



PORTUGUESE PERCEPTION TOWARDS eHEALTH
TECHNOLOGY FOR INFORMATION EXCHANGE &
WEIGHT MANAGEMENT WITHIN INTEGRATED
HEALTHCARE SYSTEMS

Increasing Patient Empowerment in Portugal Health Facilities

Exploratory Study

Dissertation submitted as partial requirement for the conferral of
MSc in Business Administration

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Abstract

eHealth and mobile apps is a growing market in today millennium technologies. Despite the increase number of mobile apps related to health and wellbeing including weight loss and obesity, there are many aspects influencing its effectiveness that remain unclear. The aim of this dissertation is to understand how Portuguese population will respond to eHealth technology development for information exchange and weight management within healthcare systems. It looked closely to the advantages and understanding the power of eHealth in exchange information between Healthcare providers and patients.

This dissertation met the research aim through detailed study of relevant literature, to state the problematic questions that were tested using qualitative and quantitative analysis. Rq1: Will empowering patients with higher access to information exchange reduce healthcare costs? Focusing on medication management? Rq2: Will patients adhere and engage positively to healthcare information within an integrated healthcare services? Rq3: Will a development strategy towards overweight management using mobile apps reduce worldwide healthcare costs?

It concluded that there is an increase of eHealth usage by younger generations and that there are predominant effects on using internet for information exchange and to engage patients to increase knowledge on our healthcare services. It also scoped through effects of eHealth apps towards obesity prevention.

Further research is needed to develop a meta-analysis between cost-effectiveness of developing eHealth apps for the national healthcare system in order to increase patient adherence for information exchange, control medication management and reduce obesity or overweight populations.

Keywords: eHealth apps, technology, obesity management, sustainability.

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1. Introduction

The scope of this study will be to identify the perception of population towards eHealth applications and its progression within integrated care systems to reduce worldwide healthcare costs. To limit the research span this project thesis will focus on understanding the engagement of individuals towards mobile apps and their commitment to self-manage weight control in order to reduce healthcare costs related to obesity and overweight patients.

1.1 – Theme

The dynamics of globalization and sustainability is dependent on a healthy population. It is easily understood that a healthier population is indeed more productive and therefore the economic wealth of these regions will be greater (Borgonovi and Compagni, 2013). Health systems develop local procurement of goods, services, infrastructures, maintenance and other input systems. It is well known that healthcare systems develop infrastructures such as Internet access, cell phone towers, clean water supplies, electrification and sanitation that have a wider economic benefit to any population (Kim *et al.*,2013).

The driving forces to develop our societies will depend directly on the sustainability of our health and economy systems. Understanding that integrated care management will be the focus for future sustainability in health by reducing overall costs, increasing disease prevention and increasing knowledge next to the population is essential to understand the importance of technology in achieving these goals for a near future. As worldwide population is aging exponential and increasing, there is an urgent need to develop our healthcare system to become sustainable in long-term. Although technology and new treatments are in high development the price and cost of health isn't decreasing (Kaplan and Porter, 2011).

I have a personal interest in contributing to the development and sustainability of healthcare systems worldwide by contributing with a new study towards developing future eHealth technology. This project will focus in understanding how eHealth technology will impact on integrated Healthcare systems. Thus, it is expected to achieve this by considering detail to the perception of Portuguese population towards eHealth technology to boost information exchange within healthcare providers and manage

body weight and change dietary practices in order to reduce both the risk of developing chronic diseases and the costs associated with misinformation and overweight patients.

1.2 – Research Problem

A review of the literature until 2015 showed some gaps of knowledge on e-health benefits and on the power of information exchange between health organizations and patients (Garmann-Johnsen, 2015). It is well-defined that there is now an enormous volume of work studying the impact of eHealth on the quality and safety of health care, this is comprehended to increase the potential benefits of eHealth. However not all work indicated that realising the benefits of developing eHealth are positive and guaranteed to be achieved, further evidence towards the perception of population is needed. A foremost finding from review literature is that empirical evidence for the beneficial impact of most eHealth technologies is often modest (Black, *et al.* 2011). It is highly important that implementations already commissioned are subject to rigorous, multidisciplinary and independent evaluations towards the development of new eHealth applications for healthcare delivery for near future (Black, *et al.* 2011).

Integrated care and integration systems have an essential role to develop sustainable health systems and to reduce costs. A major change is needed to develop cost-effectiveness systems that are used for exchange information between care services and empower patients. Only by understanding the outcomes of an integrated care system and the importance of information and knowledge exchange we will understand where to move forwards. Considering this, three research questions arise:

Research question 1: Will empowering patients with higher access to information exchange reduce healthcare costs?

Research question 2: Will patients adhere and engage positively to healthcare information within an integrated healthcare services by using eHealth?

Research question 3: Will a development strategy towards overweight management using mobile apps reduce worldwide healthcare costs?

1.3 – Objectives

The overall objective of this dissertation is to understand how Portuguese population will respond to eHealth technology development for information exchange within healthcare systems. It will look closely to the advantages and understanding the power of eHealth in exchange information between Healthcare providers and patients. The focus will be to understand if patients would adhere to an eHealth platform to facilitate information and increase their knowledge about specific health condition and treatment available. Focusing on Portuguese population, health systems and prevention of obesity levels.

Hence, the research will identify the influence of an eHealth platform that will be designed and characterized with its features in detail to the Portuguese health systems and it will analyse how the Portuguese population perceive it. It will also identify any flaws and difficulties to implement new strategies within integrated care and in the process of patient empowerment.

The main focus will be to understand if an eHealth platform can reduce costs by increasing knowledge to the population and in consequence the patient empowerment within any treatment, disease prevention or management of a chronic condition itself.

This will be studied and researched in order to understand where will eHealth needs to develop in order to increase its impact and reduce costs for a sustainable integrated healthcare system in Portugal. The study will focus on the perception and usage of eHealth technology of a hundred and seventy-four individuals and eight healthcare providers. This will be investigated to provide technological services guidelines for future eHealth application development.

1.4 – Structure

The first chapter introduces the main topics that allows: (i) to identify research gaps within the available literature and (ii) to identify and clarify the main research problem. It states the objectives of the thesis and focuses towards eHealth, empowering patients, engaging patients, weight management and the substantial outcomes for the healthcare system.

The second chapter conducts a detailed literature review, with comprehensive detailed information about the topic in question, focusing on global healthcare delivery, economic sustainability in healthcare, integrated care systems, patient empowerment, worldwide obesity and the link towards eHealth.

In the third chapter the method is explained in detail and different methodologies are described, for an easier understanding of the study. To ensure different views of the problematic both quantitative and qualitative methods will be applied.

Chapter four will describe clearly the outcomes of the study in detail and will state the different views towards the problematic.

The chapter five that will conclude the research findings and tackles new approached to be taken in future work in order to keep the research on going towards a new eHealth era. The main conclusion will be described together with research limitations and implications.

2. Literature Review

2.1 Global Healthcare Delivery and its Costs

Global health has expanded drastically over the past decades and offer great promise to improve quality of live for developing and developed countries. There is an increase of public interest in health and wellbeing of populations that have been marginalised in developing countries to enhance and develop its economies (Kim *et al.*, 2013). Although increasing funding and resources for research work is developing scientific knowledge on prevention, diagnostic and therapeutically, a biggest difficulty still exist to deliver a global healthcare service. Healthcare costs continue to rise worldwide even with the development of new treatments and technology (Porter and Kaplan, 2011).

The dynamics of globalisation is highly concerned about increasing health expenditure and its potential to boost economic growth. The growth of mobility and travel opportunities is increasing due to a rapid diffusion of information across borders to find the best new treatment has become an amplified reality (Borgonovi and Compagni, 2013). This has increased the demand for health care services and made it difficult to achieve equilibrium between demand and supply process.

The difficulties encountered to achieve the Millennium Development Goals towards health targets are a big concern worldwide. The growing consumer demand is forcing health planners to innovate healthcare outcomes of health-care and overall public health. Health systems must address diversity, high-quality services in rural and urban areas; rich and poor population, improving training and support healthcare workers. It Is fundamental that delivery healthcare systems are a cost-effectiveness in particularly low and middle-income countries to allow development (Piette *et al.*, 2012).

2.1.1 Economic Sustainability in Healthcare

To increase the value of healthcare is to understand the core level of value creation in prevention, diagnosis and efficient treatment (Kim *et al.*, 2013). Only by defining and structure these processes will reduce costs in global healthcare systems.

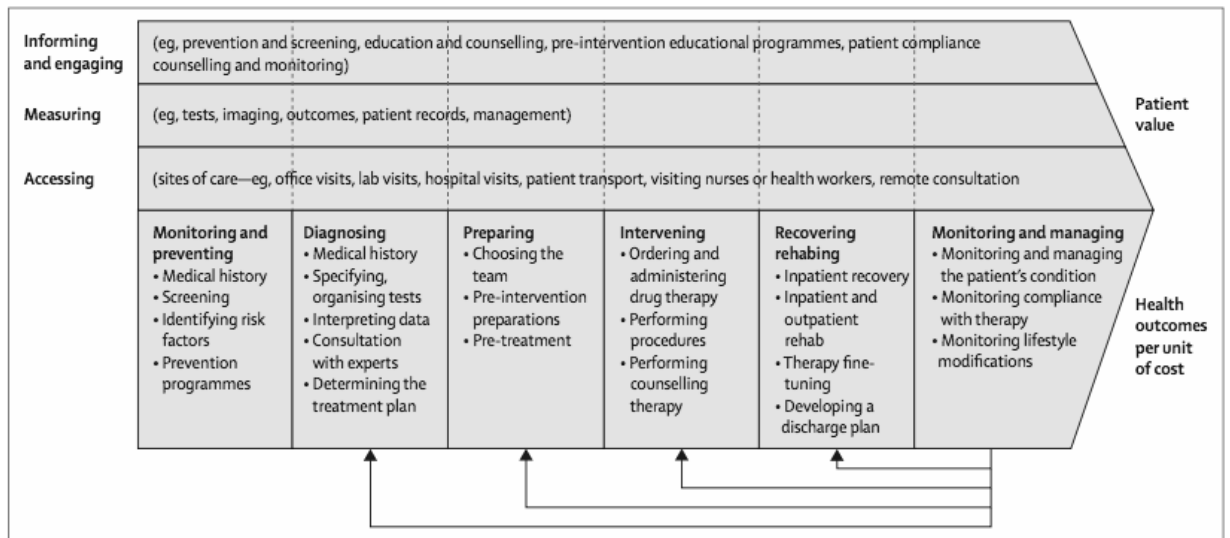


Figure 1. Increasing Value Chain for patient and health outcomes (Kim *et al.*, 2013).

Figure 1 develops a value increase chain of different sectors within the health sector. Information and engaging throughout any health-related process would increase the measuring rates and accessing any results. Being informed educationally on prevention and screening diseases will increase patient compliancy, counselling and monitoring throughout the treatment. These will increase patient value from the service provided and its outcomes of accessing at early stages, during intervention. Moreover, monitoring the evolution will increase the health outcomes substantially for each unit cost (Kim *et al.*, 2013).

“The cycle of care for a condition often begins with prevention and screening and ends with ongoing disease management to reduce recurrence of disease and its severity.” (Kim *et al.*, 2013).

2.2 Integrated Care

Integrated care is a term used to increase healthcare value by improving patient experience and achieve higher efficiency in health delivery systems by improving its outcomes (Shaw *et al.* 2011). Integrated care is an organising principle for care delivery with the aim to improve patient care and better coordination between services. Integration is the combination of set of principles, methods, processes and models to improve patient care delivery (Leutz WN, 1999). These processes, methods and tools of integration are to facilitate integrated care, involving the connection between health care system (acute, community or primary medical) with all other services such as long-term care, education or housing services with patient care focus (Shaw *et al.* 2011).

2.2.1 Fundamentals of Integrated Care

Throughout the literature review there are five main types of integration processes, each one describes a wide range of integrative processes that differ within the healthcare provider. Some healthcare providers focus on systems and structure; other providers focus on less tangible parameters such as healthcare employer's behaviour and teamwork (Shaw *et al.* 2011).

Many of these integrative processes are described in table 1, some types of these processes will be more important than others depending on the health care provider to reduce costs. However, all integrative processes need to ensure the development of structures to enable teams and organizations to work for common goals centralized in-patient care value (Shaw *et al.* 2011).

Integrative Processes	Description of types of Integration
Systemic	Coordinating and aligning policies, rules and regulatory frameworks;
Normative	Developing shared values, culture and vision across organisations, professional groups and individuals;
Organisational	Coordinating structures, governance systems and relationships across organisations;
Administrative	Aligning back-office functions, budgets and financial systems across integrating units;
Clinical	Coordinating information and services and integrating patient care within a single process.

Table 1. Description of Integrative processes (Adapted from Shaw *et al.* 2011).

2.2.2 Integration Delivery – Clinical Coordination

Coordinating information between services and integrating patient within a single process is fundamental to allow integrated care process in order to increase value to any patient by different health agents. An example of such is developing clinical roles, guidelines and inter-professional education to facilitate the role of patients in sharing decision-making. There are however different coordination levels within integration:

- **LINKAGE:** Within existing organisational unit with referring patient to the right unit and right time; facilitates communication between professionals involved in order to continuous of care. Responsibilities are aligned to different groups.
- **COORDINATION:** Within existing organisational units to coordinate different health services, share clinical information and manage transition of patients between units.
- **FULL INTEGRATION:** Using resources to develop new organisations of comprehensive services to the needs of patients.

