes to show that, even in a developed and fundamental country as the US, people are finding it hard to get access to proper health care.

Blumenthal, D. et al (2020), also state that insurance coverage is a big problem due to unemployment and high costs. Furthermore, people of colour and minorities tend to be even more affected, due to riskier jobs during the pandemic and overall poorer life quality (food and housing). To face these problems, the US health system must face a reform by appropriating more funds to deliver better health care and upgrading the insurance coverage, offering more payment possibilities to Americans.

Moreover, people who suffer from non-communicable diseases (e.g. cancer, diabetes) are not getting the treatment they need. According to a survey conducted by the World Health Organization (WHO) with 155 countries, 49% of them have partially or completely disrupted treatment for diabetes and diabetes-related complications; in 94%, health workers who were working with non-communicable diseases, were reassigned to help with covid-19. Also, 50% of the countries postponed scans for cancer treatments, following *WHO* recommendations to minimize non-urgent disease care. In Portugal, almost 1000 cases of breast cancer (and other types) were not diagnosed (Observador, 2020). This happened because the screenings have not been taking place as they should and some consultations in medical centres occur without an actual doctor in sight, which results in a misdiagnosis due to an inaccurate examination. As Rosenbaum, L. (2020) also stated, in the USA, a lot of cancer related therapies have been facing some changes, with physicians pushing back surgeries and other cancer related cares (e.g. immunosuppressive therapy) that require a visit to the hospital. Although this is not an ideal situation, some of these changes will not affect the long-term outcomes. However, many other conditions have been put on hold, in the worst cases leading to deaths; in some other cases, people's urgent conditions get rapidly worse while they wait for a covid-19 test before getting

assisted. More than ever, physicians have a crucial role reassuring their patients that they are being taken care of and despite all the struggles with covid-19.

Even though this pandemic has taken a toll on patients and their healthcare, health care workers also had to face their struggles. The pandemic resulted in a shortage of equipment and personnel, which resulted in a massive adaptation from the health care workers. Not only were they more vulnerable to the virus by being in direct contact with infected patients, but they also seen their mental health affected. Working extra shifts, the risk of infection and lack of resources were and are all variables that affect these workers. By working in a highly stressful environment, aligned with fatigue and being kept apart from their families due to risk of transmission, healthcare workers are going through challenging and hardworking times (Giannis, D., 2020).

However, there are some health care workers who are refusing to work in such sensitive conditions. According to Essex, R., & Weldon, S. M. (2021), by the end of 2020, an estimated number of 7000 health care works had died due to covid-19 and many continue working under an outrageous lack of resources and protective equipment, all because of the governments' neglect of this public health threat. So, a serious number of health care workers argue that they should not be put at risk due to health systems' underfunding and the governments' inability to prepare and deal with a pandemic. All this displeasure led to some health care strikes worldwide. For example, in Hong Kong, in the beginning of February 2020, experts urged the government to close its borders since they were dealing with an "unknown pneumonia" and wanted to mitigate its risks until the found out what it really was. However, the government did not act and after some failed dialogue attempts health care workers went on strike demanding boarder closing, more protective equipment and safe facilities to deal with infected people.

In a conjoint effort to try to alleviate health care workers' pressure in the USA, different groups of volunteers have come together (e.g., retired physicians and medical students) in order to support acute care systems (when a patient receives active but short-term treatment for a severe injury or episode of illness) and licensing restrictions have been lifted to allow physicians to practice in other states (Cahan, E. M et al., 2020). However, in the future, if governments' want to provide a better response to this pandemic and other diseases' outbreak, they should focus on creating a national platform capable of tracking and allocating resources where they are needed the most, as the later authors advocate. As some other organizations (like *Vital Strategies* and *Volunteers in Medicine*) already started, this platform will allow to set up national bases of volunteer physicians from different specialties and sending them to communities that require immediate health assistance (physical or virtual) that don't have the

means to access it. Moreover, they can also assist state held facilities such as hospitals and nursing homes and create drive-through screening clinics, enduring failures at the “primary layer of state emergency response to workforce shortages”.

2.3. Telemedicine

The term telemedicine was first used in the 1970s by the American Thomas Bird and its translation literally means “to heal at a distance” by using ICT (Information and Communication Technology) to improve access to care and medical information. There is not only one definition of telemedicine, given it is an ever-evolving science always adapting to new technologies and health needs.

According to the World Health Organization, telemedicine is “The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities”. Furthermore, Weinstein et al. (2013), declare that “telemedicine allows clinical services to leverage information technologies, video imaging, and telecommunication linkages to enable doctors to provide healthcare services at a distance”. Although there are other concepts in this scope like telehealth (a concept that is originally broader than telemedicine), for the purpose of this literature review, telemedicine and telehealth are the same, since WHO’s definition of telemedicine includes the training and continuous education of health care providers (originally linked only to telehealth).

Aziz, H. A., & Abochar, H. (2015) state that telemedicine can include e-mail, two-way video (videoconference), wireless tools, smartphones, etc. This concept can be divided in two: asynchronous (store and forward) and synchronous (real time) medicine. The former does not require both parties to be available at the same time of data exchange: “data can be collected, organized and stored” and then forward to diagnose and analyse. One example is when two health professionals exchange patient data (e.g., radiology images) through email; on the other hand, synchronous medicine is when both the patient and the health professional need to be in touch at the same time for a visual examination to happen, usually through videoconference (e.g., patient consultation). Furthermore, besides asynchronous and synchronous, Harvard Medical School also includes remote patient monitoring: when measurements such as weight or blood pressure are sent to the health care provider through an electronic device.

Although telemedicine represents a different and, in some cases, better way of delivering healthcare, it is crucial to evaluate its advantages as well as its disadvantages. According to Harvard Medical School and the American Telemedicine Association, some of the advantages are:

Improved access and convenience: since telemedicine appeared, a lot of the associated services have been upgraded as well as the technology used. Nowadays, it is possible for people in different areas of the globe to have access to a physician in a safer and more effective way, especially for those who live in a rural area.

Cost efficiency: adopting virtual technologies to deliver healthcare can have a positive impact in reducing the associated costs, both for the hospitals and its patients. Healthcare providers can be more effective when delivering consultations and patients (and healthcare providers in some situations) can reduce travel costs. Some chronic diseases are easy to monitor at home and hospitals will have less people in its facilities.

Infection's control: especially with covid-19, visiting the hospital has become a bit stressful, with a shortage of consultations of certain specialties, stricter safety measures and the risk of contracting the virus. Thus, telemedicine has become a good alternative for people who do not feel comfortable going to the hospital and to the ones who had their follow-up cancelled.

On the other hand, according to the same entities, some disadvantages are also addressed:

Technology concerns: sometimes it is difficult to find a platform that fits all the criteria and has a strong connection. Also, there are people who are not comfortable with the inherent technology and, consequently, cannot use a computer for a video consultation (that is why most elderly people have their consultations through a phone call). Furthermore, the security of personal data shared in these this type of connection is always a concern since it cannot be verified as secure due to hackers.

Specific examinations: although telemedicine represents a strong substitute of normal consultations, there are still some things that are impossible to execute: blood samples and imaging tests (e.g., x-ray) still demand a visit to the doctor's office. Furthermore, depending on the specialty, may be necessary for a physical exam (for example in dermatology); on the other hand, in psychology it is easier to proceed with telemedicine, since the consultation is based on a conversation.

Patient-doctor relationship: one of the main factors that improve the quality of the consultation is the relationship between both parties. During the teleconsultation, it is possible for patients to not feel connected with the doctor as if they were there in person. Thus, this can

result in a miscommunication of the symptoms and less efficient consultation and course of treatment for the patient.

2.3.1. Telemedicine in Portugal

The Ministry of Health defends the use of Telemedicine for consultations and monitoring. According to Dispatch No 3571/2013 (Annex A), published in *Diário da República* on March 6th, 2013, teleconsultation's use is encouraged in some situations, highlighting advantages such as the reducing the distance between health services, reduction of unnecessary travel, faster response in some specialties and greater support for those who work and live in more distant areas. Furthermore, telemonitoring has an equally important and rapidly growing role in the follow-up of some chronic illnesses at home through the implementation of a service that, interconnected with SNS, guarantees remote monitoring, practiced by a team of professionals. The same Dispatch also states that there is a lack of a coherent massification strategy regarding the use of this technology in SNS and establishes priority specialties for the use of teleconsultation such as dermatology, physiatry, neurology, pediatrics, cardiology and pneumology.

On June 5th, 2015, *Direção-Geral da Saúde* published Norm No 010/2015 referring to the Teleconsultation Operating Model (Annex B), a document that clarified how teleconsultations should work, setting rules and norms health care providers must follow. In Portugal, to this day, telemedicine is currently present in several health units, and covers the following areas: teleradiology, telecardiology, telepsychiatry, tele-emergency, telegynecology, teledialysis and teleconsultation (via videoconference).

Furthermore, on July 11th, 2017, it was published Norm 207/2017 (Annex C) that clarifies the difference between “Medical consultation without the patient's presence” and “Teleconsultation”. The former represents a medical consultation where the patient is not present which can result in counselling, prescribing or referral to another service and can also be associated to different forms of communication such as traditional mail, telephone, e-mail or another; the latter, also represents a medical consultation, in the scope of telemedicine, conducted at a distance with the use of interactive, audiovisual and data communications, and with mandatory registration in the equipment and in the patient's clinical file. It can be divided into two categories: asynchronous (store and forward), using interactive, audiovisual and data communications during the medical consultation, collecting data with the patient's knowledge, that will be sent to a third entity that will evaluate and disclosure the results after; and synchronous (real time), using interactive, audiovisual and data communications in a real time

consultation, with the doctor and the patient both present in different locations, and all the information disclosed in the moment. The same Norm also mentions telemonitoring, that represents remote medical supervision using information and communication technologies, namely through videoconference and remotely manipulated medical equipment.

According to INE (Instituto Nacional de Estatística), in 2014 telemedicine was conducted in 33% of hospitals, which represents an increase of 12% in the previous four years alone: 51% of which were official entities and 15% private entities. According to Figure 2.2 below, between 2004-2014 teleradiology was carried out in 84% of hospitals, followed by teleconsultations in 31%.

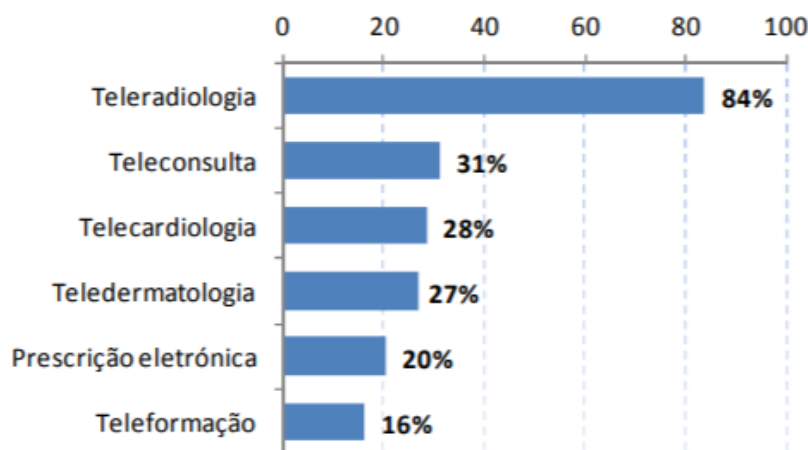


Figure 2.2: Proportion of hospitals that carry out telemedicine by type of activity performed in Portugal (2004-2014)

Source: INE

However, as mentioned before, telemedicine has been around for several years. It all started in 1998 when the Pediatric Cardiology Service at Centro Hospitalar e Universitário de Coimbra (CHUC) with the main goal to provide accessible healthcare worldwide (more specifically to Portuguese-speaking African countries – PALOP) and also national wide, without having to transfer sensitive patients to examine them, all through a teleconsultation platform. There are different forms of application that vary from clinical observations at emergency level, first diagnosis, observation or follow-up, etc.

Telemedicine has been designated as one of the axes aiming to reach quality improvement and effectiveness in primary healthcare in the context of SNS' new strategy, with Portugal having to overcome geological barriers and shortage of personnel. This shortage is aggravated when families have to visit a certain specialty that only exists in hospitals in urban areas or have an emergency that requires immediate care; a family that lives in a rural area incurs in a high travelling cost just to get to the first appointment and, after that, the follow-up consultations.

Rural areas often lack specialized care, that is why it is so important to implement and integrate ICT (Information and Communications Technology) systems that allow patients to access fair healthcare services as well as professionals to get the right training, when distance represents a huge barrier (Maia, M.R., et al., 2019).