(Adapted from Shaw *et al.* 2011)

Integrated care initiatives work best depending on its population and healthcare system, it is an ongoing process to facilitate healthcare with a centralisation on patient experience and to increase its cost-value. Integrated care based on patient experience includes: Provider coordinated services; care professionals to coordinate care; Manager to sustain organisational structures; Policy-maker and Regulator to ensure quality and safety; Evaluator to show evidence of integration; Community to shape local services and the patient/service-user to experience improved access and allow navigation across elements of care, including information-sharing (Ovretveit *et al.* 2010).

2.3 Importance of Information Exchange

Information exchange between parties in the health system is fundamental to develop effective services. The service needs to deliver integrated information systems that consist in sharing clinical records and continuous patient monitoring. It should also increase common decision tools such as guidelines and protocols for different treatments. This centralised information is a base for efficient information exchange within care management. Successful integrated care models demand the ongoing

involvement of patients and family members in the treatment process, implementation and actively taking part of decisions (Kodner and Spreeuwenberg, 2002).

By increasing information and enabling patients to educate themselves, independently of the positively or negatively their clinical outcomes are it empowers the patient to enter into a more informal conversation with the healthcare providers (Healthcare, C.D.W., 2014). Without integration and information exchange patients become lost, services fail to demand the necessity and satisfactory quality declines and therefore the cost-effectiveness is reduced significantly (Kodner and Spreeuwenberg, 2002).

A study in Massachusetts carried by Park *et al.* estimated that 57% of all acute care visits involve care at multiple hospitals without intercommunication between care providers. To improve healthcare quality and effort to align stakeholder there is a need to increase incentives for wide adoption of a health information exchange and full realization of the technology benefits (Park *et al.* 2015). Therefore, the higher the collaborative emotion approach between patients and healthcare providers it may embrace their relationship and coordinate clinical recommendations easier and more effectively (Bradway *et al.*, 2015).

2.4 Patient Empowerment

As patients are more informed and take an active control decision about their healthcare options, they are forcing the healthcare systems to change inevitably. The future approach will evolve patients and their demand of information from digital formats to deliver quality patient outcomes (Rulon, V., 2015). The customer experience and engagement will become an increase industry with larger proportions of the value for healthcare services.

The patient empowerment lies to the access of information for different clinical outcomes: reliable information of diseases, available treatments on the market and management of therapeutically outcomes. This needs to be aligned with caregivers, providers and payers.

What is the real impact of empowering patients into a medical decision?

“When it comes to patient affordability, the more that we can provide transparency and healthcare literacy, the more value we can deliver.” (Rulon, V., 2015).

Patient empowerment of decision-making will adhere to their own journey with confidence that will increase its treatment impact. Companies have increased the value given to offer personalised information to help patients manage their diseases and treatments throughout the disease management programs. Therefore, companies are taking rapid responses to implement forms of communication and information exchange within their own patients. This increases the implementation of information programs, with direct care teams such as doctors, nurses, pharmacy and others to increase the complex informatics websites or mobile applications for patient utility (Rulon, V., 2015).

Self-management has become a primary focus for health care providers, with a great potential to increase its outcomes and decrease the demand for costly treatments. Reducing costs will only be accomplished by patient engagement in disease management by using data-storage on eHealth platforms. Remembering that the given data should be analysed by health and clinical personnel (Bradway *et al.*, 2015).

2.5 Electronic Health (eHealth)

Eysenbach G. (2001: 1) defines eHealth as follows: “e-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology.”

The 10 e’s in eHealth:

- **Efficiency** – is established to decrease costs by reducing duplicate or unnecessary diagnostic or even unnecessary medical interventions. This is supposed to be achieved by increasing communication between healthcare providers/therapeutically and increasing patient commitment.
- **Enhancing quality** – it is thought to increase quality by allowing comparison between healthcare providers by physicians and patients to look for the best quality providers available.
- **Evidence Based** – e-health should be evidence based by precise scientific evaluation on its effectiveness and efficiency.

- **Empowerment** – is thought to globalise consumers, providers and patients in the healthcare systems. It is used to increasing knowledge on therapeutic options, medicine and personal electronic records available throughout the Internet. This enable evidence-based patient choice.
- **Encouragement** – develops the relationship between patients and health professionals, towards a true affiliation, where patients have a fundamental information for a rational treatment choice.
- **Education** – is used to increase information online for healthcare professionals to educate themselves continuously and used for preventive information towards consumers/ general population.
- **Enabling** – alignment of information exchange between healthcare establishments by standardizing written and other sources online.
- **Extending** – is used to scope and increase the conventional boundaries, this means geographically it increases its accountability towards global providers. These services can range from simple advice to more complex interventions.
- **Ethics** – it also brings ethical challenges to physicians and healthcare providers towards online professional practice, patient consent, privacy and equity issues.
- **Equity** – it is a challenge to deliver the same opportunities to the population due to poverty, illiteracy, lack of computer access, unavailable networks or lack of skills. As a result, populations that would greatly benefit from e-health have difficult access, therefore likely to benefit the least. The digital era divides between rich vs. poor, young vs. old, male vs. female people and rare/neglected diseases vs. common diseases. (Adapted from Eysenbach, G., 2001)

2.5.1 Digital Age in Healthcare Systems

“Technology has played a huge role in helping to personalise information, giving patients more control over their health.” says Ruchin Kansal, executive director at Boehringer Ingelheim Pharmaceuticals.

The potential of eHealth is to overcome challenges of modern healthcare (Stroetmann *et al.*, 2006).

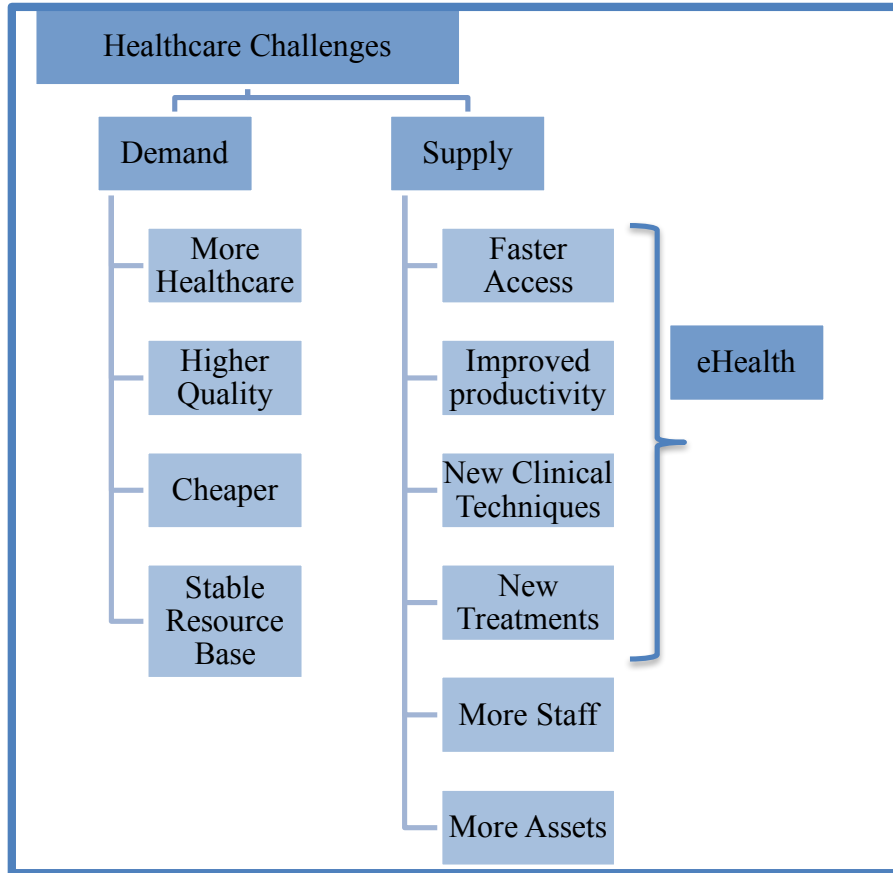


Figure 2. Healthcare Challenges and eHealth input adapted from (Stroetmann *et al.*, 2006).

E-health tools are planned to improve health systems by increase health observation, health-system management, health education, increase assertiveness diagnosis, allow quick decision-making and support behavioural changes (Stroetmann *et al.*, 2006).

2.5.2 Health Websites & Mobile Apps

It is accountable that digital age in healthcare delivery enables more information decision-making within patients and family members. Novel mobile application development starts to tackle an unmet clinical challenge. The solution idea is developed and throughout various step process is launched to the general population. These step processes were identified by (Bradway *et al.*, 2015) in figure 3.

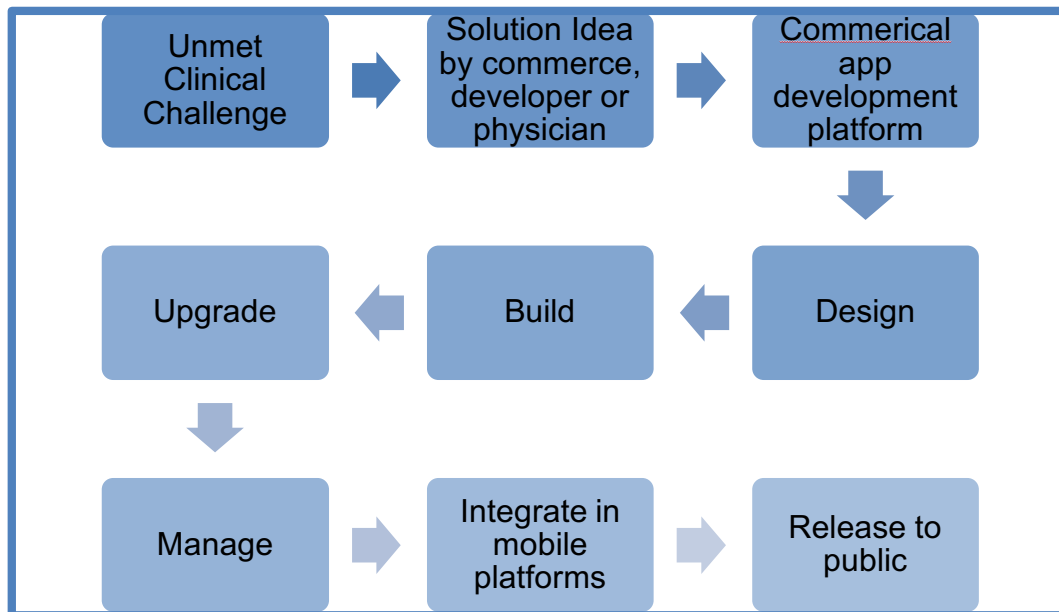


Figure 3. Development process of eHealth service (Bradway *et al.*, 2015).

Even though developing process has proven to be successful there are various considerations regards each step to promote eHealth projects. It is necessary to ensure highest level political support from public stake-holders, non-profit organizations, private healthcare sector and human resources available for any new implementation project. It is indispensable to carry out viable studies to develop a strategic planning and action plans (Stanimirovic and Vintar, 2014).

Success implementation and development will depend on the following main factors: political, regulatory, institutional and technological. It is necessary to have a political commitment to monitor and support project implementation towards a future vision. Regulatory factors are essential to promote environmental and ethical laws to protect patients and healthcare providers. Institutional and technological factors are directly linked to the development of eHealth projects in terms of business process engineering and development of technology infrastructures (Stanimirovic and Vintar, 2014).

2.5.3 Improving Quality of Information Exchange & Medical Service

Technology enables online access to healthcare information generated by other providers at any point of care delivery, therefore it is expected to improve the quality and efficiency of care and reduce the operating and administrative costs of healthcare providers (Vest, J. and Gamm, L. 2010).

In times when it is faced with reduction of resources towards physicians, downsized budgets it is necessary to reduce costs and make sure that money invested in any initiative is well planned. Making digital strategies a base operation for future strategies will enhance customer-level communication and putting the patient perspective at the centre of initiatives concerning them within their own health condition (Sirockman, M., 2015).

Whitehead and Seaton (2016) concluded in their systematic review that mobile and tablet apps improve health outcomes within symptom management through disease self-management interventions. This means that patients with chronic conditions can increase their effectiveness in symptom control (Whitehead and Seaton, 2016).

2.5.4 eHealth for Medication Management

Healthcare systems face a foremost challenge with medication and medicines management within patients and their treatment. Medication adherence depends on patients and is reliable on patient responsibility. The adherence of each individual determines the effectiveness and the most successful intervention for improving health care outcomes for a specific treatment (Car *et al.*, 2017).

eHealth offers the opportunity to transform every step of the patients' medicines management journey an easier process for all healthcare providers and participants. Figure 4 shows eHealth process development towards an effective adherence to eHealth applications by patients towards their own self-management services and engagement.

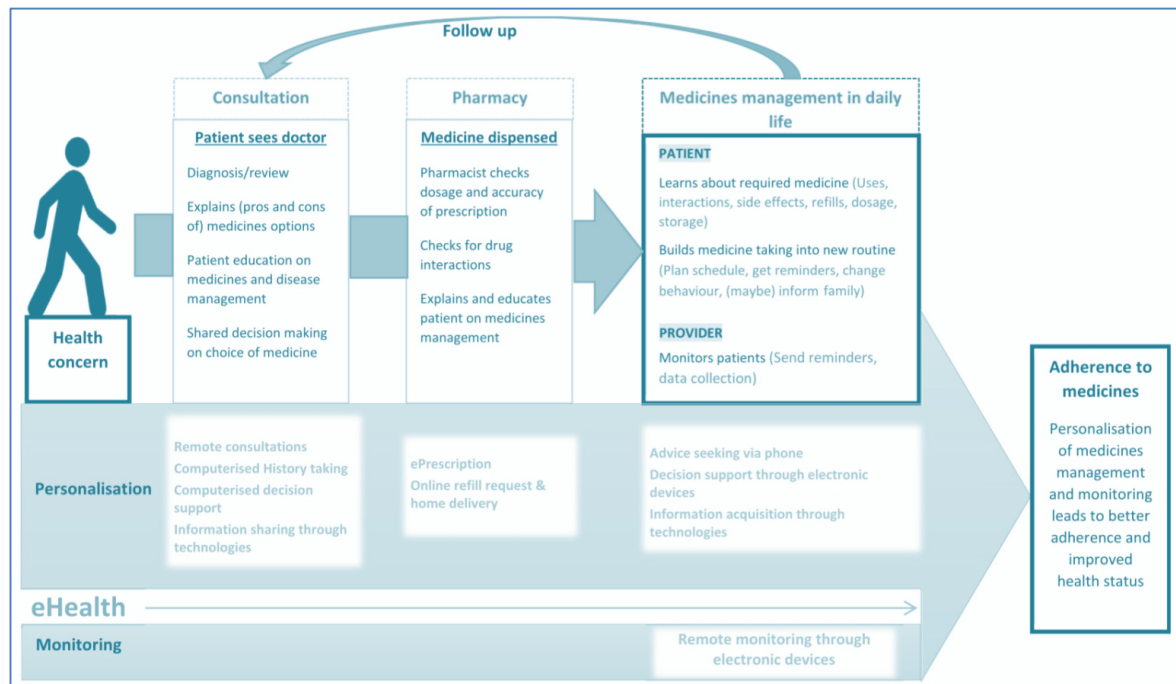


Figure 4. eHealth in monitoring in patients' medicines management journey (Car *et al.*, 2017).

The eHealth has the potential benefits to manage medicines and achieve a balance between caregivers and patients. It offers prospects to change every step of patient's medicines management from booking appointments, consultation of any profession, help with decision-making, administer medication dispensing, support carer and increase information acquisition and monitoring for daily life of each patient (Car *et al.*, 2017).

2.6 eHealth interventions: the case of weight management and Obesity prevention and reduction

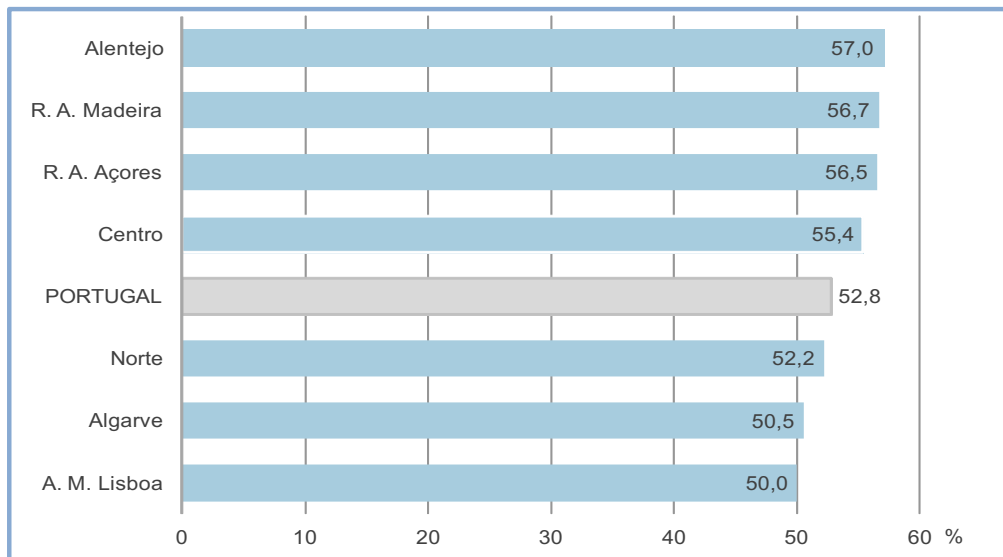
The spread of obesity has been declared a worldwide epidemic by the World Health Organization particularly in childhood where overweight and obesity have significant impact on physical health, social and emotional well-being, and self-esteem. Overweight and obese children are likely to stay obese into adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age. This is a serious public and clinical problem since by increasing the risk of many obesity derived health complications, long-lasting treatment for effective results are needed, involving high public and private expenses.

Worldwide obesity has more than doubled since 1980, in 2014 it has been estimated that more than 1.9 billion adults were overweight, including 600 million obese adults. Overall 13% of the world’s adult population was obese, 11% were men and 15% were woman in 2014 (WHO, 2016).

Overweight and obesity are linked to higher death rate worldwide than underweight. Higher weight in populations increase the probability and risk to develop cardiovascular diseases, diabetes, musculoskeletal disorders and some cancers. These conditions are known for a high death rate in developed countries (WHO, 2016). Obesity is accountable for 5% of worldwide deaths and it is estimated that the economic impact is 2 trillion dollars annually equivalent to 2.8 global GDP (Dobbs *et al.* 2014).

2.6.1 Excess weight and obesity prevalence in Portugal

The Portuguese National Institute of Statistics published in 2015 the annual report on excessive weight and obesity of the Portuguese population divided by regional territory. The national percentage of excessive weight is fifty-two percent (INE, 2015). This shows a prevalence of overweight that is a concerned to our healthcare system. Graph one shows the percentage of Portuguese population with excessive weight or obesity level within districts (INE, 2015).



Graph 1. Percentage of Portuguese population with excessive weight or obesity level within different territory districts in 2014 (INE, 2015).

2.6.2 Obesity associated worldwide costs

Obesity is directly linked with socioeconomic burden due to the higher mortality and chronic diseases within overweight population (Chin *et al.* 2016). This has an enormous personal, social and economic costs. The global economic impact is equivalent to 2.8 global GDP corresponding to 2.0 trillion dollars each year (Dobbs *et al.* 2014). Overweight and obesity expenses in developed countries are estimated to cost 2 to 7% of all healthcare spending's, not including treating associated and chronic diseases arising from overweight individuals. It is estimated that healthcare expenditure rises to 20% in developed countries when including associated diseases (Dobbs *et al.* 2014).

2.6.3 eHealth apps used for Body Weight Control

One of the most effective treatment to reduce and maintain weight loss is by changing and modifying lifestyle cognitive and behavioural habits. Along with many different strategies, weight self-management has proven effectiveness in weight loss outcomes (Chin *et al.* 2016). However conventionally paper records and diaries are outdated, monotonous and low engaging reduce the optimization of the exercise, therefore it limits the overall effectiveness.

There is a limited but growing body of evidence suggesting that mobile eHealth behavioural interventions, such as internet, mobile phone or computer based clinical protocols, may be effective in promoting and sustaining successful weight loss and weight maintenance behaviour changes. The field of mobile apps is growing rapidly with an estimate of 100,000 globally available apps targeting healthy lifestyles and body weight management. Due to its ubiquity, easy access, practicality and appealing design this has reflected in have a higher adherence and loyalty from users (Chin *et al.* 2016).

Mobile applications (apps) could be an engaging way to involve children in health behaviour changes, capitalizing on portability and affordability of delivering health information via mobile devices and opportunity to use gaming to make health information entertaining. Moreover, eHealth sector interventions, with those thousands of health apps currently available, could also have an essential role in the development of sustainable systems targeting health costs reducing.

Addressing the childhood obesity issues, the present work does an approach to: i) eHealth compliance; and ii) eHealth potential, both helping patients and general practitioners to overcome some of the barriers to managing health risk behaviours. In particular, issues related to the role of eHealth in (1) facilitating routine collection of patient-reported data on lifestyle risk factors, and (2) improving clinical management of identified risk factors through provision of tailored feedback, point-of-care reminders, tailored educational materials, and referral to online self-management programs, were examined.

2.7 Implications & Ethical Reason of Implementation

There is contradictory research regarding information usage due to the level of literacy of the population in question. Increasing both information and knowledge to patients is essential for all reasons explained previously. However, excess access to information can lead towards faulty and dangerous decisions within healthcare decisions. Information that is misinterpreted can be just as dangerous as no information at all. It also puts the patient's health at risk and providers in a hard position. It can also damage pharma's and healthcare delivers reputation at risk (Sirockman, M., 2015).

Another precaution is the lack of acceptance to resort to new technologies by healthcare professionals, leading to a decreased usability of such applications. Some studies defend that health professionals that decrease the usability of some applications cause major barriers towards the development of such technologies. The lack of acceptance is classified into three groups: personal characteristics of each individual, organizational characteristics and the technological characteristics to be implemented (Pereira *et al.*, 2015).

3. Methodology

The present work is an exploratory study, addressing the research problem by providing an overview of the gaps found in selected studies of literature namely, the gaps concerning the knowledge on e-health and those related to the power of information exchange between health organizations and patients.

The following chapter defines and outlines the methodological approach throughout the study. It defines limitations and appropriateness of the study groups, it is essential to understand these parameters before drawing any further conclusions throughout the analysis process.

3.1 Primary and Secondary Data

Primary and Secondary data were collected to improve the authenticity of this study. Primary data was collected through a series of interviews and questionnaires in 2016. Secondary data was mainly used as an insight instrumental method to review literature for a good approach towards future needs. It was mainly used to understand flaws within research carried previously. The research carried and the secondary data was fundamental to understand concepts and define the problematical hypothesis. With these concepts, a chronological structure has been resembled to approach theory into a practical investigation.

As no previous research data has been conducted up to knowledge, primary collection data is essential to carry out this study.

3.2 Methods for Descriptive Research Analysis

Qualitative research and approaches are more open and responsive to its subjects. This type of research tends to study the interactive process instead of separate variables. The main aim of qualitative is to understand the experience as a unified characteristic (Hughes, 1997).

However, the limitation is to find adequacy and reliability on the sources and it's also the major criticism of this method needs specification towards data collection (Hughes, 2000). Nevertheless, recent studies in the social sciences field show that this quantitative research methodology has both practical and investigatory value (Krippendorff, 2004). Indeed, content analysis has been successfully applied in studies

on both theory and practice (Piotrowski, 2012), depending on the specific research question and on the quality of the collected data.

The next paragraphs define data collection, group size, sampling and recording methods.

3.3 Interviews for Analysis

3.3.1 Group Size

The ideal and favourable groups have been extensively discussed in the literature. Some studies vary between four to twenty members. To carry on the present study and to avoid an overwhelming group size, eight healthcare professionals were selected. A proposal based on a smaller group to avoid formation of subgroups. So, for a differential study four nurses and four doctors were selected to carry in this study.

3.3.2 Sample Selection

The participants were selected to ensure a higher representation within integrated healthcare systems. Doctors and nurses were divided into a sub-group for different opinions and broader spectrum. Within these two sub-groups an equal distribution of men and woman was taken into consideration for a higher representation of gender difference. Ensuring a realistic representation between males and females, to prevent influencing comments.

3.3.3 Recording

To analyse the data all non-English responses were translated into English and the survey responses were checked for consistency and errors. To ensure that all participants could express their own opinion, all answers were promised confidentiality.

3.3.4 Bias

As with any scientific research carried without a control group forms of any variation should be considered. To avoid bias all participations were selected on the same variables, while the same method of recording was assembled.

No information about the subject and matter of the study were discussed with the participants to reduce any biased responses towards our main focus.

3.3.5 Analytical Approach

To analyse data collected from interviews, the following analysis will be applied for further conclusion, thematic analysis approach identified by Roulston, (2001). The thematic analysis is used to analyse original data and draw conclusions into directly observational information or underlying observable facts (Roulston, 2001).

3.4 Questionnaire

The questionnaire was designed for the general population in the northern area of Portugal. It was planned to enlighten and collect information about the perception of the general population towards eHealth technology. The questionnaire is essential for the conclusions and results of this study, it also followed precisely the demographical measurements applied for screen and used as a representative sample of the Portuguese people.

3.4.1 Design

The questionnaire was designed for an easy response in a cascade mechanism for easy understanding of all participants. To ensure validity of the study some screening questions were used in the beginning that allowed participants to stop the questionnaire if not applicable.

Some questionnaires were read to the participant due to health conditions, while undergoing chronic treatment.

3.4.2 Sampling

Questionnaires were implemented in a non-probability quota sampling due to financial limitations and time constrain. Thinking about any biased data collected, a quota sampling technique was a representative of various subgroups within the Portuguese populations. For this study, the population was stratified on universal demographic characteristics such as gender, age, literacy level and social-economic situation.

Questionnaires were carried in public and private health facilities such as hospitals, clinics and health facility. The questionnaire was also available online and send by e-mail for quick response, after these a sampling of total 176 respondents were verified. After the questionnaire application, a spreadsheet for data analysis was developed for further drawing conclusions and for graph plotting.

4. Results & Analysis

Previous chapters contain withdrawing conclusions and flaws towards the problematic. The following sections will therefore present the information gathered described above in the methodology. Results will be presented by a combination on qualitative and quantitative methods. Section 4.1 will present results from qualitative method analysis and section 4.2 will expose results and analysis from quantitative results.

4.1 Interview Analysis

The aim of this chapter is to analyse the two focus groups inside the public and private system healthcare workers and providers. Hence, attempt to provide an insight view towards the problematic outlined in the thesis objectives. The following chapters will describe and provide sufficient perceptiveness to conduct conclusions and further suggestions.