The same authors developed a study in order to understand the evolution of Pediatric Cardiology Service at Centro Hospitalar e Universitário de Coimbra (CHUC) and its impact in public health, in order to understand what contributes for the implementation and sustainability of telemedicine. From 1998 to 2016, roughly 32,685 out-patient teleconsultations (from diagnosis to treatment) were conducted, with this service being considered a pioneer in its field. Furthermore, this telemedicine service allowed SNS to save around 1,1 million euros in administrative and logistic costs and 419 euros per patient (with an average of 1777 patients per year). All of this work was only possible due to teamwork and perseverance of everyone involved, making professionals and patients more engaged. Moreover, the hospital's support also played a tremendous role for this service's prosperity.

However, despite this undoubtable case of success, Portugal still has a long way when it comes to create awareness regarding telemedicine.

“Associação Portuguesa de Telemedicina” (APT), with the collaboration of research doctors Catarina O'Neill and Margarida Matias, and support from “Ordem dos Médicos”, conducted a study in order to evaluate doctor's opinion about teleconsultations and understand whether it might be a viable alternative to a regular consultation after the pandemic. The results showed that only 8% of doctors made a video call during the teleconsultation (in the first phase of the pandemic). This happens because hospitals do not provide doctors with the right equipment to do so. However, 82% strive to the possibility to incorporate video support in their teleconsultations. Eduardo Castela, APT's President, states that phone calls are not as effective as video calls and that the respondents believe that the video feature makes all the difference when trying to deliver the best care possible. Nonetheless, it is important to test this new format, selecting specific patients to do so, in order to guarantee that all the parts (doctor, patient and system) are in sync. It is also important that all the criteria must be adapted depending on the consultation's specialty. Even though some difficulties occur, 50% of the respondents are “satisfied” or “very satisfied” with the teleconsultation conducted, with only about 16% being “unsatisfied” or “really unsatisfied”. This study had 2,225 respondents, collected between 2nd July and 11th September 2020, through an online questionnaire.

3. Methodology

After the research questions have been set, it is important to structure the path to answer them and provide useful insights for this research. In order to do so, a questionnaire was developed to better understand the state of patients' perception of telemedicine in Portugal and, after that, the answers will be analysed, and the research questions answered.

3.1. Research Design

The main goal of this questionnaire is to understand the past and current state of telemedicine, as well as people's intentions for the future. Thus, anyone who had an experience in a Portuguese hospital (public or private) was able to answer it, with no restrictions.

After all the answers are collected, the objective is to understand, correlating different variables, what are the main positive and negative aspects of everyone's experience. After that, it will be possible to deduct what constraints are blocking telemedicine's growth and what actions to take to make telemedicine more appealing.

3.2. Data Collection

3.2.1. Questionnaire development

The questionnaire was based on a quantitative approach. In terms of distribution, the survey was distributed online, both by e-mail and social media and. As mentioned before, it was open to everyone, so everyone had the option to answer, whether they were under eighteen or over seventy-five years old, as long as they agreed to it. The former was named "Perceção dos utentes portugueses relativamente à teleconsulta antes, durante e após a pandemia (covid-19)": it was developed and answered in Portuguese since the respondents could only be part of the Portuguese population and its main goal was to evaluate the state of telemedicine in Portugal only. Even the people who had not had a teleconsultation, were able to answer it. Furthermore, based on each individual responses, the questionnaire led to different next questions.

As the questionnaire was made, it was taken into consideration the fact that the questions should be easy to answer and direct. Thus, they were formed in order to be closed-ended, making it simpler and easier to answer. In the end, there was an open space where individuals were able to leave comments or suggestions regarding the matter.

The questionnaire was divided into six sections:

- i. Socio-demographic classification – first section meant to segment people into different categories, in order to filter the results (e.g., gender, age, district of

residency, literary abilities, professional situation and what type of healthcare facility they attend);

- ii. Security in access to healthcare – current situation – this section served as an introduction to the questionnaire’s actual purpose. It was meant to evaluate how people felt if they needed to go to the hospital to be assisted by a doctor;
- iii. Access to teleconsultation – before the pandemic – meant to evaluate the knowledge people had about telemedicine before the pandemic, if they had a teleconsultation (whether respondents answered yes or no, it was asked for them to choose all the different options to justify why) and all its logistic aspects.
- iv. Access to teleconsultation – during the pandemic – this section has the same layout and questions as the one before (except two questions that had more options to choose from considering the pandemic – for example, it was added “fear of contamination,” as a reason why they chose to have a teleconsultation), with the difference that it is meant to evaluate people’s experience during the pandemic.
- v. Teleconsultation – general perceptions – first, respondents were asked about which speciality was more common for them to have teleconsultations and what was the type of disease (acute or chronic). Following this, each individual had to evaluate its own experience, grading a set of affirmations (e.g., “The teleconsultation was more convenient for me/more flexible for my routine.”, “The teleconsultation allows me to incur in less costs.”, etc.) on the following scale: totally agree, agree, indifferent, disagree, totally disagree or no opinion. Moreover, respondents answered what were the main difficulties they had during the teleconsultation, choosing from different options and, in the end, their satisfaction level based on the following scale: very satisfied, satisfied, indifferent, slightly satisfied, not satisfied. Only respondents who had a teleconsultation before or during the pandemic were able to answer this section;
- vi. Access to teleconsultation – future intentions – the last section was meant to evaluate whether respondents considered starting to have/maintaining teleconsultations in the future, in what kind (first, subsequent (follow-up) or both) and if they would consider it as a first choice. In the end, there was open space for comments/suggestions.

3.2.2. Primary Data

Primary data was collected only through the questionnaire developed. The target population was defined as follows: the element (i.e., the respondent) were patients in general, whether they attend public or private hospitals and whether they have had a teleconsultation before or not; the extent (i.e., geographic boundaries) was Portugal as a whole, since it will allow to obtain a bigger sample and the goal of the research is simply to study Portugal's scenario; and, finally, the questionnaire was developed in March 2021 and distributed between May 2021 and the first week of June 2021. Furthermore, the research design will also be cross-sectional, since the information will be collected from any given sample of the population only once.

Regarding the sampling technique, this questionnaire will follow a probability sampling. More precisely, a simple random sampling in where each element in the population has a known, equal and independent probability of selection. Furthermore, to analyse the data, a quantitative analysis will be carried out.

The complete questionnaire can be found in Annex D.

3.2.3. Secondary Data

Secondary data was used to describe the research context. It was important to collect information that showed the state of telemedicine in Portugal, its history and cases of success. Thus, an intensive research was carried out in order to build a solid foundation to support the current research.

This information was obtained on the internet through articles, news, government platforms (e.g., *Serviço Nacional de Saúde's* website), *APT's* website, and other sources of information.

4. Data Analysis and Results

In total, 302 responses were obtained. Every response was considered since the questionnaire did not have a pre exclusion criteria. People who had not had a teleconsultation could answer the questionnaire, however, considering each response, the questionnaire followed different paths.

4.1. Socio-demographic description

	N	% Total
Total	302	100%
Gender		
Female	197	65%
Male	103	34%
Other	2	1%
Age group		
≤ 18	10	3%
18-24	113	37%
25-34	30	10%
35-44	24	8%
45-54	48	16%
55-64	57	19%
65-74	12	4%
≥ 75	8	3%
District of residency		
Açores	10	3%
Aveiro	4	1%
Beja	3	1%
Braga	1	0%
Bragança	0	0%
Castelo Branco	3	1%
Coimbra	13	4%
Évora	4	1%
Faro	1	0%
Guarda	0	0%
Leiria	6	2%
Lisboa	211	70%
Madeira	2	1%
Portalegre	1	0%
Porto	7	2%
Santarém	8	3%
Setúbal	26	9%
Viana do Castelo	0	0%
Vila Real	1	0%
Viseu	1	0%

Education level		
Primary School	6	2%
Basic School	12	4%
High School	88	29%
University (bachelor and master's degree)	196	65%
Professional situation		
Student	59	20%
Student worker	33	11%
Self-employed	23	8%
Third party employee	147	49%
Unemployed	13	4%
Retired	27	9%
Health unit frequented		
Health Center	125	41%
Private Hospital	130	43%
Public Hospital	47	16%

Table 4.1: Respondents' socio-demographic description

4.1.1. Gender

From all the respondents, 65% were female (n=197), 34% were male (n=103) and 1% (n=2) other (meaning they do not identify as female or male).

4.1.2. Age group

The most represented age group from all the respondents was between 18-24 years old with 37% (n=113) of the sample, followed by 55-64 with 19% (n=57), 45-54 with 16% (n=48), 25-34 with 10% (n=30), 35-44 with 8% (n=24), 65-74 with 4% (n=12), 18 or less with 3% (n=10) and 75 or more with 3% (n=8).

4.1.3. District of residency

When it comes to the respondents' district of residency, the most represented is Lisboa with 70% (n=211), followed by Setúbal with 9% (n=26), Coimbra with 4% (n=13), Açores and Santarém with 3% (n=10 and n=8, respectively), Porto and Leiria with 2% (n=7 and n=6, respectively), Aveiro, Évora, Beja, Castelo Branco and Madeira with 1% (n=4, n=4, n=3, n=3 and n=2, respectively) and, finally, Braga, Faro, Portalegre, Vila Real and Viseu with 0% (all with n=1). Furthermore, Bragança, Guarda and Viana do Castelo did not have any representation (n=0).

4.1.4. Education level

After analysing the education level of the respondents, it can be concluded that most of them have an University related (bachelor's and/or master's) degree, representing 65% of the sample (n=196), followed by High School with 29% (n=88), Basic School with 4% (n=12) and Primary School with 2% (n=6).

4.1.5. Professional situation

Most of the respondents are third party employees, representing 49% of the sample (n=147), followed by students with 20% (n=59), student-workers with 11% (n=33), retired people with 9% (n=27), self-employed with 8% (n=23) and unemployed with 4% (n=13).

4.1.6. Health unit frequented

The most common health unit frequented was private hospitals representing 43% of the sample (n=130), followed by health centres with 41% (n=125) and public hospitals with 16% (n=47).

4.2. Security in access to healthcare – current situation

This section of the questionnaire was meant to evaluate how the respondents' felt about accessing healthcare in present times, as well as understanding the main barriers to do so and if the pandemic affected their access to it.

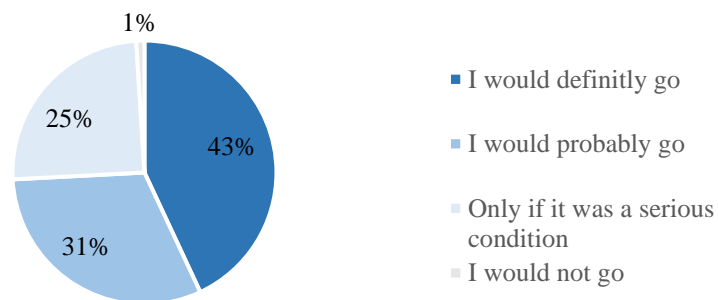


Figure 4.1: Willingness to access healthcare in person

As it is displayed in Figure 4.1 above, 43% (n=130) of the respondents would definitely go to a healthcare unit in person, followed by 31% (n=94) that would probably go, 25% (n=75) only if it was a serious condition and, lastly, 1% (n=3) would not go. This sample shows that despite the uncertain climate we are living in and the fear that some people might have to go to

a hospital, most of the respondents would definitely go and get in-person counsel by their doctor.

Next, it is important to analyse the main barriers (if there are any) that respondents put when it comes to access in person healthcare. As we can see from Figure 4.2 below, respondents are mostly concerned about avoiding a large crowd of people when traveling to a health facility in person, with this option representing 54% (n=162) of the sample. Following this, respondents also want to avoid delays in service (e.g. waiting for a consultation, exams) and/or appointments (e.g. scheduling appointments, exams) with this option representing 34% (n=102) of the sample, followed by being afraid of getting infected with covid-19 and not wanting to overload the health system both with 32% (n=96), 18% (n=54) do not identify any barriers, 13% (n=38) want to avoid public transportation, 12% (n=37) have contact with people with a risky health condition and, lastly, 8% do not trust that the facilities are disinfected correctly and have a risky health condition (n=24 and n=23, respectively). In this question, the respondents could select more than one option.