Considering both group analysis there are several different approaches possible to describe the present information gathered. This analysis will focus on describing, analysing and interpreting the data collected synthesisable and simultaneously. To simplify the amount of information and topics discussed the following data will be presented into different topics and sub-topics. Hence, it will provide an easy structure for the discussion, conclusion and future study phases.

4.1.1 Empowering patients

The majority of respondents referred the education level of patients as an important role towards the empowering of patients. Correspondent 2 explained: *“I consider information the basis of instruction, and with more instruction, people, in general, can become more aware about diseases, from the symptoms to the prophylactic measures, therapeutic requirements and prognosis. This will bring clear advantage for predisposing people to be more cautious with their health, and, at the same time, they can recur earlier than later to Medicine, with obvious advantages, including economics.”* It is also a major consensus that patients are higher educated overall throughout the years and becoming more demanding and curious towards their knowledge about any conditions. Correspondent 5 clarified *“...patients are more*

demanding in terms of knowledge towards any physical or clinical condition. Patients more often ask questions about a prescription, treatment, condition or examinations. This curiosity and the will to understand any physical condition increases the power of each patient to follow a given prescription...". Although the agreement is noticeable there are some correspondents that believe that there is the need to partnership patients and caregivers towards a communication that allows double responsibility. This will allow to increase doctor-patient responsibility towards a common goal and a distribution of tasks, however never reducing the command of the doctor or caregiver towards any given treatment or change with patient permission. This is also related to the influence of knowledge and the overreaction towards too much information or misleading information. With this in mind during the conversation it was also referred that many people are using information incorrectly without any scientific base behind many conclusions towards a given condition. It is also important to understand that these events can indicate or lead people to take wrong decisions towards their health condition. Correspondent 6 remembers that *"some patient re-visits are due to misleading information towards a treatment prescribed and therefore a wrong approach towards the treatment indications. These re-visits bring complications due to the self-changing prescription by using the guidance of information found on the internet. Many people are reading opinions and ideas of non-medical staff"*.

Most nurses picked the notorious problem with self-management prescription of antibiotics. They all agree that the increase of multi-resistance infections is arise from errors while undergoing treatment with antibiotics. All nurses believe, even though they have not tested, that new strategies need to be used. When asked if using mobile application could be used to control medication treatment, some were sceptic and others thought it could be tested. Some have already thought about trying to use different medications apps available as a new possible strategy to incorporate with their practices while coaching patients. However, nurses also felt the need to be educated towards new eHealth strategies, due to the lack of evidence and trials most are not comfortable in using or trying new strategies with patients.

4.1.2 Engagement of patients to eHealth services

Patients that engage with healthcare providers are increasing due to the personal will to understand their own health conditions and its effect on their health. It is clear to all correspondents that people more often want to play a role in their decision-making within their healthcare options, people inquire about their condition and about all different choices available for treatment. It is more often known that people are becoming more aware of lifestyle and how it changes their health conditions. Due to this major change in society, correspondents feel that people actively seek out for more information to be able to evaluate and make informed decisions in regard to new treatments or different care delivery options.

Correspondent 1 believes that *“by educating patients with skills that allow them to take responsible decisions after studying resources appropriate to their health conditions it provides drive patient self-management of their treatment and in many cases, it allows long term changes in their lifestyle habits”*. These skills will also allow patients to be more participant in symbiosis with their different healthcare providers and their healthcare plans.

It is also a perception that it might not always be quick and easy, the problem of adopting and develop empowerment and engagement of patients during the time that is required from healthcare workers to answer all queries from patients and their families and their own personal needs. Normally patients want to find answers to the condition or treatment and therefore have the need to explain in detail lifestyle and health background description. Correspondent 7 contemplate that *“Empowered patients will require more time to deal with, they normally ask more questions, they are more curious and want to participate in their care and treatment decision”*.

Although correspondents had a vague idea that eHealth could be used to increase patient empowerment, many didn't try to approach this matter. It was also the perception that older patients are not willing to try any new technology, as most are still not aware of its benefits.

4.1.3 Strategy towards overweight management

When correspondents were inquired about the utilization of eHealth apps to increase the control on patients that have overweight or are at obesity level, most correspondents knew that many eHealth systems are being used by patients. They

evidentially talked about two different systems, one was used to control weight in young adults and another type of control is used to increasing physical activity in our population. All enquiries agreed with the increase in: i) popularity of mobile applications, ii) number of health and medical apps towards physical appearance, iii) potential to improve daily habits towards food consumption, iv) development of physical activity apps.

The conversation lead to various conclusions about the role of mobile apps targeting overweight management. Such as follows, addressing: i) physical outcomes: BMI, waist circumference and fat percentage; ii) psychological behaviours: motivation, persistence, resilience, knowledge and attitudes; iii) behaviour outcomes: change of diet habits, increasing physical activity, setting goals and monitoring achievements more periodically.

However, none of the participants knew how effective these treatments are towards long-term effectiveness and how engaging were all apps for younger adults, none could tell how effective was applications being used and how frequently.

Correspondent 3 points out that many apps are not personalised for the need of patients, it is overall a program designed to target a given population problem. However, many patients need a personalised treatment with daily coaching and targets assigned that many application programs are not aware and have no personalised training approach.

Correspondent 4 wraps the full discussion and states that “movement is one of most important achievements of Human Being. In the last years technology as taken an important role in our daily life. We assist an exponential birth of cell phone applications that were created to monitor very aspects of our routines. Physical exercise is not an exception, and there’s a variety of applications, gadgets and tutorials created with the intention of promote, prescribe and monitor the exercise routines of users, with the weight loss programs being some of the most wanted. And if the intentions are good the results aren’t always. First of all, we should not forget that for better results any weight loss program must complemented with nutritional monitoring, but in this interview, we focused more on exercise programs. When the theme is weight loss, there are a few important aspects related to physical exercise that must be highlighted. The vast bibliography about these subject points for an intense physical activity, to achieve better results, and that’s where the gaps of electronic applications emerge. When we

think about intense physical activity one important aspect is featured – *Safety*. Sometimes the line that separates a good exercise from a damaging exercise is tenuous, being the motor pattern/standard with which the exercise is performed the differentiating factor in this analysis. The consequences of executing a set/routine of exercises without professional supervision may be catastrophic in short/medium or long time, and can range from “simple” musculoskeletal injuries to life-threatening situations, these risks increased in intense physical activity. Another important aspect is related with Biodiversity, that tell us that every human being is unique, and so should be seen and treated as such. In practice, this concept explains to us why the same stimulus can produce results so different, and sometimes antagonistic. Understanding this make us conscious to the importance of an individualized training program, appropriated to our goals, taking into account our most distinctive biological characteristics, and that’s not what happens with programs designed by technological devices where people receive a stereotyped training plan. I would like to draw attention to another important factor that it’s social relationship. Technology can be an isolation factor for human being. With the possibility of accessing a training program, in the comfort of our house, or office, can lead people to a greater distance from an active and healthy social life, that’s extremely important for normal and better human development. By way of conclusion, I think that in view of all of the above, it has become clear that, despite good intentions, exercise programs for weight loss created by technological applications are not the best way to achieve satisfactory and long-lasting results.”

At this point, many believe that it is not clear how effective apps are to reduce weight and to change habits of dieting on our population. It is not legible if traditional intervention programs are more effective towards a reduction on weight and decrease levels of obesity.

4.2 Descriptive Analysis

Data analysis was conducted before testing the research problematic, all questionnaires were interpreted and examined for any flaws and misunderstanding. Descriptive statistical analysis was carried out to show difference and future outcomes from the present questionnaire.

4.2.1 Socio Demographic Analysis

Initially a total number of 186 questionnaires were answered, after adjusting for control variables only 176 were considered for further analysis. The distribution of men and woman within the respondents was 38.3% male and 61.7% female therefore an unequal percentage. This was due to randomness of the conducted questionnaire. The age span among the respondents ranged from 18-82 years old. To ensure an easier analysis the respondents were divided into age groups from: 18-25 years-old, 26-45 years-old; 46-55 years-old, 56-65 years-old and more than 65 years of age. The collected data of each correspondent was further distributed to the education level: low, medium or high. Low education level is equivalent to basic school up to 12 years old, medium level is equivalent to accomplished high school diploma and high level of education equivalent to a higher educational degree.

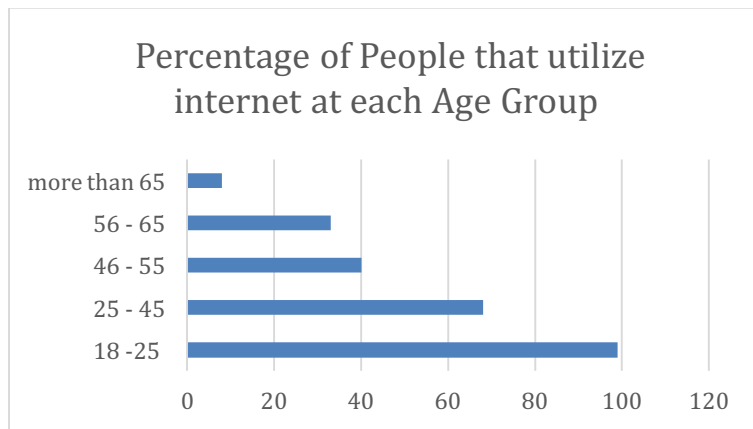
<u>Distribution of Respondents by Age, Gender and Education</u>						
Female	<u>Age Groups</u>					<u>TOTAL</u>
<i>Education Level</i>	<u>18 - 25</u>	<u>26 - 45</u>	<u>46 - 55</u>	<u>56 - 65</u>	<u>more than 65</u>	
<i>Low</i>	0	0	0	1	1	2
<i>Medium</i>	7	1	2	0	1	11
<i>High</i>	38	44	2	4	1	89
Male	<u>Age Groups</u>					
<i>Education Level</i>	<u>18 - 25</u>	<u>26 - 45</u>	<u>46 - 55</u>	<u>56 - 65</u>	<u>more than 65</u>	
<i>Low</i>	0	0	0	3	5	8
<i>Medium</i>	3	1	0	1	2	7
<i>High</i>	29	23	4	1	2	59
<u>TOTAL</u>	77	69	8	10	12	176

Table 2. Distribution of respondents by age, gender and education.

4.2.2 Frequency usage of Internet and Mobile Applications for health purpose

Analysing age groups that utilize and adhere to internet and mobile applications of our population is important to understand where this new technology era is moving. As expected younger ages, population under 25 years old have the highest percentage of internet usage with a total of more than 96.1%. As the age group increases within its age the percentage of population using internet decreases significantly. However due to the small sample of each year group there is no evidence that this different is significant. Group age 46 – 55 years old has only eight participants, group age 56 – 65 years old has only ten participants and above 65 years old only twelve participants were questioned. Therefore, the low numbers of participants are not significant to find significant difference between the age-groups.

However, this gives us the perception that younger population is now using internet and mobile applications more often and with a higher percentage of population. Having this in mind, people that use internet were further questioned to give a more detailed information about how they use the internet towards health and healthcare. Graph 2 shows the percentage of people that use internet in each age group.



Graph 2. Percentage of internet and mobile application usage.

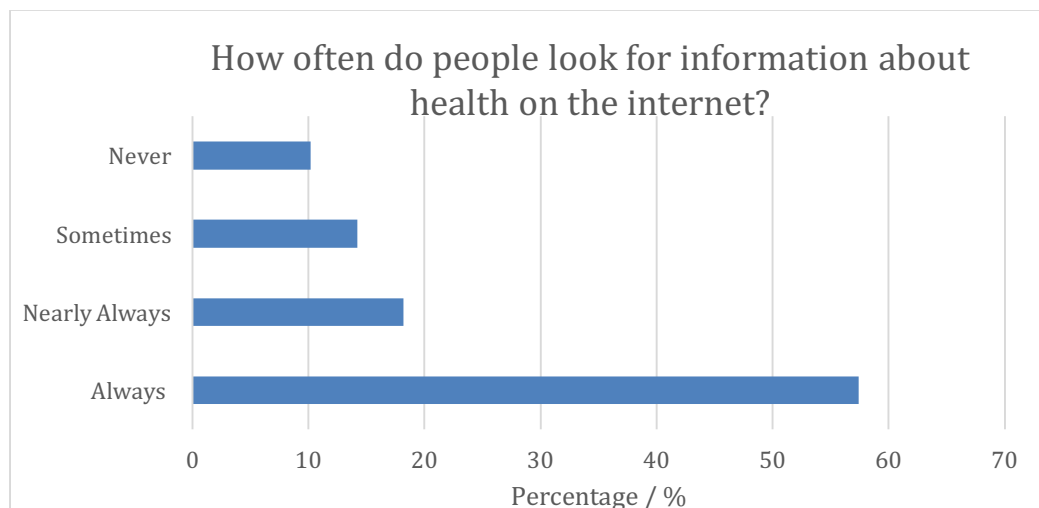
Portuguese Perception Towards eHealth Technology within Integrated Care

Age Group * Internet Usage Crosstabulation

Age Group			Internet Usage				Not Using	Total
			Sometimes	At least once a day	2 - 3 times a week	4 - 7 days a week		
18 - 25	Count		74	1	0	2	0	77
	% within Age Group		96.1%	1.3%	0.0%	2.6%	0.0%	100.0%
	% within Internet Usage		49.0%	11.1%	0.0%	100.0%	0.0%	43.8%
	% of Total		42.0%	0.6%	0.0%	1.1%	0.0%	43.8%
26 - 45	Count		65	4	0	0	0	69
	% within Age Group		94.2%	5.8%	0.0%	0.0%	0.0%	100.0%
	% within Internet Usage		43.0%	44.4%	0.0%	0.0%	0.0%	39.2%
	% of Total		36.9%	2.3%	0.0%	0.0%	0.0%	39.2%
46 - 55	Count		8	0	0	0	0	8
	% within Age Group		100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within Internet Usage		5.3%	0.0%	0.0%	0.0%	0.0%	4.5%
	% of Total		4.5%	0.0%	0.0%	0.0%	0.0%	4.5%
56 - 65	Count		4	1	0	0	5	10
	% within Age Group		40.0%	10.0%	0.0%	0.0%	50.0%	100.0%
	% within Internet Usage		2.6%	11.1%	0.0%	0.0%	38.5%	5.7%
	% of Total		2.3%	0.6%	0.0%	0.0%	2.8%	5.7%
more than 65	Count		0	3	1	0	8	12
	% within Age Group		0.0%	25.0%	8.3%	0.0%	66.7%	100.0%
	% within Internet Usage		0.0%	33.3%	100.0%	0.0%	61.5%	6.8%
	% of Total		0.0%	1.7%	0.6%	0.0%	4.5%	6.8%
Total	Count		151	9	1	2	13	176
	% within Age Group		85.8%	5.1%	0.6%	1.1%	7.4%	100.0%
	% within Internet Usage		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total		85.8%	5.1%	0.6%	1.1%	7.4%	100.0%

Table 3. Cross tabulation of age groups with internet usage of our participants.