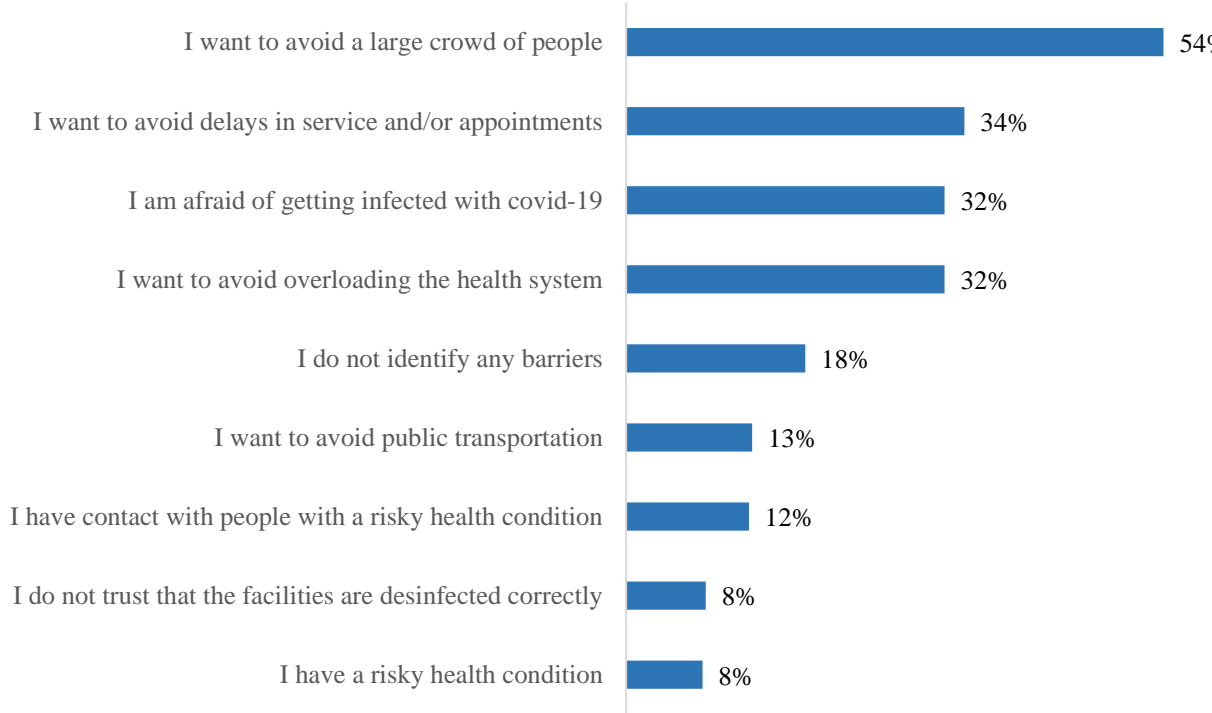


Figure 4.2: Barriers in accessing healthcare in person

Lastly, the main goal was to understand if the pandemic affected the respondents' access to healthcare. As demonstrated in Figure 4.3, 38% (n=114) of the respondents agree that the pandemic affected their access to healthcare, followed by 23% (n=70) who consider that it was

indifferent (do not agree or disagree), 20% (n=61) who disagree, 12% (n=37) who totally agree and 7% (n=20) who totally disagree.

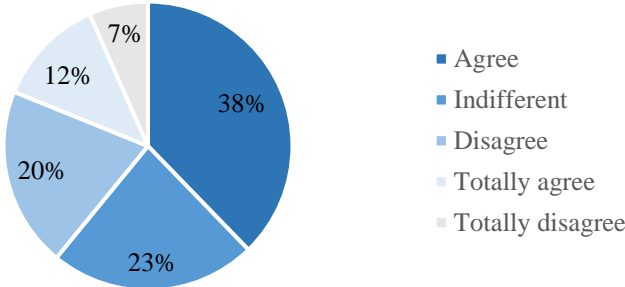


Figure 4.3: Level of agreement on how the pandemic affected the access to healthcare

4.3. Access to teleconsultation – before the pandemic

Following the latest section, the questions started to become more specific and about the respondents’ personal experiences with teleconsultation. In this section, those experiences will be evaluated, focusing on the period before the pandemic.

First of all, it was important to understand how familiar people were with the concept of teleconsultation before the pandemic started. As it is demonstrated in Figure 4.4, 59% (n=178) were not aware of this concept, whilst 41% (n=124) were. This goes to show that, before the pandemic, respondents were mainly uninformed about this.

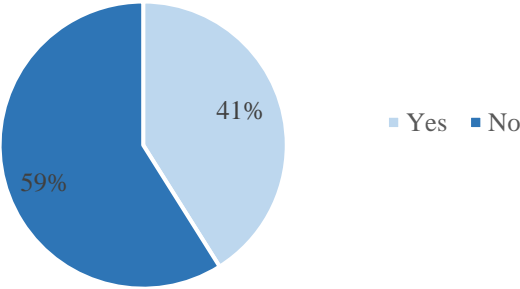


Figure 4.4: Familiarization with the concept of teleconsultation before the pandemic

Following this, it was also discovered that only 9% of the respondents (n=26) had a teleconsultation before the pandemic, contrasting with 91% (=276) who did not have any (Figure 4.5).

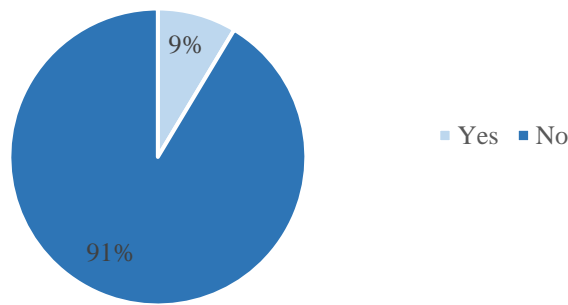


Figure 4.5: Teleconsultations conducted before the pandemic

From the 9% (n=26) who had teleconsultations, the main reasons why they chose to have it were: 50% (n= 13) saved more time on hospital trips, 46% (n=12) claimed to have access to a computer/mobile/smartphone and internet connection that allowed them to connect with their doctor, 39% (n=10) considered the waiting time for the consultation shorter, 35% (n=9) considered that it allowed them to have more flexible schedules, 31% (n=8) incurred in less traveling costs to the hospital and 15% (n=4) trusted the connection’s security. Respondents were able to choose more than one option. (Figure 4.6).

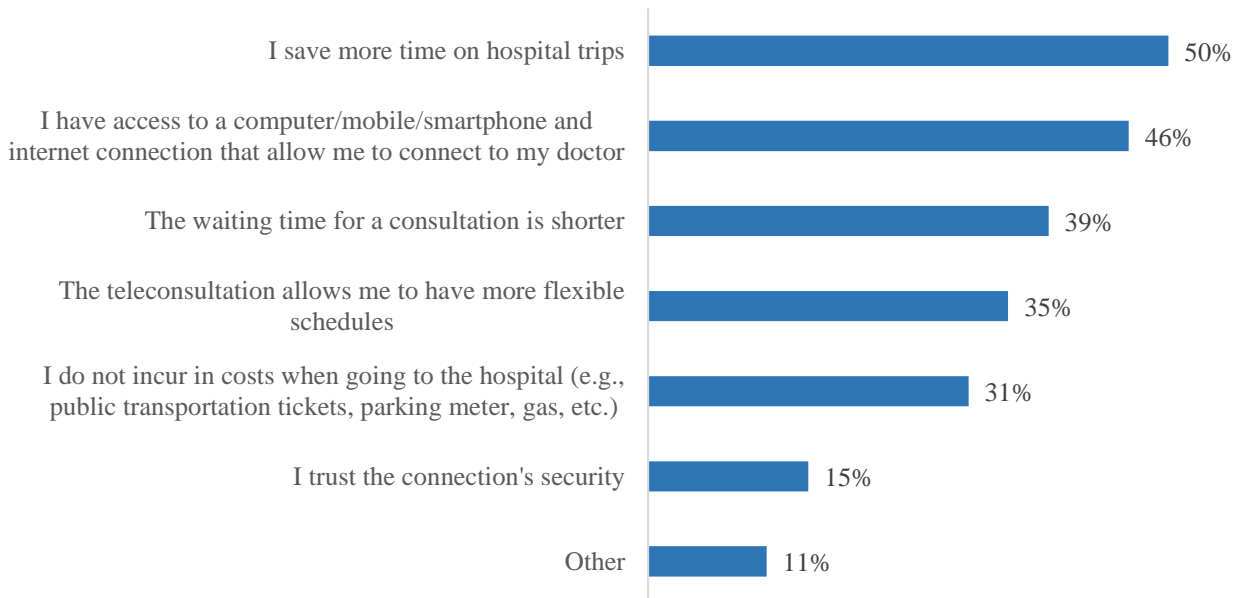


Figure 4.6: Reasons why respondents had a teleconsultation before the pandemic

From the 91% (n=276) who did not have any teleconsultations, the main reasons were: 51% (n=142) consider in person consultations more complete, 45% (n=124) were not given the option from the hospital, 29% (n=81) were not aware that teleconsultation was an option, 28% (n=78) prefer to go to the hospital to be seen in person, 10% (n=27) are concerned with the impossibility to deliver/receive documents (e.g., exams performed, scheduling of next appointment, exam request, prescriptions), 2% (n=6) struggle in adapting to communication technologies (e.g., accessing the Internet, email, using a computer/mobile/smartphone), 1% do not trust the connection's security and do not have access to a computer/mobile/smartphone and internet connection that allow me to connect to my doctor (n=3 and n=2, respectively). Respondents were able to choose more than one option. (Figure 4.7).

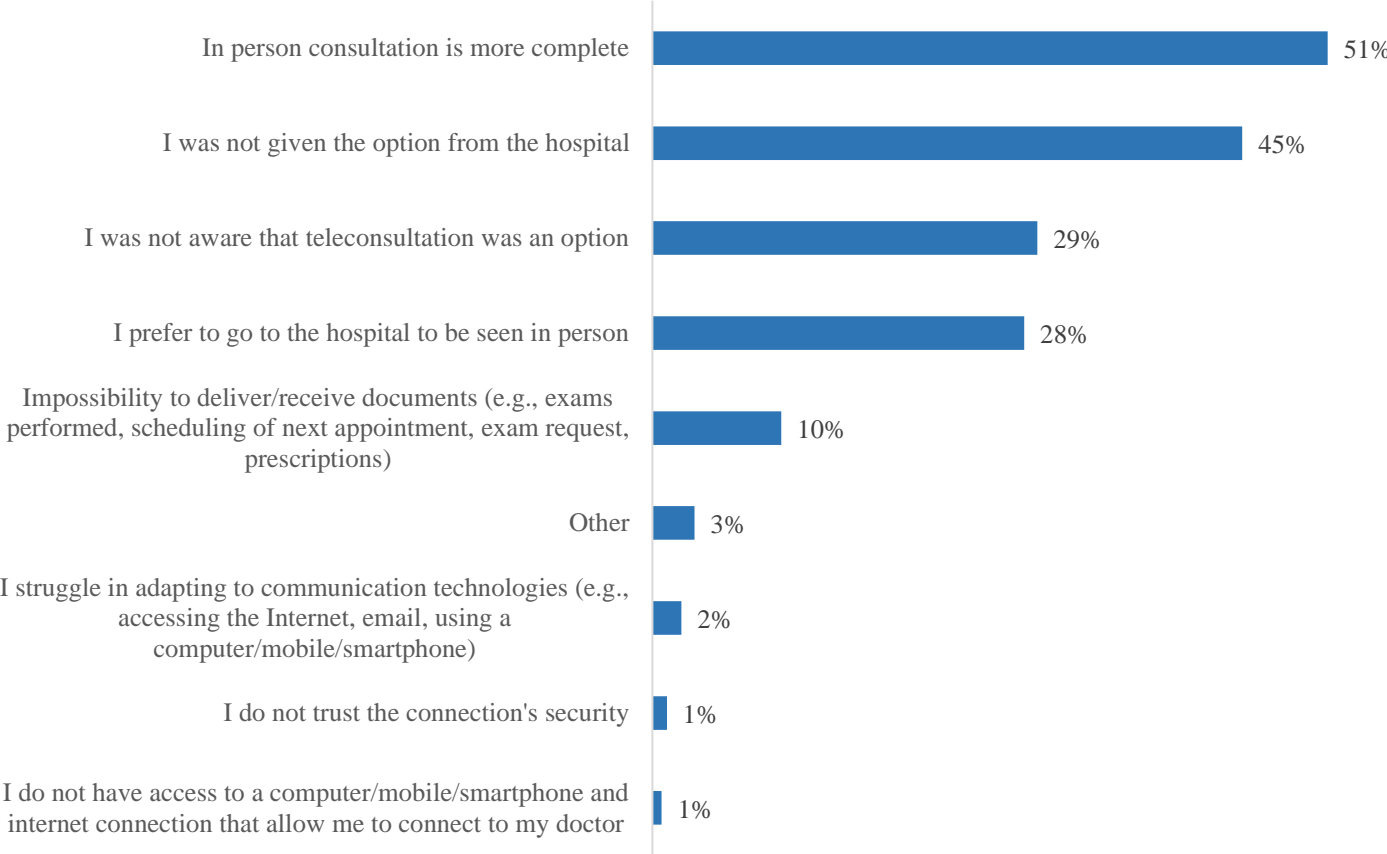


Figure 4.7: Reasons why respondents did not have any teleconsultation before the pandemic

Lastly, in this section, other logistics aspects were asked to the respondents who had a teleconsultation before the pandemic (n=26), as follows:

65% (=17) personally chose to have a teleconsultation, whilst 35% (n=9) had the teleconsultation scheduled by the hospital (Figure 4.8).