Graph 3 shows the percentage of internet and mobile application usage of questionnaires that use internet frequently. Participants only had four options when answering to the question: i) never use, ii) sometimes, iii) nearly always and iv) always use the internet to search for health issues. Most people, 58% utilize the internet sometimes to look for information about health, 18% nearly always confirm the usage of internet for health information, 14% use always the sources and only 10% never use the internet for health educational purpose.



Graph 3. Shows how often people look for information about health on the internet and mobile applications.

For further insight into the data and to be able to understand if there is any correlation between internet usage and internet usage for health issues, there was the need to carry statistical test by using phi de Pearson Coefficient shown in table 4 and represented in graph 4. This measurement allows to understand if there is an analytical existence of relationship and how intense that same correlation is. Persons correlation coefficient ranges between -1 and +1, where it indicates perfect agreement or disagreement of the correlation, zero indicated no relationship between the two variables.

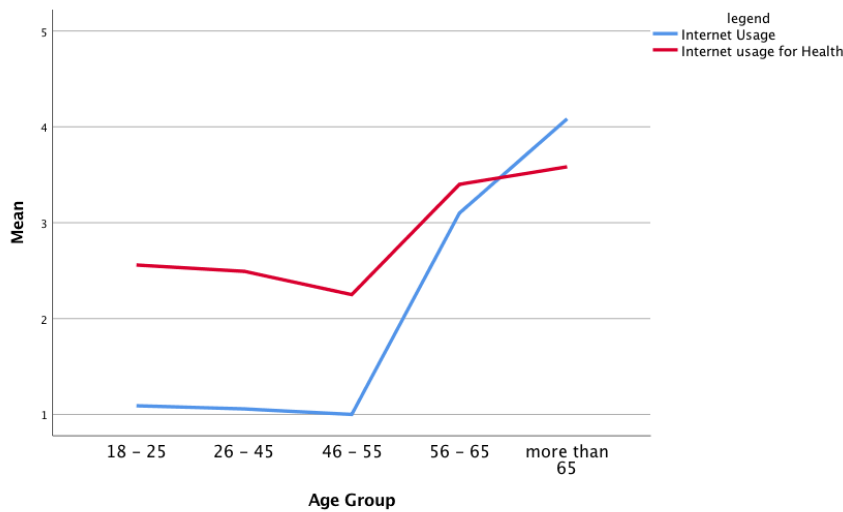
Correlations

		Age Group	Internet Usage	Internet usage for Health
Age Group	Pearson Correlation	1	.681**	.305**
	Sig. (2-tailed)		.000	.000
	N	176	176	176
Internet Usage	Pearson Correlation	.681**	1	.403**
	Sig. (2-tailed)	.000		.000
	N	176	176	176
Internet usage for Health	Pearson Correlation	.305**	.403**	1
	Sig. (2-tailed)	.000	.000	
	N	176	176	176

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4. Pearson Correlation test between age groups, internet usage and internet usage for health purpose.

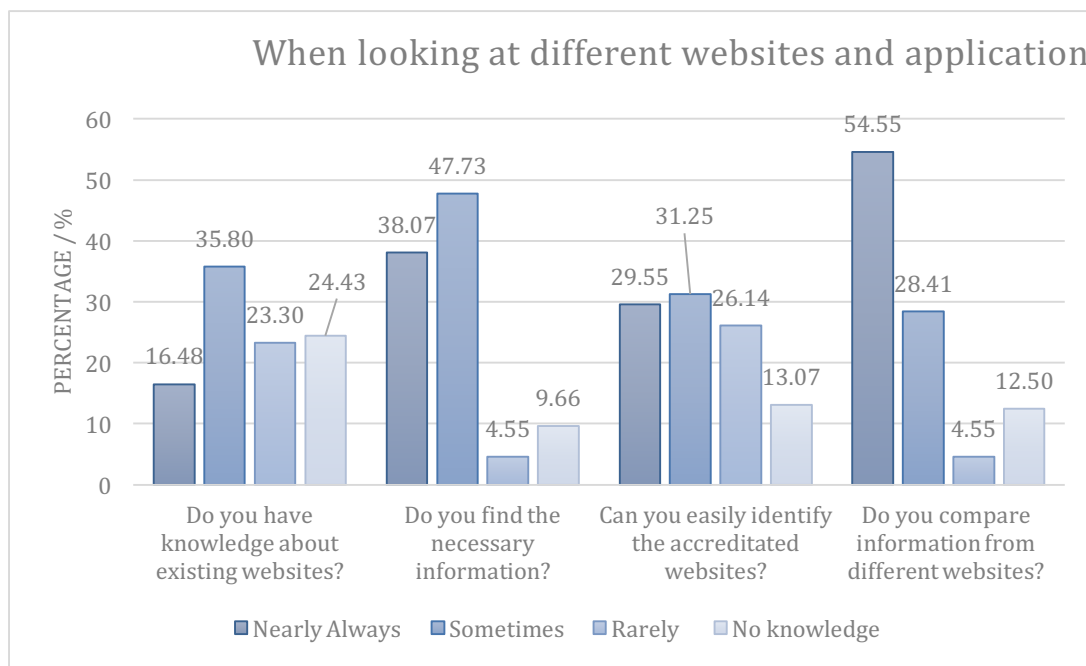
Table 4 shows a significant correlation between age groups and internet usage with a significant difference with $p < 0.00$ so it shows a significant value of $p < 0.05$. The correlation of the test shows a moderate high correlation between age groups and internet usage of Coefficient correlation = 0.681, positive relationship of moderate high intensity. The age group correlation with internet usage for health purpose is still significant $p = 0.000$ however the Coefficient correlation = 0.305 shows a low moderate correlation. Graph 4 shows the correlation between these variables in an easier visual presentation figure.



Graph 4. Correlation figure between age groups and internet usage compared to internet usage for health purpose.

4.2.3 Correspondent experience on health websites

This section will describe the overall experience of patients when engaging towards eHealth services and to understand their purpose and how they utilize the internet to find information about health. Detailed information about participants that adhere to internet usage for health purposes in order to find health information and how they categorise their own experience in terms of: i) if they are aware of knowledgeable and official websites; ii) if they are able to find the information they are looking for; iii) if they are aware of existing health official websites; iv) and if correspondents are comparing information from various websites. This important is important to understand and draw conclusions about how correspondents are operating internet in regards of health information. Graph 5 shows the percentage of answers in each category where correspondents only had four answers: nearly always, sometimes, rarely and no knowledge when looking at different situations. Q1: “Do you have knowledge of existing websites?”; Q.2: “Do you find necessary information?”; Q.3: Can you easily identify the accredited/official websites?” Q.4: “Do you compare information from different websites?”.



Graph 5. Percentage of answers towards different questions answered based on experience using health websites.

Graph 5 shows that only 16,48% of correspondents always acknowledge about existing websites, 35,80% sometimes know and more than 39,21% show difficulty in knowing health existing websites. Along with this parameter, the percentages of correspondents that have knowledge of official websites decrease to 29.55% knowing about it nearly always, 31.25% sometimes and 40% having rare or have no knowledge. On the other indicator, people tend to compare information from various websites, 54.55% of correspondents do it nearly always, 28.41% sometimes; 4.55% do it rarely and only 12.50% don't use it at all. When correspondents utilize internet to find information only 38,07% find the necessary information, 47.73% only happen to find their answers sometimes and 14.21% have rarely or no answers to their search.

4.2.4 Usage of eHealth depending on health level or chronic disease of each individual or any family member

There were three questions on the questionnaire that interrogated about health level/state or the manifestation of chronic disease and chronic disease present in any family member. These questions aimed to understand if there are any correlation between people utilizing the internet for health issues in comparison with their health

level or sickness with a chronic disease. It also aims to compare internet usage of correspondents that have family members with chronic illness and that are exposed to that reality. Table 5 shows the correlation Spearman' rho test that aimed to find any correlation between internet usage for health issues in comparison with healthy or non-healthy correspondents by looking at prevalence of a chronic disease. The test carried shows no significant difference between correspondents that use the internet to find health related information versus if they have a chronic disease or if they are encountered with that reality through a family member. There is no correlation between these two parameters, the significance value was $p=0.108$ and $p=0.489$, higher values than $p>0.05$ therefore no significant difference.

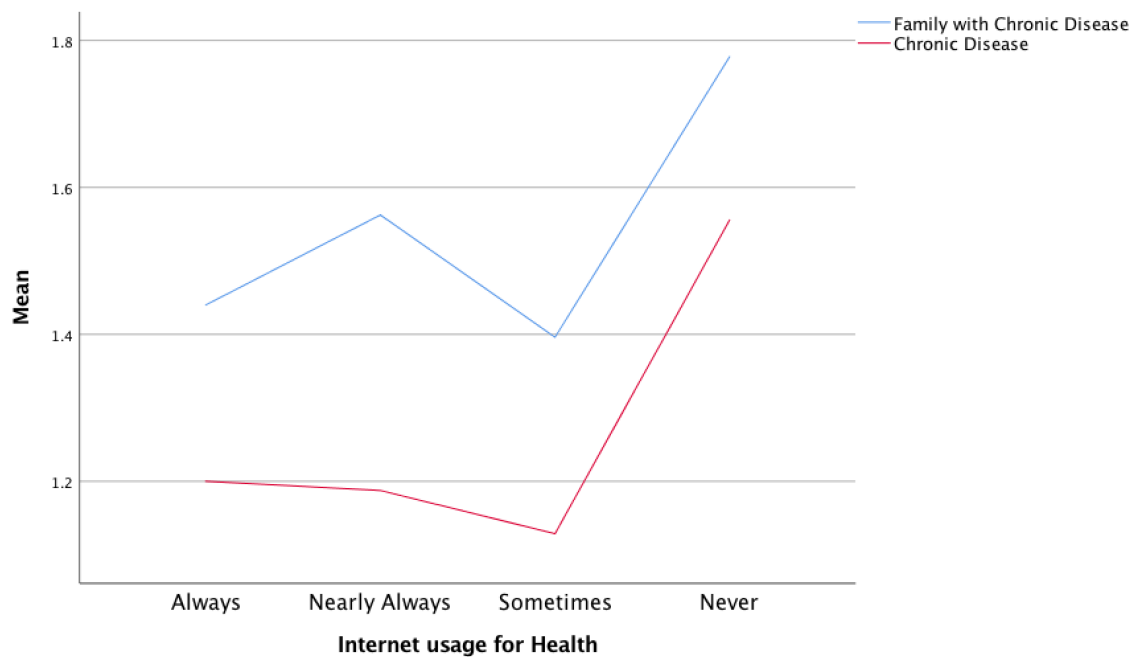
Graph 6. Shows the no correlation of the given data between internet usage for health issues correspondents against the presence of a chronic or long-term disease or a family member with a chronic disease.

Correlations

			Internet usage for Health	Chronic Disease	Family with Chronic Disease
Spearman's rho	Internet usage for Health	Correlation Coefficient	1.000	.122	.052
		Sig. (2-tailed)	.	.108	.489
		N	176	176	176
	Chronic Disease	Correlation Coefficient	.122	1.000	.403**
		Sig. (2-tailed)	.108	.	.000
		N	176	176	176
	Family with Chronic Disease	Correlation Coefficient	.052	.403**	1.000
		Sig. (2-tailed)	.489	.000	.
		N	176	176	176

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5. Spearman' rho correlation test between internet usage for health against chronic disease patient or family member with chronic disease.



Graph 6. Profile graph that compares internet usage with both parameters, chronic illness present or family member suffering from chronic illness.

Furthermore, the data was analysed to compare health level of each correspondent and their engagement towards internet usage for health issues and purpose. A parametric approach was first measured however, the assumption of equal variances was not accomplished and the ANOVA test had to be redrawn.

Instead the non-parametric alternative Kruskal-Wallis test was carried forward. The distribution comparing health level of each correspondent and their engagement towards internet usage for health issues and purpose was statistically significantly different, $\chi^2=23.209$ and $p=0.000$, presented in table 6.

The non-parametric correlation test shows significantly different results shown in table 7 and represented in graph 7.

Kruskal-Wallis Test

Ranks			
	Health Level	N	Mean Rank
Internet usage for Health	Very Healthy	29	79.59
	Healthy	129	83.69
	Poor Health	18	137.36
	Total	176	

Test Statistics^{a,b}

	Internet usage for Health
Kruskal-Wallis H	23.209
df	2
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: Health Level

Table 6. Shows the result from Kruskal-Wallis Test comparing internet health usage within health level.

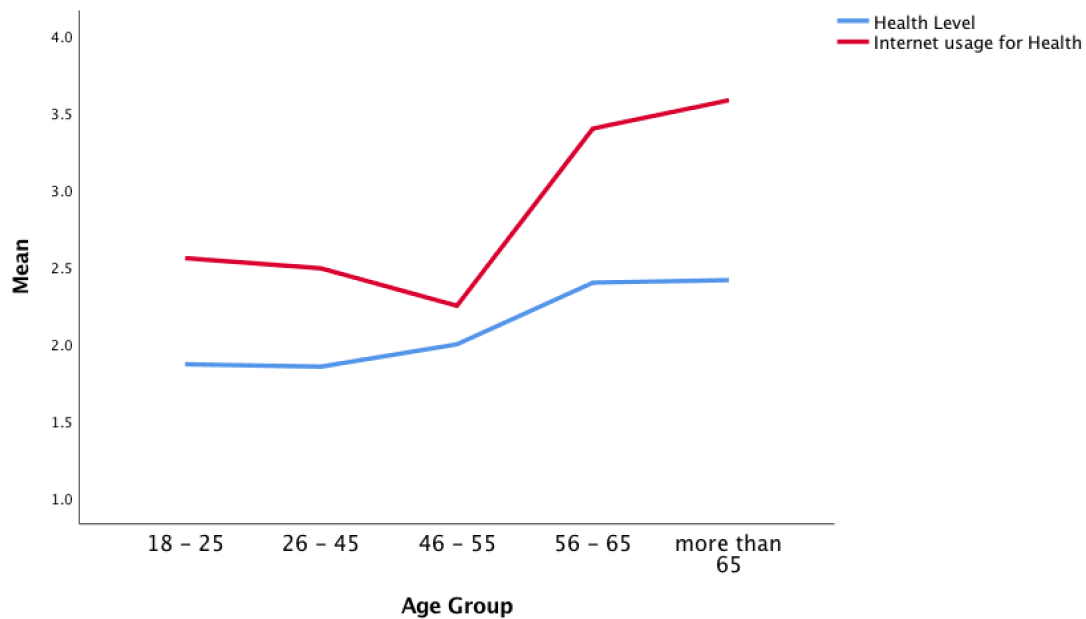
Correlations

			Internet usage for Health	Health Level	Age Group
Spearman's rho	Internet usage for Health	Correlation Coefficient	1.000	.270**	.228**
		Sig. (2-tailed)	.	.000	.002
		N	176	176	176
	Health Level	Correlation Coefficient	.270**	1.000	.221**
		Sig. (2-tailed)	.000	.	.003
		N	176	176	176
	Age Group	Correlation Coefficient	.228**	.221**	1.000
		Sig. (2-tailed)	.002	.003	.
		N	176	176	176

** . Correlation is significant at the 0.01 level (2-tailed).

Table 7. Results shown from non-parametric correlation Spearman's rho test comparing internet usage for health within health levels and age groups of correspondents.

Graph



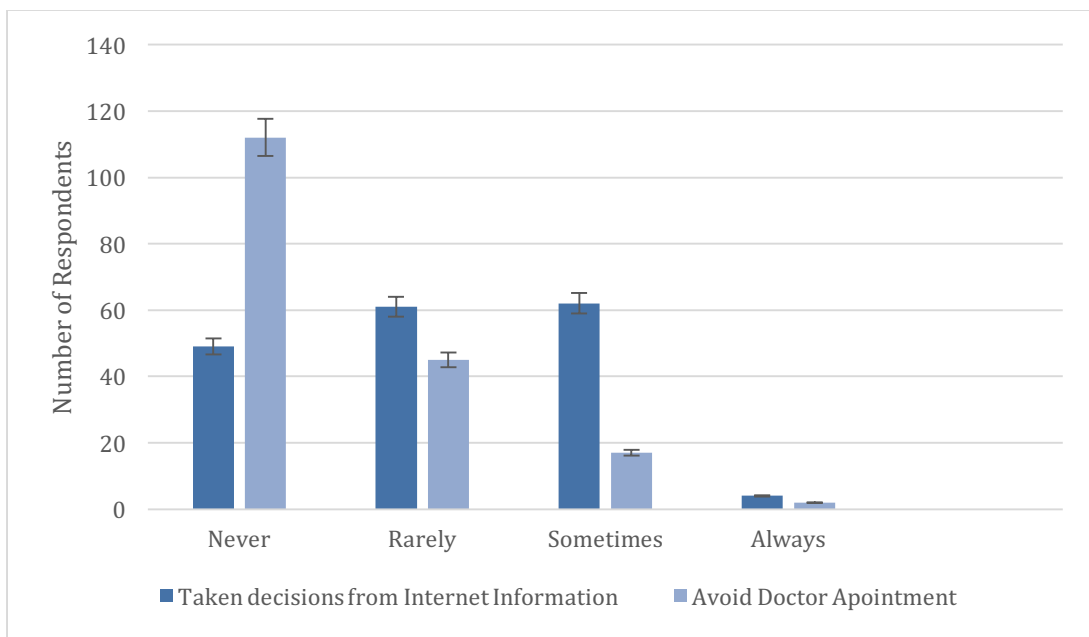
Graph 7. Correlation between age group of correspondents in association with internet usage for health and their own health level.

This information shows the correlation between the correspondents that use internet to search for health issues and to obtain information comparing with their own health situation with three possibilities: i) very healthy, ii) healthy and iii) unhealthy within each age group of correspondents. Analysis the results shown there is a correlation between people that use internet as a source of obtaining health information, the engagement of our correspondents reflects on their health condition. Low health reflects on a higher usage of internet to obtain information on health issues. Very healthy correspondents have a rank value of 1, healthy rank value of 2 and unhealthy rank value of 3.

Therefore, it shows a concluded review of no evidence that support the fact that correspondents that are exposed to a chronic disease reality have no influence on their engagement towards eHealth and utilizing internet to obtain more information on the matter. However, there is a significant correlation and significantly difference between correspondents engaging towards health depending on their health condition and age group difference.

4.2.5 Consequences of internet search towards health services

This section aims to understand if correspondents change decisions by using internet information in regards doctor appointments, healthcare services and if decisions about health are changed. There is no evidence that allows further testing for significantly differences in regards the decision taken from internet information and how that impact the decision to use the health service. We can however understand that there is no correlation between decision taking that influences directly the same way regarding services such as doctor appointments or healthcare service, this is represented in graph 8 and table 8.



Graph 8. Number of correspondents against decision taking and avoiding healthcare services.

Table 8 shows the correlation test carried between internet usage for health and how frequently usage avoid health services due to the eHealth app usage. Spearman’s rho test $\chi^2=0.343$ and a Phi significantly different value of 0.866, therefore the correlation is not significant and no association was concluded.

Nonparametric Correlations

Correlations

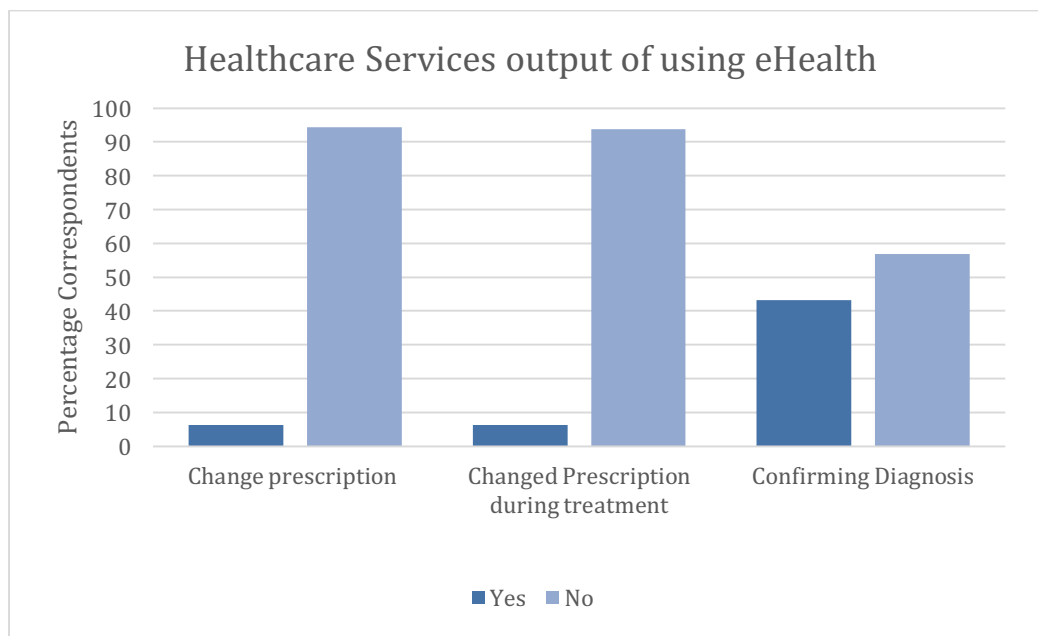
		Internet usage for Health	Avoid Healthcare Services due to eHealth
Spearman's rho	Internet usage for Health	Correlation Coefficient	1.000
		Sig. (2-tailed)	.000
		N	176
	Avoid Healthcare Services due to eHealth	Correlation Coefficient	.343**
		Sig. (2-tailed)	.000
		N	176

** . Correlation is significant at the 0.01 level (2-tailed).

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.013	.866
	Cramer's V	.013	.866
N of Valid Cases		176	

Table 8. Spearman's rho test carried for Internet usage for Health and avoiding healthcare services.



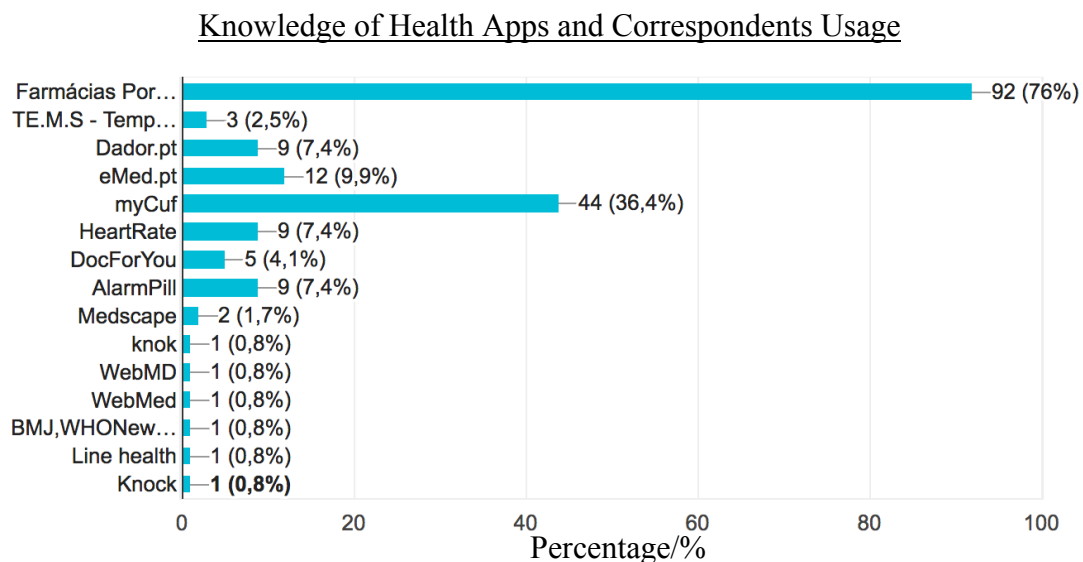
Graph 9. Percentage of correspondents regarding different parameters after using eHealth services.

Graph 9 represents the percentages of correspondents that change prescription before and during treatment after consultation of eHealth services. It also looks at the

percentage of correspondents that look for internet information regards health after a certain diagnosis. It shows a big difference between patients that do not change any prescription, total of 94% of correspondents do not alter any prescription before or during treatment, therefore only 6% of correspondents remember that they have altered a specific treatment before or after treatment started. Looking at the diagnosis and the necessity for confirming given diagnosis correspondents have a divided routine, 43% confirms the usage of internet to confirm diagnosis and 57% have no duty to confirm diagnosis using the internet.

4.2.6 Usage and knowledge of eHealth services

Some questions of the questionnaire tend to understand which applications are used and known by our correspondents. Most correspondents have knowledge or used some of the applications available on Health. The most populated app was “Farmácias Portuguesas” with 76%, following with “myCuf” with 36.4% of correspondents. All other apps had a percentage of usage below 10% such as: dador, eMed, HeartRate, AlarmPill, Medscape, DocForYou, TE.M.S.. These values show a low percentage of usage of most application on the market. Correspondents barely use most applications available with exception of “Farmácias Portuguesas” and “myCuf” represented in graph 10.



Graph 10. Percentage of user of eHealth towards different existing health Apps.