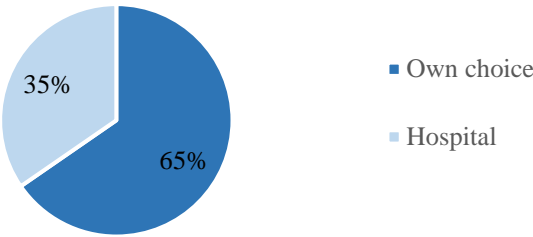


Figure 4.8: Teleconsultation scheduling

42% (n=11) had a first consultation, 39% (n=10) a subsequent consultation and 19% (n=5) had both (Figure 4.9).

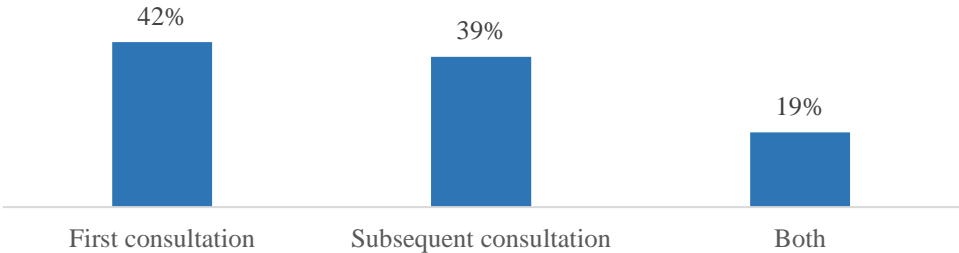


Figure 4.9: Type of teleconsultation(s) carried out

58% (n=15) had the teleconsultation over a phone call and 42% (n=11) through a video call (e.g., Zoom, Teams, Skype, Imed, RSE Live, etc.) (Figure 4.10).

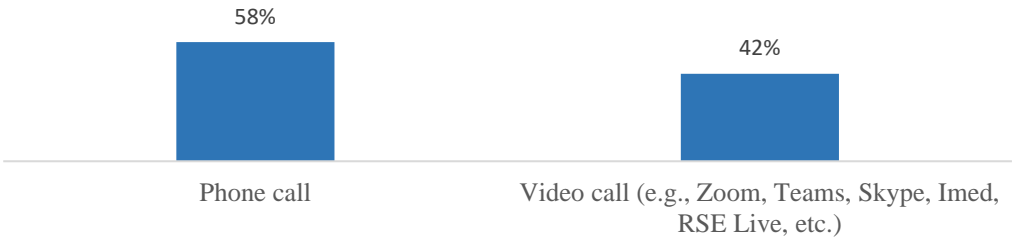


Figure 4.10: How the teleconsultation was carried out

89% (n=23) were in their own residence when they had the teleconsultation and 12% (n=3) were in their workplace (Figure 4.11).

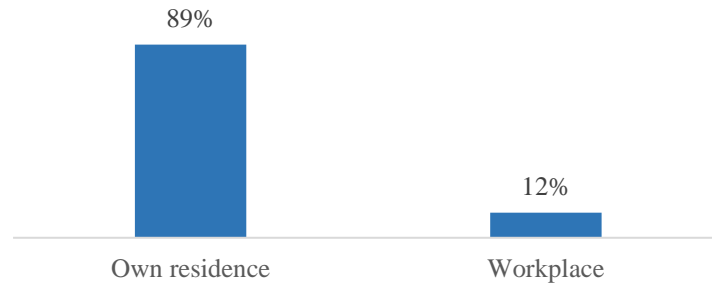


Figure 4.11: Location where the teleconsultation was carried out

Lastly, respondents were asked if before the pandemic and considering their experience, they decided to keep the teleconsultation(s) instead of going to the hospital. 42% (n=11) did not consider, 31% (n=8) only for subsequent consultations, 19% (n=5) considered maintaining it and 8% (n=2) only for first consultations (Figure 4.12).

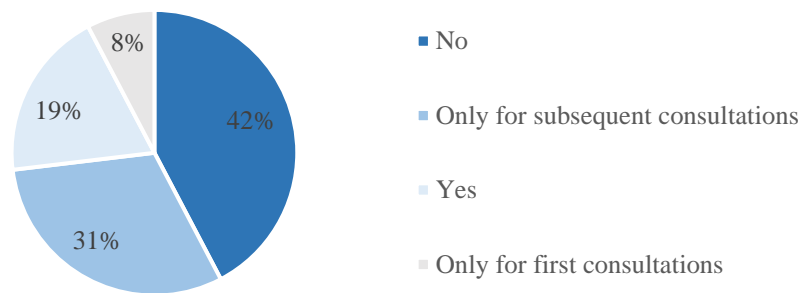


Figure 4.12: Intentions to keep having teleconsultation(s)

4.4. Access to teleconsultation – during the pandemic

This section is similar to last one, with the only difference that the questions were meant to evaluate the experience during the pandemic.

Following the same flow as the last section, it was important to understand how familiar people were with the concept of teleconsultation when the pandemic started and during it. As it is demonstrated in Figure 4.13, only 33% (n=101) were not aware of this concept, whilst 67% (n=201) were. During the pandemic, respondents got more aware of this concept, with the people familiar with it growing by 62%.

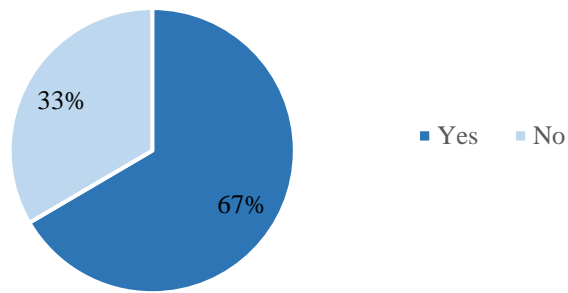


Figure 4.13: Familiarization with the concept of teleconsultation during the pandemic

As well as the growth of people familiar with the concept, the teleconsultations in general also grew by approximately 227%. 28% of the respondents (n=85) had a teleconsultation during the pandemic, while 72% (=217) did not have any (Figure 4.14).

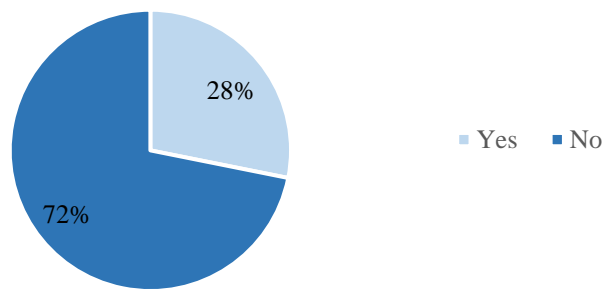


Figure 4.14: Teleconsultations conducted during the pandemic

From the 28% (n=85) who had teleconsultations, the main reasons why they chose to have it were: 48% (n= 41) considered that the risk of getting infected with covid-19 was lower, 40% (n=34) claimed to have access to a computer/mobile/smartphone and internet connection that allowed them to connect with their doctor, 37% (n=31) stated that they wanted to avoid a large crowd of people (e.g., other patients in the hospital, hospital staff, crowds in public transportation, etc.), 27% (n=23) considered that it allowed them to have more flexible schedules, 24% (n=20) stated that they save more time on hospital trips, 22% (n=19) preferred to be in an environment where they control how things are disinfected, 22% (n=19) trust the connection’s security, 21% (n=18) considered the waiting time for the consultation shorter and 15% (n=13) value not incurring in costs when going to the hospital (e.g., public transportation tickets, parking meter, gas, etc.) (Figure 4.15).

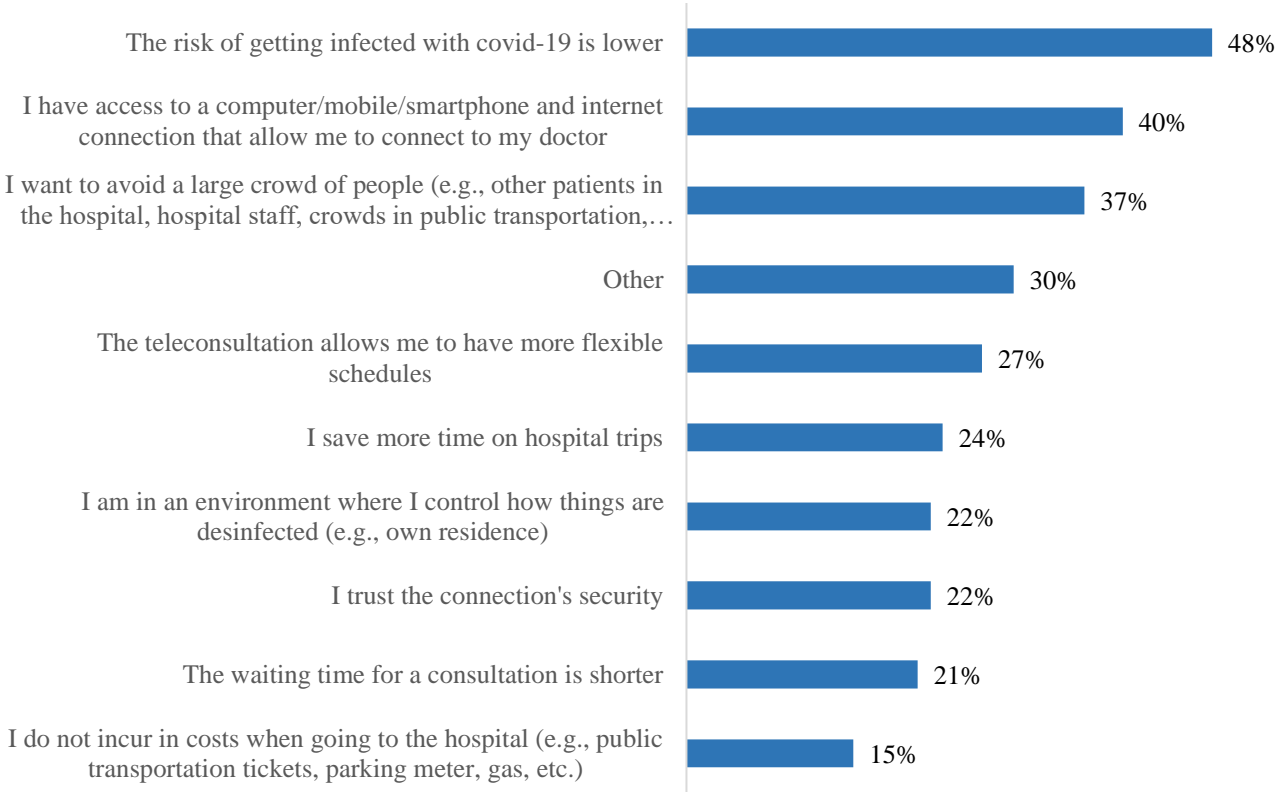


Figure 4.15: Reasons why respondents had a teleconsultation during the pandemic

From the 72% (n=217) who did not have any teleconsultations, the main reasons were: 40% (n=86) consider in person consultations more complete, 33% (n=72) prefer to go to the hospital to be seen in person, 24% (n=51) were not given the option from the hospital, 18% (n=39) consider it is easier to personally tell their doctor about their health problems, 16% (n=34) were not aware that the teleconsultation was an option, 8% (n=18) are concerned with the impossibility to deliver/receive documents (e.g., exams performed, scheduling of next appointment, exam request, prescriptions), and 1% (n=1) struggles in adapting to communication technologies (e.g., accessing the Internet, email, using a computer/mobile/smartphone). Respondents were able to choose more than one option. (Figure 4.16).