Correspondents were subsequently questioned about the future adherence to eHealth apps and what would they desire to acquire with these new technologies that could be developed, what would make them join and engage more with health apps. Correspondents were questioned what benefits/purpose would they engage and the apps main characteristics that they would valid. Table 9 shows the advantages that have a higher vote from our correspondents. Many correspondent stated they would use or increase their will to do so if Health Apps had the following benefits: i) Possibility of booking appointments and / or examinations; ii) Have a database and contacts of doctors of different specialties and in different regions of the country; iii) Have clinical information available; iv) Have access to treatments and medical follow-up; v) To have knowledge of the health centres / hospitals/ private hospitals that are closest to my location; vi) Search for health centres / clinics / hospitals that have partnerships, with certain health insurance.

Advantages that would encourage the Health Apps for our Correspondents.	Percentage/%
Possibility of booking appointments and / or examinations;	76.6
Have a database and contacts of doctors of different specialties and in different regions of the country;	49.4
Have clinical information available;	56.3
Have access to treatments and medical follow-up;	55.1
To have knowledge of the health centers / hospitals/ private hospitals that are closest to my location;	64.2
Search for health centers / clinics / hospitals that have partnerships, with certain health insurance.	56.3

Table 9. Represents the main benefits/purpose of Health Apps that would encourage the usage by our correspondents.

Many correspondents stated they would use or increase their will to do so if Health Apps had the following benefits shown on table 10. The benefits that are more common are: i) free apps, ii) more functional than websites, iii) having access to medical information, iv) having objective advantages, v) quick and operational and vi) offline usage.

Characteristics that would encourage the usage of Health Apps for our Correspondents.	Percentage/%
Free Apps;	71.6
More functional than websites;	46.0
Having access to medical information;	54.5
Having objective advantages;	45.5
Quick and operational;	64.2
Offline usage.	19.3

Table 10. Represents the main characteristics of Health Apps that would encourage the usage by our correspondents.

Overall the engagement towards eHealth Apps if characteristics were changed would be higher if: i) apps would be free with 71.6% of adherence, ii) 46% correspondents would change websites for eHealth apps if they were found to be more functional, iii) quicker and operational chosen by 64.2% enquired. Having medical information available and showing objective advantages would be characteristics that would lead to a change from correspondents in using the eHealth app.

5. Conclusion

5.1 Main Conclusion

eHealth can change and impact healthcare systems at three levels: micro level that will impact directly patients and carers; meso level will impact suppliers, distributors, partners; and at a macro level towards the healthcare system including: hospitals, clinics, pharmaceutical companies and all healthcare providers.

Focusing on the idea that information and knowledge exchange reduce the misused of medication; lack of information; reduce readmission to healthcare service aftercare or while undergoing treatments. Within these parameters how can eHealth application for information exchange can help towards reducing costs in Healthcare facilities.

eHealth should have the foundation to rationalise and make processes effective, by increasing its ability to reach the public awareness and reduce costs to the care provider. There is indication that new suppliers and the ability to acquire open source systems is important towards our national health system.

5.1.1 Rq1: Will empowering patients with higher access to information exchange reduce healthcare costs? Focusing on medication management?

There is no evidence that empowering patients with higher access to information and exchange information will decrease healthcare costs. It is known and understood that information exchange and empowerment of patients is essential to increase the autonomy on medication management. It is essential to understand what the healthcare providers are indulgent from the empowerment of patients in our healthcare systems, together with strategies for medication management. Our healthcare system needs to focus on maintaining and manage the medication provided and administered. To be able to reduce re-visits and the increase of non-medicated complications from patients.

There is evidence that shows an increase on internet usage to obtain more information on the internet in regards of health issues, patients want more information and become more educated. This is a power instrument to reduce misuse of resources and consequently on the reduction of economic resources.

5.1.2 Rq2: Will patients adhere and engage positively to healthcare information within an integrated healthcare services?

We can observe an increase in adherence to mobile applications towards new generations compared to older generations. This shows us a difference on the engagement to healthcare information in our public and private healthcare systems. Although we observe the increase of younger population utilizing internet sources for health issues, our results show a still passive utilization in the implementation of eHealth and low patient engagement in the usage process felt by our healthcare providers. Older generations have a generational gap using the internet and apps for further knowledge, however the correspondents that use these resources are also showing positive correlation between the usage and its own use for health purposes.

Correspondents are cautious regards information found on the internet due to the difficulty in ensuring the credibility of information and official websites, therefore the changing or modifying any given treatment is extremely low. This also gives an idea of how eHealth can progress to increase credibility and security for the users. There is evidence discussed above that show an increase of interest towards new approaches of eHealth Apps depending on their characteristics and benefits, giving an idea of future approach. Concluding that the public is open for the new generation of eHealth on our healthcare services to integrate all the possible outcomes from resources available.

5.1.3 Rq3: Will a development strategy towards overweight management reduce worldwide healthcare costs?

The specific types of eHealth technologies towards obesity targeting and weight management may be extremely interesting for future implementation. A more personalised approach should be developed and studied in our near future to target young adults in reducing weight and reducing obesity levels nationally to reduce healthcare problems arising from overweight.

Implementing and studying a different approach should be our target, to reduce later care costs. The evidence of our questionnaire shows that younger population are engaging positively to our new era on mobile apps and are aware of the weight control for a healthier future. Our national system should have this in mind to develop new approach mechanisms in order to use positively the shift seen in our younger adults to

be able to sustain a better future regarding weight management and reduce overweight paradigm to our healthcare system.

App developers should work closely with public health practitioners to integrate evidence-based practices and expert recommendations towards developing apps suitable to our national healthcare systems. Developing technologies to integrate and increasing integration processes between healthcare providers in specialities and public health care system will increase the effectiveness of our input value.

However, there is no significant evidence that eHealth apps will be successful towards reducing obesity levels by itself, there is still the need to integrate the app development with other healthcare programs in order to reduce obesity and overweight levels effectively. It is extremely important that performance expectancy for patients is aligned within social influence, government policies, medical education and eHealth main objective. Increasing medical education will reduce inadequate medical knowledge, linked directly to the previous research question.

5.2 Research Implications and Limitations

Due to constriction of time and resources the limitations to approach the issue was restricted. Additional research should be done by using a stratified enquiry mechanism to increase the normality results for further statistical testing. It is important that the questionnaire is repeated and altered as needed to increase our research conclusions.

Further research should be carried to study the economic impact of developing eHealth applications to satisfy requirements of health organisations and to offer different option towards public care users. There should be the need to focus on a meta-analysis approach towards new health apps to be developed for our healthcare systems.

5.3 Future Approach & Research

Partially the difficulty arises due to the inability to predict the future of eHealth services and its market. The organizations and the public demand for new products will dictate the future of eHealth and its innovative services.

Empirical studies should be further researched in order to validate the next steps effectively and proceed to understand the healthcare system demand. Next studies

should be carried to understand the entire process from decision-making to its implementation towards the public population. This study should provide indications of what new demands, impacts, targets, costs are required to develop the next generation of eHealth services on our public healthcare system in order to increase patient empowerment and reduce costs of healthcare providers.

Further studies are also necessary to understand the adherence, usage and continuity by the public patients without disconnecting of specific properties from services already in use. Clinical utility of smartphones app for successful weight loss, more significant in individuals that monitor their weight and diet more frequently need to be monitored in order to understand its long-term benefits.

Trusting that innovation, optimization, modernizing and remodelling of our eHealth potential outcomes will increase patient information and it will deliver an optimal healthcare services towards our population. This is the key to the future of eHealth towards reducing healthcare delivery costs.

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APPENDIX 1 - Questionnaire Sample

“Questionário – Saúde e Internet

O presente questionário encontra-se inserido num estudo académico, realizado no âmbito de uma dissertação de tese, do Mestrado em Gestão de Saúde, no ISCTE. O mesmo pretende estudar a relação do consumidor português com aplicações móveis inseridas na área da saúde.

Todos os dados serão tratados com total confidencialidade, agradecendo desde já a sua colaboração na resposta às perguntas que se seguem.

- 1) Que idade tem?
 - a. 18 – 25 anos
 - b. 26 – 35 anos
 - c. 36 – 45 anos
 - d. 46 – 55 anos
 - e. 56 – 65 anos
 - f. mais de 65 anos

- 2) Qual o seu nível de escolaridade?
 - a. Ensino Básico
 - b. Ensino Secundário
 - c. Ensino Superior - Licenciatura
 - d. Ensino Superior - Mestrado
 - e. Ensino Superior - Doutoramento

- 3) Com que frequência utiliza a Internet?
 - a. Varias vezes por dia
 - b. Pelo menos uma vez por dia
 - c. 2-3 dias por semana
 - d. 4-7 dias por semana
 - e. Não utilizo

- 4) Exerce a sua profissão na área da Saúde?
 - a. Sim
 - b. Não

- 5) Se sim, qual é a sua profissão?
 - a. Auxiliar de Acção Médica
 - b. Enfermeiro/a
 - c. Técnico de exames Auxiliares de Diagnóstico
 - d. Medico/a
 - e. Farmacêutico
 - f. Outro

- 6) Considera-se uma pessoa?

- a. Muito saudável
- b. Saudável
- c. Pouco Saudável

7) É portador de alguma doença crónica?

- a. Sim
- b. Não

8) Tem alguma doença crónica?

- a. Sim
- b. Não

9) Tem algum familiar próximo que sofra de alguma doença crónica?

- a. Sim
- b. Não

10) Já utilizou a internet para tomada de decisões em relação à sua saúde?

- a. Sim
- b. Não

11) Quão importante considera ter acesso a informação relacionada com a saúde na internet?

- a. Muito importante
- b. Importante
- c. Nada importante

12) Utiliza com alguma frequência aplicações móveis?

- a. Sim
- b.
- c. Não

13) Já utilizou o seu telemóvel para consultar aplicações móveis em relação a saúde?

Se sim quais?

14) Quais as funcionalidades que o levam a utilizar a/as aplicação/ aplicações em questão?

15) Que funcionalidades gostaria de ver desenvolvidas numa aplicação móvel inserida nesta área?

16) Por norma procura informação na internet em relação a sintomas ou problemas de saúde?

- a. Quase sempre
- b. As vezes
- c. Sempre

17) Alguma vez evitou a ida ao médico/centro de saúde porque encontrou a solução na internet?

- a. Quase sempre
- b. As vezes
- c. Nunca

18) Já alguma vez foi confirmar o diagnóstico/tratamento prescrito pelo médico?

- a. Sim
- b. Não

19) Já parou ou alterou algum tratamento prescrito pelo médico devido há informação encontrada na internet?

- a. Sim
- b. Não

20) Já alterou algum tratamento a meio devido a informação obtida na internet?

21) Assinale quais as seguintes aplicações de que tem conhecimento.

- a. Farmácias Portuguesas
- b. TE.M.S – Tempos Médios na Saúde
- c. Dador.pt
- d. Dador S. João
- e. eMed.pt

- f. myCuf
- g. MediSafe
- h. Heart Rate
- i. DocForYou
- j.

22) Quais as razões que o impedem de utilizar (mais) essas ou outras aplicações na área da saúde?

23) Caso estivesse disposto a utilizar com frequência uma aplicação relacionada com a saúde, indique quais as funcionalidades que o motivariam a fazê-lo.

- a. Ter conhecimento dos centros de saúde/consultórios hospitalares que se encontram mais perto da minha localização, bem como os respetivos horários.
- b. Possibilidade de marcar consultas e/ou exames.
- c. Ter uma base de dados e contactos de médicos de diferentes especialidades e de diferentes regiões do país.
- d. Pesquisar quais os centros de saúde/consultórios/hospitais que dispõem de parcerias com determinados seguros de saúde.
- e. Ganhar pontos na aplicação, quando utilizada numa ida ao médico/ realização de um exame, que estes se pudessem traduzir posteriormente em vantagens tangíveis, como por exemplo, em descontos em próximas consultas ou medicamentos.
- f. Informação clínica
- g. Tratamentos disponíveis e seguimento médico disponível
- h. Outro: Indique

qual. _____

24) Quais as principais razões que o levariam a utilizar (mais) uma aplicação?

- a. Ser gratuita.
- b. Poder ser utilizada offline.
- c. Ser mais funcional do que um website.
- d. Rapidez.
- e. Vantagens tangíveis (p.ex. descontos).
- f. Partilha de dados com outros contactos.
- g. Acesso a informação médica.
- h. Outro: Indique qual. _____

Muito obrigada pelo seu contributo.”