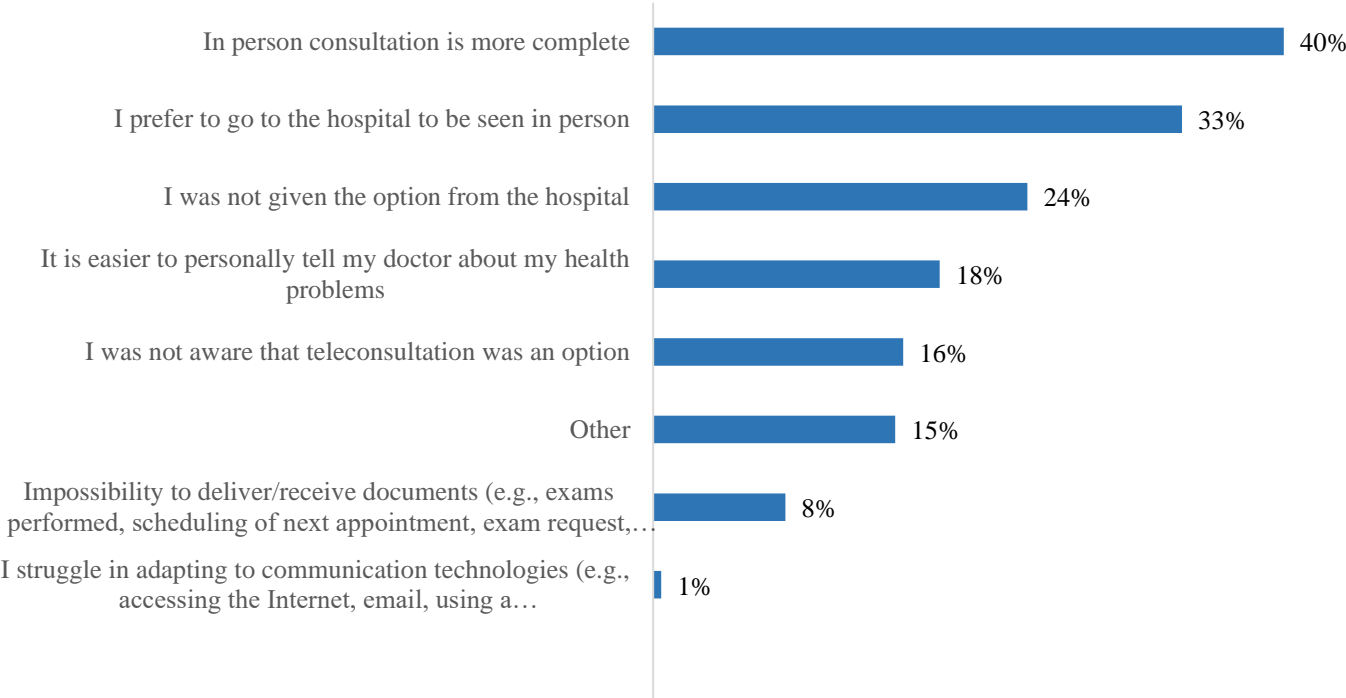


Figure 4.16: Reasons why respondents did not have any teleconsultation during the pandemic

Lastly, in this section, other logistics aspects were asked again to the respondents who had a teleconsultation during the pandemic (n=85), as follows:

41% (=35) personally chose to have a teleconsultation, whilst 59% (n=50) had the teleconsultation scheduled by the hospital (Figure 4.17).

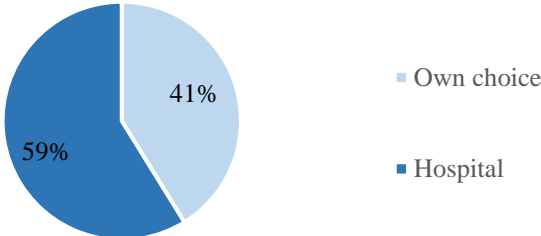


Figure 4.17: Teleconsultation scheduling

19% (n=16) had a first consultation, 61% (n=52) a subsequent consultation and 20% (n=17) had both (Figure 4.18).

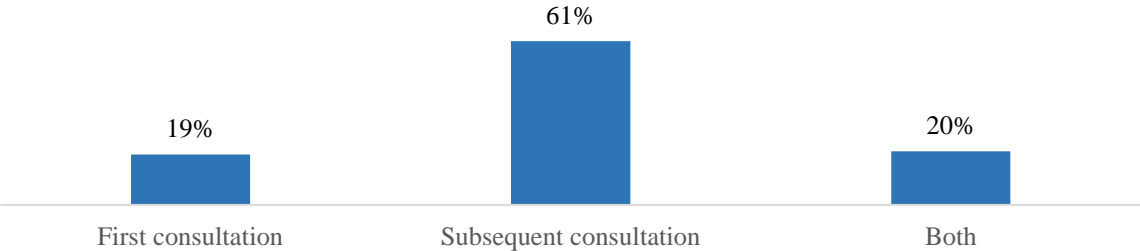


Figure 4.18: Type of teleconsultation(s) carried out

71% (n=60) had the teleconsultation over a phone call and 29% (n=25) through a video call (e.g., Zoom, Teams, Skype, Imed, RSE Live, etc.) (Figure 4.19).

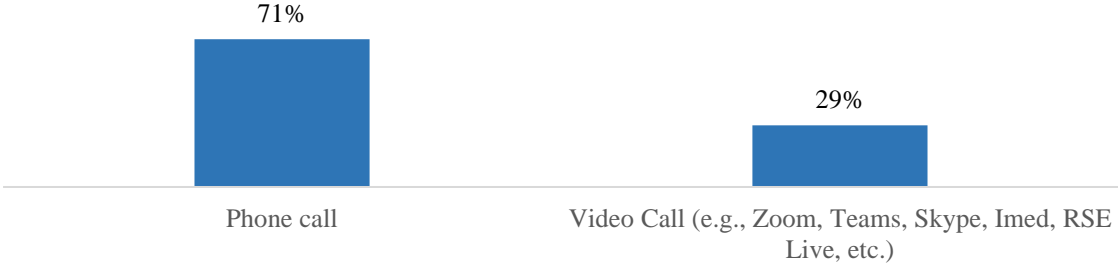


Figure 4.19: How the teleconsultation was carried out

91% (n=77) were in their own residence when they had the teleconsultation and 5% were in their workplace or outside (n=4 in both cases) (Figure 4.20).

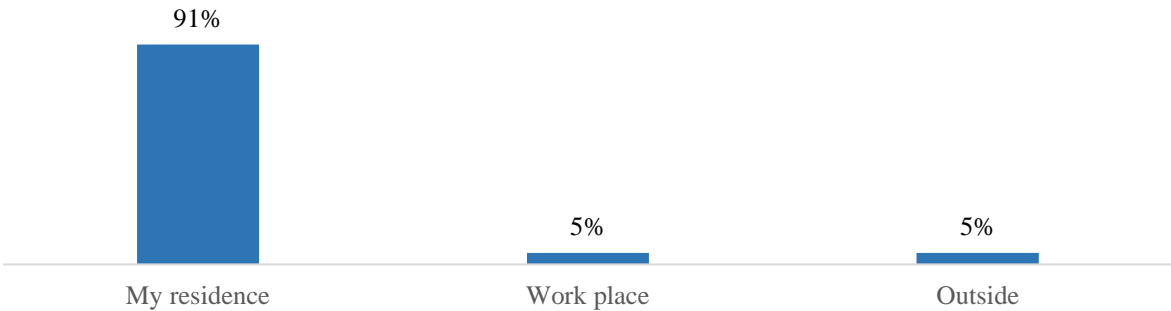


Figure 4.20: Location where the teleconsultation was carried out

4.5. Teleconsultation – general perceptions

The main goal in this section was to evaluate the general level of contentment with the teleconsultations had by the respondents.

First and foremost, respondents (n=85 – the ones who had a teleconsultation) were asked to choose only one specialty to answer this whole section in order to be able to give precise answers. The complete table with the specialties and the number of times it was chosen by a respondent can be found in Annex E.

As it can be identified in the table in the Annexes, the specialties that appeared the most were General and Family Medicine with 36% (n=31), Clinical Psychology with 9% (n=8) and Nutrition and Psychiatry both with 5% (n=4).

From these teleconsultations, 64% (n=54) referred to a chronic illness and 37% (n=31) to an acute illness (Figure 4.21).

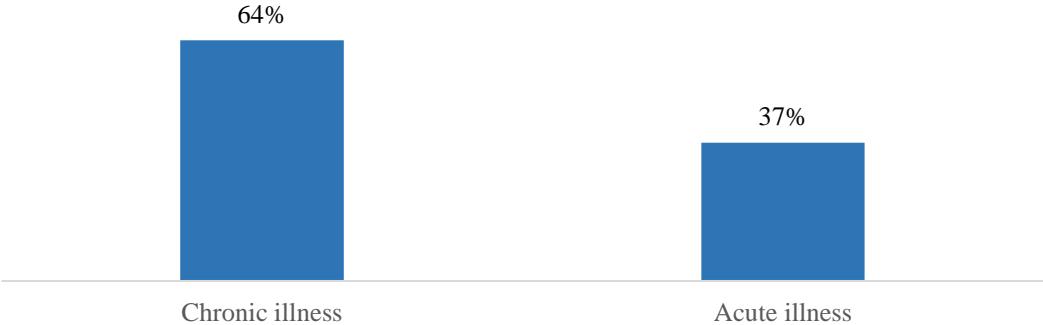


Figure 4.21: Type of disease that led to the teleconsultation

Next, respondents were faced with eleven affirmations to classify on the following scale: totally agree, agree, indifferent, disagree, totally disagree or no opinion. Those affirmations and its results were (Annex F shows these results in full detail):

- 1. The teleconsultation was more convenient for me/more flexible for my routine:** 72% (n=61) of the respondents totally agree/agree (globally), 15% (n=13) totally disagree/disagree (globally), 12% (n=10) are indifferent and 1% (n=1) does not have an opinion.
- 2. The teleconsultation allows me to incur in less costs:** 67% (n=57) of the respondents totally agree/agree (globally), 10% (n=9) totally disagree/disagree (globally), 19% (n=16) are indifferent and 4% (n=3) do not have an opinion.
- 3. The teleconsultation provides an easier access to the doctor:** 49% (n=42) of the respondents totally agree/agree (globally), 15% (n=13) totally disagree/disagree (globally), 16% (n=14) are indifferent and 1% (n=1) does not have an opinion.
- 4. The teleconsultation jeopardized the confidentiality of the medical act and my privacy:** 10% (n=9) of the respondents totally agree/agree (globally), 63% (n=54) totally disagree/disagree (globally), 18% (n=15) are indifferent and 8% (n=7) do not have an opinion.
- 5. The means of communication used in the teleconsultation are secure:** 79% (n=67) of the respondents totally agree/agree (globally), 6% (n=5) totally disagree/disagree (globally) and 15% (n=13) are indifferent.
- 6. In the teleconsultation I felt free to expose my health problems:** 80% (n=68) of the respondents totally agree/agree (globally), 10% (n=8) totally disagree/disagree (globally) and 11% (n=9) are indifferent.
- 7. The teleconsultation allowed the doctor to have an adequate perception of my clinical condition:** 54% (n=46) of the respondents totally agree/agree (globally), 18% (n=15) totally disagree/disagree (globally), 27% (n=23) are indifferent and 1% (n=1) does not have an opinion.
- 8. In the teleconsultation I was able to adequately understand the information transmitted by the doctor:** 84% (n=71) of the respondents totally agree/agree (globally), 6% (n=5) totally disagree/disagree (globally) and 11% (n=9) are indifferent.
- 9. The teleconsultation maintains an adequate doctor-patient relationship:** 53% (n=45) of the respondents totally agree/agree (globally), 26% (n=22) totally

disagree/disagree (globally), 19% (n=16) are indifferent and 2% (n=2) do not have an opinion.

10. The teleconsultation provides healthcare of the same quality as a face-to-face consultation: 33% (n=28) of the respondents totally agree/agree (globally), 47% (n=40) totally disagree/disagree (globally), 15% (n=13) are indifferent and 5% (n=5) do not have an opinion.

11. The degree of efficiency/utility of the teleconsultation is related to the specialty practiced: 66% (n=56) of the respondents totally agree/agree (globally), 13% (n=11) totally disagree/disagree (globally), 12% (n=10) are indifferent and 9% (n=8) do not have an opinion.

Then, it was also important to reflect on the main difficulties that respondents felt during their teleconsultations. First, as we can see in Figure 4.22, 40% (n=34) of the respondents did not feel any difficulties. Following this, the main difficulties felt were: impossibility to show the doctor physical changes in their body (33%, n=28), difficulty in communicating health problems to their doctor (20%, n=17), impossibility of receiving documents (e.g., scheduling the next appointment, requests for exams, prescriptions, etc.) (19%, n=16), impossibility to deliver documents (e.g., exams performed) (15%, n=13), bad technical conditions (e.g., poor call quality, Internet access, etc.) (11%, n=9), conducting the teleconsultation in a place without privacy and difficulty in understanding the information given by the doctor (both with 7%, n=6), and adapting to communication technologies (e.g., accessing the Internet, email, using a computer/mobile/smartphone) (2%, n=2). Respondents were able to choose more than one option.

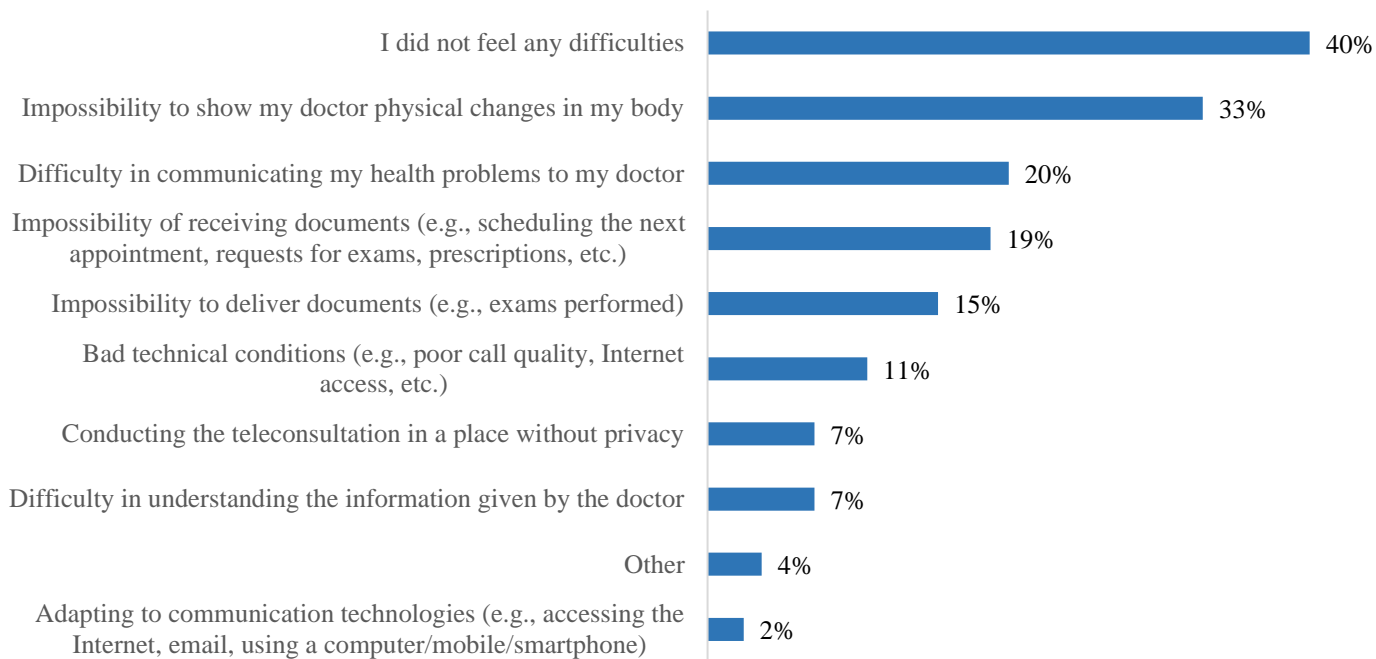


Figure 4.22: Difficulties felt during the teleconsultations

Overall, 61% (n=52) of the respondents were satisfied with their teleconsultations, 14% (n=12) were slightly satisfied, 12% (n=10 in each scenario) were both very satisfied and indifferent and only 1% (n=1) was not satisfied (Figure 4.23). In general, these results show that respondents have had a good experience with their teleconsultations.

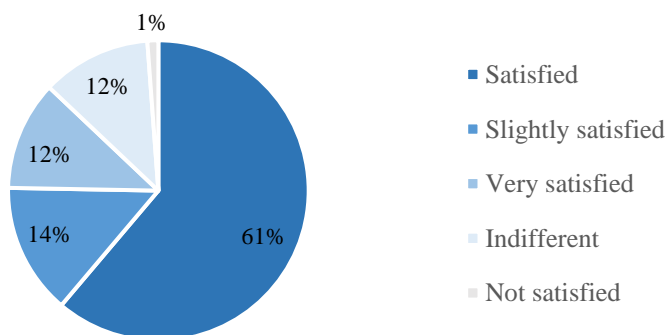


Figure 4.23: Overall degree of satisfaction with teleconsultations

4.6. Access to teleconsultation – future intentions

Lastly, when reaching the last section, the main objective is to understand what the respondents’ future intentions are when it comes to teleconsultations. Again, as this section is general and does not imply a previous experience, all the individuals that participated in this questionnaire (n=302) were able to answer.

Briefly, 55% (n=167) of the respondents stated that they only want to start having/maintain teleconsultation(s) in exceptional situations, 33% (n=100) said yes and 12% (n=35) no (Figure 4.24). For the individuals that do not wish to start having or maintain teleconsultations (n=35), the questionnaire ended.

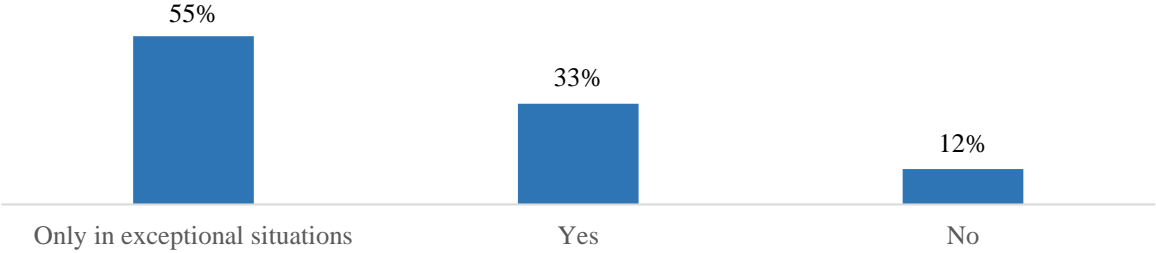


Figure 4.24: Intentions to start having/maintain teleconsultation(s)

For the remaining individuals that wish to access teleconsultations in the future (n=267), two more questions were asked.

The first one was meant to evaluate which type of consultation respondents were more likely to have through a teleconsultation. 84% (n=171) of the respondents answered subsequent consultation(s), 32% (n=85) both and only 4% (n=11) first consultation(s) (Figure 4.25).

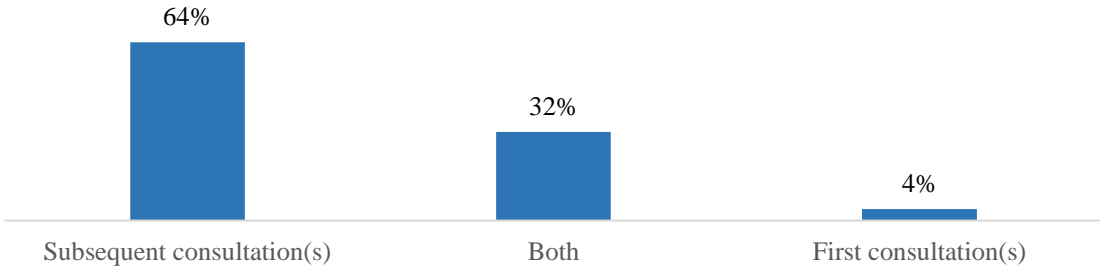


Figure 4.25: Preferred type of teleconsultation(s)

The last question asked directly whether the respondents, in the future, would consider teleconsultations as the first option (instead of a face-to-face consultation). 62% (n=165) would not consider and 38% (n=102) would (Figure 4.26).



Figure 4.26: Intentions to consider teleconsultation(s) as the first option

5. Conclusion

5.1. Main conclusions – Questionnaire

It is clear that the pandemic created instability in people's lives. This instability can be related to the financial situation, fair access to education and healthcare, loss of opportunities, etc. As time has passed, individuals, corporations, government institutions and so on, tried to fight these unprecedented times and keep moving forward to reach a new normal.

Overall, with this study, it can be concluded that most people are not afraid to access healthcare in person, showing that despite all the fear and information dissipated, people are still comfortable going to their healthcare unit of choice. People that are still reluctant to go are mostly worried about large crowds of people, which is completely normal during these times. However, despite most people not being afraid of accessing healthcare in person, the majority agrees that the pandemic affected their access to it.

Before the pandemic, the concept of teleconsultation was not present on a daily basis. Most people of this study were not aware of this concept and had not had one teleconsultation yet, considering in person consultations more complete. Moreover, these people also stated that they were not given the option by the hospital: this goes to show that even hospitals did not offer this option often enough and were not betting on this type of consultation. The small percentage that had one, identified the time saved on hospitals trips as the main reason why they chose it. Most people scheduled their own teleconsultations mostly having a first consultation over a phone call in their own residences. Based on their experiences, most respondents did not consider maintaining teleconsultations over a trip to the hospital.

When the pandemic started, we witnessed a shift to “tele-services”, with more and more sectors of activity transitioning to digital (healthcare, education, etc.). The concept of teleconsultation started to appear and has stuck until this day. Based on this study, when the pandemic started and during it, most people became aware of this concept. Although they deepened their knowledge on this matter, most of them still not had a teleconsultation because they consider in person teleconsultations more complete and prefer to be seen in person. Moreover, even during the pandemic, a considerable number was not given the option from the hospital. This shows, once again, that hospitals and health centres still have room to grow this type of service and invest in educating and sensitizing patients about it. However, the number of people who had a teleconsultation grew exponentially, due to the lower risk of getting infected with covid-19 when having one. In contrast with the numbers before the pandemic, now most teleconsultations were scheduled by the hospital instead of being the respondents'

own choice, in a clear effort by hospitals to decrease their affluence. Most of them were subsequent consultations over a phone call in the patients' own residences.

It was also important to understand the patients' general opinion regarding the teleconsultations they had. Overall, respondents had a positive balance when questioned about different sides of the teleconsultation. More specifically, most of the respondents considered as a positive aspect that teleconsultations were more flexible for their routine, allowed them to incur in less costs (e.g., transportation), their privacy and their medical act was respected, the means of communication were secure, they felt free to expose their health problems and they adequately understood the information provided by the doctor. Also, most of the respondents considered that the efficiency/utility of the teleconsultation was directly related to specialty practiced. Still on a positive side but with less expressive percentages (i.e., most of the respondents had a positive balance but with a lower agreement level), respondents considered that the doctor had an adequate perception of their clinical condition, there was an adequate doctor-patient relationship and that the teleconsultation provided an easier access to the doctor. On the negative side, respondents considered that the teleconsultations did not provide healthcare of the same quality as a face-to-face consultation.

Moreover, considering the mainly positive outcomes, most respondents did not face any major difficulties. However, some of them indicated some difficulties showing their doctor physical changes in their body, expressing their health problems and impossibility of receiving and delivering some documents (e.g., prescriptions, exams performed). Despite some barriers, the overall satisfaction was highly positive.

Regarding the future, people are still reluctant about continuing to have teleconsultations, with most people only wanting to maintain or start having teleconsultations in exceptional situations, not as the new normal; however, $\frac{1}{3}$ of the sample had a positive attitude towards start having/maintaining teleconsultations in the future, which is a good future indicator. Overall, people are more likely to have a subsequent consultation (i.e., follow up consultation). Lastly, when asked directly whether they would take on teleconsultations as the new normal in the future, instead of face-to-face consultations, most respondents refused that idea.

5.2. Limitations and Recommendations

As expected, some limitations and barriers to the study were faced. First of all, the sample collected was relatively small compared to the total number of existing patients. Thus, it is difficult to predict the true perceptions of the population in general, reducing the accuracy of

this study. To reach more certain conclusions, a higher sample should be collected. Moreover, most of the respondents were from Lisboa (70%), showing once more that the sample was not balanced territory-wise. So, this study focused more on the patients' experiences and perceptions in Lisboa.

Second, the questionnaire developed was based on a quantitative approach in order to have as many inputs as possible. So, most of the questions had predefined options (e.g., multiple choice), which resulted in more standardized answers. Excepting the last question that was open for comments, respondents could not express their emotions and deepen their responses. This is a weakness on this study because every respondent (i.e., patient) has different needs, different experiences in their habitual healthcare unit and deals with the pandemic and healthcare differently. Thus, in similar future research and studies, it may be interesting to have a qualitative component to the research. Ideally, all the inputs would be acquired through in-depth interviews in order to have the most accurate information possible as healthcare is a very personal and different experience for every person; however, for this to be possible, the sample would have to be smaller, since it is not possible to collect as many responses as an online questionnaire (in the same period of time). In alternative, the data could have a mix approach: quantitative for more general questions and qualitative for those questions who require more personal experiences (i.e., evaluating their own teleconsultations).

Third, and connected to the last point, respondents can have different experiences based on the healthcare unit chosen. Different hospitals have different fundings, when comparing private and public hospitals. It all depends on the management of each unit, which results in different investments, technologies and services' quality. Thus, people who attend these different types of health units, probably will have different experiences regarding teleconsultations. Once more, this goes to show the importance of each situation and qualitative data. To try and overcome this barrier, it would be interesting to define different approaches regarding private or public hospitals: a more in depth research should be conducted before designing the questionnaire/interviews in order to understand the processes already in place and what type of investments, professional training, equipment (hardware and software) and adhesion from patients already exist. This would help get more concise inputs and clearer guidelines for the future.

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7. Annexes

Annex A

Despacho nº 3571/2013, Diário da República, 2.ª série — N.º 46 — 6 de março de 2013

A utilização da ferramenta da Telemedicina (teleconsultas e telemonitorização) permite a observação, diagnóstico, tratamento e monitorização do utente o mais próximo possível da sua área de residência, trabalho ou mesmo em sua casa. Das inúmeras experiências de âmbito regional, ficou provada em Portugal a utilidade desta forma de tecnologias de Saúde em linha (e -Saúde), como uma ferramenta inovadora que permite a política de proximidade entre profissionais de saúde que prestam cuidados de saúde e utentes que os recebem.

Os vários grupos de trabalho que se debruçaram sobre a matéria apontam como vantagens das teleconsultas a “redução” das distâncias entre os serviços de saúde e os utentes, redução de deslocações desnecessárias, maior rapidez de resposta nalgumas especialidades e maior apoio àqueles que trabalham e vivem em áreas mais distantes.

A Teleconsulta aumenta a acessibilidade às consultas de Especialidades Médicas, aumenta a equidade, proporcionando a possibilidade de todos os utentes receberem a melhor qualidade de cuidados de saúde, reduz os custos associados (transportes e absentismo) e reduz as “distâncias” entre cuidados de saúde primários e especializados. A telemonitorização tem um papel igualmente importante e em franco crescimento no seguimento de algumas doenças crónicas no domicílio através da implementação de um serviço que, interligado com o Serviço Nacional de Saúde garante a monitorização remota, praticada por uma equipa de profissionais de saúde, a partir de uma Instituição sobre um grupo de doentes crónicos que seguem um protocolo a partir dos seus domicílios. Por todas estas razões e concluindo -se pela falta de uma estratégia coerente de massificação do uso destas tecnologias no Serviço Nacional de Saúde bem como a sua introdução na rotina dos cuidados de saúde importa priorizar e operacionalizar medidas concretas com vista à existência de uma Rede de Telemedicina no Serviço Nacional de Saúde.

Assim, determino:

1. Os serviços e estabelecimentos do Serviço Nacional de Saúde, (SNS) devem intensificar a utilização das tecnologias de informação e comunicação de forma a promover e garantir o fornecimento de serviços de telemedicina aos utentes do SNS.
2. No âmbito do fornecimento de serviços de telemedicina considera -se:
 - a) «teleconsulta em tempo real» consulta fornecida por um médico distante do utente, com recurso à utilização de comunicações interativas, audiovisuais e de dados, com

- a presença do doente junto de outro médico numa outra localização e com registo obrigatório no equipamento e no processo clínico do doente. Esta comunicação efetua -se em simultâneo (de forma síncrona);
- b) «teleconsulta em tempo diferido (Store and forward)» utilização de comunicações interativas, audiovisuais e de dados em consulta médica, recolhidos na presença do doente, sendo estes enviados para uma entidade receptora que os avaliará e opinará em tempo posterior (forma assíncrona);
 - c) «telerrastreio dermatológico», consulta para apreciação de imagens digitais com qualidade suficiente para assegurar o trabalho de rastreio de lesões da pele e posterior encaminhamento do caso, por dermatologistas:
3. Para efeitos do disposto nos números anteriores devem os estabelecimentos hospitalares do SNS, sempre que existam circunstâncias que configurem a prestação de cuidados médicos ou de enfermagem à distância, implementar o uso de tecnologias de informação e comunicação digitais, nomeadamente teleconsultas e telemonitorização, em articulação com os Agrupamentos dos Centros de Saúde (ACES) da sua área de influência, podendo fornecer serviços a outros hospitais dentro e fora da área geográfica da respetiva Administração Regional de Saúde, I.P.
 4. Os ACES devem, através das respetivas Administrações Regionais de Saúde, I.P. (ARS) contratualizar com os hospitais o fornecimento de teleconsultas.
 5. As entidades hospitalares podem prestar o fornecimento de teleconsultas a utentes de qualquer ARS, facturando à respectiva ARS a prestação dos mesmos.
 6. Sem prejuízo da implementação da utilização de telemedicina em outras áreas, são desde já consideradas como áreas de implementação prioritárias as seguintes especialidades médicas:
 - a) Dermatologia;
 - b) Fisiatria;
 - c) Neurologia;
 - d) Cardiologia;
 - e) Cardiologia Pediátrica;
 - f) Pneumologia;
 7. Nas áreas identificadas no número anterior, antes de se pronunciar relativamente à contratação de médicos especialistas para uma entidade hospitalar, as ARS têm que analisar a viabilidade do fornecimento de teleconsultas como alternativa à referida contratação.

8. Na área da dermatologia, a utilização da telemedicina obedece às seguintes condições:
 - a) A primeira consulta deve ser, sempre que possível, uma teleconsulta em tempo real;
 - b) O uso da teleconsulta em tempo diferido como forma de rastreio deve ser contratualizado pelas ARS aos hospitais que disponham das condições necessárias;
 - c) As consultas subsequentes, sempre que possível, são teleconsultas em tempo real;
 - d) Deve recorrer -se, de forma preferencial, à teledermatoscopia ou equipamento de qualidade equivalente;
 - e) As entidades hospitalares com listas de espera para dermatologia devem articular esforços com os ACES no sentido de promover rastreios teledermatológicos.
9. Nas restantes especialidades médicas, a primeira consulta deve ser sempre presencial, mas as consultas subsequentes devem ser sempre que possível teleconsultas em tempo real.
10. As ARS deverão apresentar, até 1 maio de 2013, planos regionais para desenvolvimento das teleconsultas em todas as especialidades prioritárias previstas no presente despacho, em articulação com as entidades e a Comissão para a Informatização Clínica (CIC).
11. Mediante proposta do Grupo de Trabalho de Telemedicina da Comissão para Informatização Clínica, a Administração Central do Sistema de Saúde, I.P. (ACSS) emite uma Circular Normativa sobre o programa experimental de telemonitorização da Doença Pulmonar Obstrutiva Crónica (DPOC).
12. As entidades hospitalares podem recorrer à SPMS – Serviços Partilhados do Ministério da Saúde, E.P.E., para o fornecimento centralizado do serviço de telemonitorização aos utentes dos hospitais inscritos no programa experimental de telemonitorização da DPOC.
13. A ACSS deve prever o financiamento das entidades hospitalares aderentes ao programa através do mecanismo de preço compreensivo.
14. A ACSS, através da SPMS, garante os mecanismos necessários à interoperabilidade e dimensionamento da Rede Informática da Saúde considerados necessários para a implementação dos serviços de telemedicina previstos no presente despacho.
15. A SPMS garante a disponibilização das seguintes funcionalidades, no âmbito da aplicação informática de apoio à marcação de consultas no programa CTH:
 - a) possibilidade ao médico de Medicina Geral e Familiar poder distinguir tipo de pedido de consulta entre os seguintes:
 - i. presencial;

- ii. teleconsulta (em tempo real);
 - iii. pedido rastreio teledermatológico.
- b) capacidade de anexar imagens digitais que fundamentem o pedido de referência.
16. As ARS, em articulação com a SPMS, garantem a infraestrutura tecnológica necessária ao recurso a teleconsultas em todos os ACES.
 17. A ACSS deve estabelecer regras de financiamento hospitalar promotoras do recurso a teleconsulta e telemonitorização, bem como acompanhar e apoiar o seu efetivo desenvolvimento.
 18. A ACSS acompanha trimestralmente o número de teleconsultas realizadas no SNS, elaborando um relatório trimestral até dia 20 dos meses de Maio (1º trimestre), Agosto (2º trimestre), Novembro (3º trimestre) e Fevereiro (4º trimestre).
 19. Para efeitos do disposto no número anterior, os hospitais reportam o número de teleconsultas efectuadas, como entidade emissora e receptora até um mês depois de cada trimestre.
 20. A coordenação das iniciativas promotoras das teleconsultas e telemonitorização ficam a cargo da CIC, através do Grupo de Trabalho da Telemedicina, em articulação com a ACSS.
 21. A Direção-Geral da Saúde emite, até 1 abril 2013, uma Norma de Orientação sobre o rastreio teledermatológico.
27 de fevereiro de 2013. — O Secretário de Estado Adjunto do Ministro da Saúde,
Fernando Serra Leal da Costa

Annex B

Norma nº 010/2015 – Direcção-Geral da Saúde – Modelo de Funcionamento das Teleconsultas

Nos termos da alínea a) do nº 2 do artigo 2º do Decreto Regulamentar nº 14/2012, de 26 de Janeiro, a Direcção-Geral da Saúde, por proposta do Departamento da Qualidade na Saúde, na área da qualidade organizacional, emite a seguinte:

NORMA

1. O doente submetido a teleconsulta deve estar consciente e manifestar o seu acordo com a mesma, pelo que é obrigatório o seu consentimento informado, que deve ser dado por escrito, de acordo com a Norma nº 015/2013 de 03/10/2013, ficando apenso ao processo clínico (anexo I).

2. As Teleconsultas podem ser do tipo programado ou urgente.
3. As teleconsultas programadas seguem os procedimentos da Consulta a Tempo e Horas (CTH), sendo o seu financiamento regulado pelas Normas em vigor da Administração Central do Sistema de Saúde, I.P.
4. Nas teleconsultas são obrigatórios os seguintes registos electrónicos:
 - a) Identificação das instituições prestadoras;
 - b) Identificação dos profissionais envolvidos;
 - c) Identificação e dados do utente;
 - d) Identificação da data e hora do início e encerramento definitivo da teleconsulta;
 - e) Tipologia da teleconsulta (programada/urgente);
 - f) Identificação da especialidade/competência;
 - g) Motivo da teleconsulta;
 - h) Observação/dados clínicos;
 - i) Diagnóstico;
 - j) Decisão clínica/terapêutica;
 - k) Dados relevantes dos MCDT;
 - l) Identificação dos episódios (origem, destino e CTH);
 - m) Ficheiro do relatório.
5. O registo do diagnóstico deve ser feito com recurso à International Classification of Diseases (ICD) em vigor nos hospitais, mapeado com o ICPC-2. E, logo que possível, com SNOMED CT.
6. É obrigatória a produção de um relatório que contenha a informação clínica relevante, validado pelos profissionais intervenientes, e armazenado nos SI clínicos das respectivas instituições.
(...)

ANEXO I

Regulamento das Tabelas de Preços das Instituições e Serviços Integrados no SNS

SECÇÃO I

Disposições Gerais

Artigo 2.º

Âmbito de aplicação subjetivo

(...)

g) «Consulta médica sem a presença do utente», a consulta médica, em que o utente não se encontra presente, que pode resultar no aconselhamento, prescrição ou encaminhamento para outro serviço e estar associada a várias formas de comunicação, designadamente através de correio tradicional, telefone, correio eletrónico ou outro.

(...)

x) «Teleconsulta», a consulta médica, no âmbito da telemedicina, realizada à distância com recurso à utilização de comunicações interativas, audiovisuais e de dados e com registo obrigatório no equipamento e no processo clínico do doente.

y) «Teleconsulta em tempo diferido (Store and forward)», a utilização de comunicações interativas, audiovisuais e de dados em consulta médica, recolhidos na presença do doente, sendo estes enviados para uma entidade recetora que os avaliará e opinará em momento posterior (forma assíncrona).

z) «Teleconsulta em tempo real», a consulta fornecida, em tempo real, por um médico distante do utente, com recurso à utilização de sistema de comunicações interativas, audiovisuais e de dados, com a presença do doente junto de outro médico numa outra localização e com registo obrigatório no equipamento e no processo clínico do doente. Esta comunicação efetua-se em simultâneo, de forma síncrona.

aa) «Telemonitorização», a supervisão médica à distância com recurso às tecnologias de informação e comunicação, nomeadamente através da videoconferência e de equipamento médico de manipulação remota.

Annex D

Questionnaire

Perceção dos utentes portugueses relativamente à teleconsulta antes, durante e após a pandemia (covid-19)

O meu nome é Inês Rombo e este questionário foi desenvolvido no âmbito da minha dissertação do Mestrado em Gestão de Serviços e da Tecnologia da ISCTE Business School.

O objetivo do mesmo é avaliar qual a perceção dos utentes perante a teleconsulta antes, durante e após a pandemia. No final, com as respostas providenciadas, serão avaliados quais os maiores constrangimentos de forma a perceber como se pode tornar esta prática mais dinâmica e regular.

Para efeitos deste questionário, por teleconsulta compreendem-se todas as consultas que são feitas sem a presença física do doente numa unidade hospitalar. Mais concretamente, podem ser consultas feitas através de videochamada ou chamada telefónica.

Os dados são anónimos, confidenciais e serão apenas utilizados para propósitos académicos.

O tempo médio de resposta é de 7 minutos.

Agradeço desde já a sua colaboração e o tempo dedicado ao preenchimento deste questionário!

1. Enquadramento social

- Indique o seu género
 - _ Masculino
 - _ Feminino
 - _ Outro
 - _ Prefiro não dizer

- Indique a sua faixa etária
 - _ Menos de 18
 - _ 18-24

- _ 25-34
- _ 35-44
- _ 45-54
- _ 55-64
- _ 65-74
- _ 75 ou mais

➤ Indique o seu distrito de residência

- _ Açores
- _ veiro
- _ Beja
- _ Braga
- _ Bragança
- _ Castelo Branco
- _ Coimbra
- _ Évora
- _ Faro
- _ Guarda
- _ Leiria
- _ Lisboa
- _ Madeira
- _ Portalegre
- _ Porto
- _ Santarém
- _ Setúbal
- _ Viana do Castelo
- _ Vila Real
- _ Viseu

➤ Indique o seu nível de escolaridade

- _ Ensino Primário
- _ Ensino Básico
- _ Ensino Secundário
- _ Ensino Superior

- Indique a sua situação profissional
 - _ Estudante
 - _ Trabalhador-estudante
 - _ Trabalhador por conta própria
 - _ Trabalhador por conta de outrem
 - _ Desempregado
 - _ Reformado

- Habitualmente, frequenta que tipo de unidade hospitalar?
 - _ Centro de saúde
 - _ Hospital privado
 - _ Hospital público

2. Segurança no acesso a cuidados de saúde – situação atual

- Atualmente, se precisasse de recorrer a cuidados de saúde numa unidade hospitalar presencialmente...
 - _ De certeza que recorreria
 - _ Provavelmente recorreria
 - _ Só se fosse um caso grave
 - _ Não recorreria

- O que condicionaria a sua ida? Selecione todas as que se aplicam.
 - _ Tenho receio do contágio
 - _ Pretendo evitar uma grande aglomeração de pessoas
 - _ Pretendo evitar transportes públicos
 - _ Pretendo evitar a demora no atendimento e/ou marcações
 - _ Não confio na desinfeção correta das instalações
 - _ Tenho uma condição de saúde de risco
 - _ Tenho contacto com pessoas de risco
 - _ Pretendo evitar a sobrecarga do sistema de saúde
 - _ Não identifico condicionamentos

- No geral, a pandemia dificultou o seu acesso a cuidados de saúde.

- _ Discordo totalmente
- _ Discordo
- _ Indiferente
- _ Concordo
- _ Concordo totalmente

3. Acesso a teleconsulta – antes da pandemia

- Antes da pandemia, estava familiarizado com o conceito de teleconsulta?
 - _ Sim
 - _ Não

- Teve alguma teleconsulta antes da pandemia?
 - _ Sim
 - _ Não

- Se respondeu sim, porque optou pela teleconsulta? Selecione todas as que se aplicam.
 - _ Poupo mais tempo em deslocações para o hospital
 - _ O tempo de espera pela consulta é inferior
 - _ Não incorro em custos ao deslocar-me ao hospital (Ex: bilhete de transportes públicos, parquímetro, gasolina, etc.)
 - _ A teleconsulta permite-me ter mais flexibilidade de horários
 - _ Tenho acesso a um computador/telemóvel/smartphone e ligação Internet que me permitem estabelecer ligação com o meu médico
 - _ Tenho confiança na segurança da ligação
 - _ Outro

- Se respondeu não, porque não optou pela teleconsulta? Selecione todas as que se aplicam.
 - _ Prefiro deslocar-me ao hospital pelo contacto presencial
 - _ A consulta presencial é mais completa
 - _ Impossibilidade de entregar/receber documentos (Ex: exames realizados, marcação de consulta seguinte, pedido de exames, receitas, etc.)
 - _ Tenho dificuldade em adaptar-me às tecnologias de comunicação (Ex: aceder à Internet, ao email, utilizar computador/telemóvel/smartphone...)

- Não tenho acesso a um computador/telemóvel/smartphone e ligação à Internet que me permitem estabelecer ligação com o meu médico
 - Não tenho confiança na segurança da ligação
 - Não estava ciente que a teleconsulta era uma opção
 - Não me foi dada a opção pelo hospital
 - Outro
- A teleconsulta foi marcada pelo hospital ou por sua escolha?
- Hospital
 - Escolha própria
- Que tipo de teleconsulta(s) teve?
- Primeira consulta
 - Consulta de seguimento
 - Ambas
- Como foi realizada a teleconsulta?
- Videochamada (Ex: Zoom, Teams, Skype, Immed, SER Live, etc.)
 - Chamada telefónica
 - Outro:
- Onde se encontrava no decorrer da teleconsulta?
- Domicílio
 - Local de trabalho
 - No exterior
 - Outro
- Antes da pandemia e após a sua experiência, decidiu manter a(s) teleconsulta(s) em vez de deslocar-se ao hospital?
- Sim
 - Apenas para primeira consulta
 - Apenas para consulta de seguimento
 - Não

4. Acesso a teleconsulta – durante a pandemia

- Quando a pandemia começou, ficou/estava familiarizado com o conceito de teleconsulta?
 - _ Sim
 - _ Não

- Teve alguma teleconsulta durante a pandemia?
 - _ Sim
 - _ Não

- Se respondeu sim, porque optou pela teleconsulta? Selecione todas as que se aplicam.
 - _ Poupo mais tempo em deslocações para o hospital
 - _ O tempo de espera pela consulta é inferior
 - _ Não incorro em custos ao deslocar-me ao hospital (Ex: bilhete de transportes públicos, parquímetro, gasolina, etc.)
 - _ A teleconsulta permite-me ter mais flexibilidade de horários
 - _ Existe um menor risco de contágio
 - _ Pretendo evitar um aglomerado de pessoas (Ex: outros utentes na unidade hospitalar, staff hospitalar, aglomeração nos transportes públicos, etc.)
 - _ Estou num ambiente onde controlo as condições higiénicas (Ex: habitação própria)
 - _ Tenho acesso a um computador/telemóvel/smartphone e ligação Internet que me permitem estabelecer ligação com o meu médico
 - _ Tenho confiança na segurança da ligação
 - _ Outro

- Se respondeu não, porque não optou pela teleconsulta? Selecione todas as que se aplicam.
 - _ Prefiro deslocar-me ao hospital pelo contacto presencial
 - _ A consulta presencial é mais completa
 - _ É mais fácil transmitir pessoalmente ao médico os meus problemas de saúde
 - _ Impossibilidade de entregar/receber documentos (Ex: exames realizados, marcação de consulta seguinte, pedido de exames, receitas, etc.)
 - _ Tenho dificuldade em adaptar-me às tecnologias de comunicação (Ex: aceder à Internet, ao email, utilizar computador/telemóvel/smartphone...)
 - _ Não tenho acesso a um computador/telemóvel/smartphone e ligação à Internet que me permitem estabelecer ligação com o meu médico

- _ Não estava ciente que a teleconsulta era uma opção
 - _ Não me foi dada a opção pelo hospital
 - _ Outro
- A teleconsulta foi marcada pelo hospital ou por sua escolha?
 - _ Hospital
 - _ Escolha própria
- Que tipo de teleconsulta(s) teve?
 - _ Primeira consulta
 - _ Consulta de seguimento
 - _ Ambas
- Como foi realizada a teleconsulta?
 - _ Videochamada (Ex: Zoom, Teams, Skype, Immed, SER Live, etc.)
 - _ Chamada telefónica
- Onde se encontrava no decorrer da consulta?
 - _ Domicílio
 - _ Local de trabalho
 - _ No exterior
 - _ Outro

5. Teleconsulta – opinião geral

- Qual a especialidade em que já teve mais teleconsultas?
 - _ Anestesiologia
 - _ Cardiologia
 - _ Cardiologia Pediátrica
 - _ Cirurgia Cardíaca
 - _ Cirurgia Geral
 - _ Cirurgia Maxilo-Facial
 - _ Cirurgia Pediátrica
 - _ Cirurgia Plástica e Reconstructiva
 - _ Cirurgia Torácica

- _ Cirurgia Vascular
- _ Dermatologia
- _ Doenças Infeciosas
- _ Endocrinologia
- _ Enfermagem
- _ Fisioterapia
- _ Gastrenterologia
- _ Genética Médica
- _ Ginecologia-Obstetrícia
- _ Hemato-Oncologia
- _ Imunoalergologia
- _ Medicina Dentária
- _ Medicina Física e Reabilitação
- _ Medicina Geral e Familiar
- _ Medicina Interna
- _ Nefrologia
- _ Neurocirurgia
- _ Neurologia
- _ Neuropsicologia
- _ Nutrição
- _ Oftalmologia
- _ Ortopedia
- _ Otorrinolaringologia
- _ Pediatria
- _ Pedopsiquiatria
- _ Pneumologia
- _ Podologia
- _ Psicologia Clínica
- _ Psiquiatria
- _ Reumatologia
- _ Terapia da Fala
- _ Terapia Ocupacional
- _ Urologia

- Qual a especialidade em que já teve mais teleconsultas?
 - _ Doença crónica (sintomas menos intensos num maior espaço de tempo)
 - _ Doença aguda (sintomas mais intensos num curto espaço de tempo)

- Relativamente a cada afirmação, seleccione o seu grau de concordância:

Concordo totalmente Concordo Indiferente Discordo Discordo totalmente Sem opinião

A teleconsulta foi mais conveniente para mim/mais flexível para a minha rotina.	
A teleconsulta permite-me incorrer em menos custos.	
A teleconsulta permite um acesso mais fácil ao médico.	
A teleconsulta põs em risco a confidencialidade do ato médico e a minha privacidade.	
Os meios de comunicação utilizados na teleconsulta são seguros.	
Na teleconsulta senti-me à vontade para expor os meus problemas de saúde.	
A teleconsulta permitiu que o médico tivesse uma adequada perceção do meu estado clínico.	
Na teleconsulta consegui compreender	

adequadamente a
informação transmitida
pelo médico.

A teleconsulta mantém
uma adequada relação
médico-doente.

A teleconsulta
providencia cuidados de
saúde de igual qualidade a
uma consulta presencial.

O grau de
eficiência/utilidade da
teleconsulta está
relacionado com a
especialidade praticada.

- Que dificuldades sentiu durante a teleconsulta? Selecione todas as que se aplicam.
 - Más condições técnicas (Ex: fraca qualidade da chamada, acesso à Internet, etc.)
 - Dificuldade de adaptação às tecnologias de comunicação (Ex: aceder à Internet, ao email, utilizar computador/telemóvel/smartphone, etc.)
 - Impossibilidade de entregar documentos (Ex: exames realizados)
 - Impossibilidade de receber documentos (Ex: marcação de consulta seguinte, pedido de exames, receitas)
 - Encontrar-me num local sem privacidade
 - Dificuldade em transmitir ao médico os meus problemas de saúde
 - Dificuldade em compreender as informações dadas pelo médico
 - Impossibilidade de mostrar ao médico alterações físicas no meu corpo
 - Não senti dificuldades
 - Outro: _____

- Indique o seu grau de satisfação geral relativamente à(s) teleconsulta(s) que teve
 - Muito satisfeito
 - Satisfeito
 - Indiferente

- Pouco satisfeito
- Nada satisfeito

6. Acesso a teleconsulta – percepções futuras

- No futuro, gostaria de começar a ter/manter a(s) teleconsulta(s)?
 - Sim
 - Só em situações excepcionais
 - Não (*acaba o questionário*)

- Em que tipo de consulta(s)?
 - Primeira(s) consulta(s)
 - Consulta(s) de seguimento
 - Ambas

- No futuro, consideraria a teleconsulta como primeira hipótese, em vez da consulta presencial?
 - Sim
 - Não

Annex E

Specialties table

	N	% Total
Total	85	100%
Specialties		
Anesthesiology	1	1%
Cardiac Surgery	0	0%
Cardiology	3	4%
Clinical Psychology	8	9%
Dental Medicine	0	0%
Dermatology	1	1%
Endocrinology	2	2%
Gastroenterology	3	4%
General and Family Medicine	31	36%
General Surgery	3	4%
Gynecology-Obstetrics	1	1%
Hemato-Oncology	3	4%
Immunoallergy	1	1%
Infectious Diseases	3	4%
Internal Medicine	2	2%
Maxillofacial Surgery	0	0%
Medical Genetics	0	0%
Nephrology	0	0%
Neurology	2	2%
Neuropsychology	0	0%
Neurosurgery	0	0%
Nursing	0	0%
Nutrition	4	5%
Occupational Therapy	0	0%
Ophthalmology	0	0%
Orthopedics	1	1%
Otolaryngology	2	2%
Pediatric Cardiology	0	0%
Pediatric Surgery	0	0%
Pediatrics	3	4%
Pedopsychiatry	0	0%
Physical Medicine and Rehabilitation	1	1%
Physiotherapy	1	1%
Plastic and Reconstructive Surgery	1	1%
Podiatry	0	0%
Psychiatry	4	5%
Pulmonology	2	2%
Rheumatology	1	1%
Speech Therapy	0	0%
Thoracic Surgery	0	0%
Urology	0	0%
Vascular Surgery	1	1%

Annex F

Overall opinion of the teleconsultation(s)