CONT. APPENDIX 2 - Table of results of the questionnaire data

Se sim, qual é a sua profissão?	Health Level	Considera-se uma pessoa	Chronic Illness	alguma doença crónica?	Chronic Disease Family	que sofra de alguma doença crónica?	Health Info
	2	Saudável	1	Não	1	Não	4
	2	Saudável	1	Não	2	Sim	2
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	2	Sim	2	Sim	3
	2	Saudável	1	Não	1	Não	1
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	3	Pouco saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	3
	2	Saudável	2	Sim	2	Sim	2
	2	Saudável	1	Não	1	Não	3
Estudante de Medicina	1	Muito saudável	1	Não	1	Não	1
Estudante de medicina	2	Saudável	2	Sim	2	Sim	2
	3	Pouco saudável	1	Não	1	Não	3
Consultor	2	Saudável	1	Não	1	Não	4
	1	Muito saudável	1	Não	2	Sim	2
	3	Pouco saudável	1	Não	2	Sim	4
	2	Saudável	1	Não	2	Sim	1
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	1
Estudante	2	Saudável	1	Não	1	Não	3
Médico/a	2	Saudável	1	Não	2	Sim	2
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	1	Muito saudável	1	Não	1	Não	2
	2	Saudável	1	Não	2	Sim	3
N/A	1	Muito saudável	1	Não	1	Não	3
	1	Muito saudável	1	Não	2	Sim	2
Engenheiro	1	Muito saudável	1	Não	1	Não	2
	2	Saudável	1	Não	1	Não	2
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	1
	2	Saudável	1	Não	1	Não	3
Enfermeiro/a	2	Saudável	1	Não	1	Não	2
Médico/a	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	3
Estudante medicina	2	Saudável	1	Não	2	Sim	2
Estudante Medicina	1	Muito saudável	1	Não	1	Não	2
	1	Muito saudável	1	Não	1	Não	3
	1	Muito saudável	1	Não	2	Sim	3
	3	Pouco saudável	1	Não	2	Sim	3
Aluno de doutoramento	2	Saudável	1	Não	1	Não	3
	1	Muito saudável	1	Não	2	Sim	2
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
Estudante de medicina	2	Saudável	1	Não	1	Não	2
Higienista Oral	2	Saudável	1	Não	2	Sim	3
Médico/a	2	Saudável	1	Não	2	Sim	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	2	Sim	2	Sim	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	2
Advogada	2	Saudável	2	Sim	1	Não	1
	2	Saudável	1	Não	1	Não	3
	1	Muito saudável	2	Sim	2	Sim	3
	2	Saudável	1	Não	2	Sim	3
	1	Muito saudável	1	Não	2	Sim	3
	2	Saudável	1	Não	2	Sim	3
Psicóloga	2	Saudável	1	Não	2	Sim	3
	1	Muito saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	1
	3	Pouco saudável	1	Não	2	Sim	2
Médico/a	2	Saudável	2	Sim	2	Sim	1
	2	Saudável	1	Não	1	Não	2
	2	Saudável	2	Sim	1	Não	2
Médico/a	1	Muito saudável	1	Não	1	Não	1
	2	Saudável	2	Sim	2	Sim	3
	2	Saudável	2	Sim	1	Não	3
	1	Muito saudável	1	Não	1	Não	2
Médico/a	2	Saudável	1	Não	2	Sim	3
Musico	2	Saudável	1	Não	2	Sim	3
	2	Saudável	1	Não	1	Não	1
	2	Saudável	1	Não	1	Não	1

CONT. APPENDIX 2 - Table of results of the questionnaire data

	2	Saudável	1	Não	2	Sim	3
Professor EF	1	Muito saudável	1	Não	1	Não	3
	2	Saudável	2	Sim	2	Sim	4
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	1	Muito saudável	1	Não	1	Não	3
Enfermeiro/a	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	2
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
Médico/a	2	Saudável	1	Não	2	Sim	2
	1	Muito saudável	1	Não	1	Não	3
	3	Pouco saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	3
	2	Saudável	2	Sim	2	Sim	1
	2	Saudável	1	Não	1	Não	3
Enfermeiro/a	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	3
Concierge	1	Muito saudável	1	Não	1	Não	2
Farmacêutico/a	2	Saudável	1	Não	2	Sim	2
Médico/a	2	Saudável	1	Não	2	Sim	1
	1	Muito saudável	1	Não	2	Sim	4
	2	Saudável	2	Sim	2	Sim	3
Técnica auxiliar de fisioterapia	2	Saudável	1	Não	2	Sim	3
	2	Saudável	2	Sim	1	Não	3
Gestora	1	Muito saudável	1	Não	2	Sim	3
	2	Saudável	2	Sim	2	Sim	4
	1	Muito saudável	2	Sim	2	Sim	1
Professora	1	Muito saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	2
	2	Saudável	1	Não	2	Sim	3
	2	Saudável	1	Não	2	Sim	3
	1	Muito saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	3
Enfermeiro/a	2	Saudável	2	Sim	2	Sim	2
	2	Saudável	1	Não	2	Sim	2
	2	Saudável	1	Não	1	Não	2
Professora	2	Saudável	1	Não	2	Sim	2
	2	Saudável	1	Não	2	Sim	3
	2	Saudável	2	Sim	2	Sim	3
	2	Saudável	1	Não	1	Não	1
	2	Saudável	1	Não	1	Não	3
	3	Pouco saudável	1	Não	1	Não	4
Piloto de Aviação	1	Muito saudável	1	Não	1	Não	3
Médico/a	1	Muito saudável	2	Sim	2	Sim	2
	2	Saudável	1	Não	1	Não	2
Nutricionista	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	1
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	1	Não	1
	2	Saudável	1	Não	1	Não	3
Gestor	2	Saudável	1	Não	1	Não	1
	2	Saudável	1	Não	1	Não	1
Médico/a	2	Saudável	1	Não	2	Sim	1
	1	Muito saudável	1	Não	2	Sim	3
marketeer	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	3
	2	Saudável	1	Não	2	Sim	3
Psicóloga	2	Saudável	1	Não	1	Não	2
	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	3
	2	Saudável	1	Não	1	Não	1
professor	2	Saudável	1	Não	1	Não	3
	2	Saudável	2	Sim	2	Sim	2
Enfermeiro/a	2	Saudável	2	Sim	2	Sim	1
Jurista	2	Saudável	2	Sim	2	Sim	3
	2	Saudável	1	Não	1	Não	3
	2	Saudável	2	Sim	2	Sim	3
Enfermeiro/a	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	1
	2	Saudável	2	Sim	2	Sim	3
	3	Pouco saudável	2	Sim	2	Sim	4
	3	Pouco saudável	2	Sim	2	Sim	4
	2	Saudável	1	Não	1	Não	3
Account manager	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	4
	3	Pouco saudável	1	Não	1	Não	3
	3	Pouco saudável	2	Sim	2	Sim	4
	2	Saudável	1	Não	2	Sim	3
	3	Pouco saudável	1	Não	1	Não	3
	1	Muito saudável	1	Não	1	Não	3
	3	Pouco saudável	2	Sim	2	Sim	4
	3	Pouco saudável	2	Sim	2	Sim	4
	3	Pouco saudável	2	Sim	2	Sim	4
Médico/a	3	Pouco saudável	2	Sim	2	Sim	3
	1	Muito saudável	1	Não	2	Sim	3
	2	Saudável	1	Não	1	Não	4
	3	Pouco saudável	2	Sim	2	Sim	4
	3	Pouco saudável	2	Sim	2	Sim	4
Médico/a	2	Saudável	1	Não	1	Não	3
	2	Saudável	1	Não	2	Sim	4
	2	Saudável	2	Sim	2	Sim	3

CONT. APPENDIX 2 - Table of results of the questionnaire data

Procura informação sobre saúde na internet?	Info Existing WebSite	na internet sobre saúde: [tem conhecimento dos	Easy to find information	na internet sobre saúde: [encontra facilmente a	Official Websites	informação na internet sobre	More than 1 Web Site	na internet sobre saúde: [compara informação
Nunca	4	Não	4	Não	4	Não	4	Não
Quase sempre	4	Não	2	Às vezes	2	Às vezes	1	Quase sempre
Às vezes	3	Raramente	2	Às vezes	3	Raramente	2	Às vezes
Às vezes	3	Raramente	2	Às vezes	3	Raramente	2	Às vezes
Às vezes	3	Raramente	2	Às vezes	1	Quase sempre	1	Quase sempre
Sempre	2	Às vezes	2	Às vezes	1	Quase sempre	1	Quase sempre
Às vezes	4	Não	2	Às vezes	2	Às vezes	1	Quase sempre
Às vezes	2	Às vezes	2	Às vezes	2	Às vezes	2	Às vezes
Às vezes	4	Não	4	Não	3	Raramente	2	Às vezes
Às vezes	2	Às vezes	2	Às vezes	3	Raramente	1	Quase sempre
Às vezes	4	Não	3	Raramente	4	Não	2	Às vezes
Às vezes	2	Às vezes	2	Às vezes	2	Às vezes	3	Raramente
Às vezes	2	Às vezes	2	Às vezes	2	Às vezes	2	Às vezes
Quase sempre	2	Às vezes	1	Quase sempre	2	Às vezes	2	Às vezes
Às vezes	2	Às vezes	1	Quase sempre	1	Quase sempre	2	Às vezes
Sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre
Quase sempre	1	Quase sempre	2	Às vezes	1	Quase sempre	1	Quase sempre
Às vezes	4	Não	1	Quase sempre	3	Raramente	2	Às vezes
Nunca	4	Não	4	Não	4	Não	4	Não
Quase sempre	4	Não	2	Às vezes	3	Raramente	1	Quase sempre
Nunca	4	Não	2	Às vezes	4	Não	4	Não
Sempre	2	Às vezes	1	Quase sempre	2	Às vezes	2	Às vezes
Às vezes	4	Não	2	Às vezes	3	Raramente	2	Às vezes
Sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre
Às vezes	2	Às vezes	1	Quase sempre	1	Quase sempre	1	Quase sempre
Quase sempre	1	Quase sempre	2	Às vezes	1	Quase sempre	2	Às vezes
Às vezes	3	Raramente	2	Às vezes	3	Raramente	3	Raramente
Às vezes	3	Raramente	2	Às vezes	3	Raramente	2	Às vezes
Quase sempre	2	Às vezes	1	Quase sempre	2	Às vezes	2	Às vezes
Às vezes	2	Às vezes	2	Às vezes	1	Quase sempre	1	Quase sempre
Às vezes	4	Não	2	Às vezes	3	Raramente	1	Quase sempre
Quase sempre	2	Às vezes	1	Quase sempre	3	Raramente	1	Quase sempre
Quase sempre	2	Às vezes	2	Às vezes	3	Raramente	2	Às vezes
Quase sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre
Às vezes	4	Não	1	Quase sempre	2	Às vezes	1	Quase sempre
Sempre	3	Raramente	2	Às vezes	3	Raramente	2	Às vezes
Às vezes	3	Raramente	2	Às vezes	2	Às vezes	1	Quase sempre
Quase sempre	2	Às vezes	1	Quase sempre	1	Quase sempre	2	Às vezes
Às vezes	2	Às vezes	2	Às vezes	2	Às vezes	1	Quase sempre
Às vezes	3	Raramente	2	Às vezes	3	Raramente	1	Quase sempre
Às vezes	1	Quase sempre	2	Às vezes	2	Às vezes	1	Quase sempre
Às vezes	4	Não	1	Quase sempre	2	Às vezes	1	Quase sempre
Quase sempre	4	Não	1	Quase sempre	2	Às vezes	2	Às vezes
Às vezes	3	Raramente	2	Às vezes	3	Raramente	4	Não
Às vezes	2	Às vezes	1	Quase sempre	4	Não	4	Não
Quase sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre
Às vezes	2	Às vezes	1	Quase sempre	2	Às vezes	1	Quase sempre
Às vezes	1	Quase sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre
Às vezes	2	Às vezes	2	Às vezes	2	Às vezes	2	Às vezes
Às vezes	3	Raramente	2	Às vezes	2	Às vezes	4	Não
Às vezes	1	Quase sempre	3	Raramente	2	Às vezes	4	Não
Quase sempre	3	Raramente	2	Às vezes	3	Raramente	3	Raramente
Sempre	1	Quase sempre	2	Às vezes	3	Raramente	1	Quase sempre
Às vezes	1	Quase sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre
Às vezes	3	Raramente	2	Às vezes	2	Às vezes	1	Quase sempre
Às vezes	4	Não	1	Quase sempre	2	Às vezes	1	Quase sempre
Às vezes	4	Não	2	Às vezes	3	Raramente	1	Quase sempre
Às vezes	3	Raramente	2	Às vezes	2	Às vezes	1	Quase sempre
Às vezes	3	Raramente	2	Às vezes	1	Quase sempre	1	Quase sempre
Às vezes	3	Raramente	2	Às vezes	1	Quase sempre	1	Quase sempre
Às vezes	1	Quase sempre	1	Quase sempre	1	Quase sempre	1	Quase sempre
Sempre	2	Às vezes	1	Quase sempre	1	Quase sempre	2	Às vezes
Quase sempre	4	Não	2	Às vezes	4	Não	1	Quase sempre
Sempre	1	Quase sempre	1	Quase sempre	2	Às vezes	2	Às vezes
Quase sempre	2	Às vezes	2	Às vezes	2	Às vezes	1	Quase sempre
Quase sempre	2	Às vezes	2	Às vezes	3	Raramente	3	Raramente
Sempre	2	Às vezes	1	Quase sempre	1	Quase sempre	1	Quase sempre
Às vezes	4	Não	2	Às vezes	3	Raramente	2	Às vezes
Às vezes	2	Às vezes	1	Quase sempre	2	Às vezes	1	Quase sempre
Quase sempre	2	Às vezes	1	Quase sempre	3	Raramente	2	Às vezes
Às vezes	1	Quase sempre	2	Às vezes	1	Quase sempre	1	Quase sempre
Às vezes	3	Raramente	1	Quase sempre	3	Raramente	1	Quase sempre
Sempre	1	Quase sempre	2	Às vezes	2	Às vezes	1	Quase sempre
Sempre	2	Às vezes	2	Às vezes	2	Às vezes	1	Quase sempre

CONT. APPENDIX 2 - Table of results of the questionnaire data

decisions based on Internet Info	saúde baseada em informação obtida na	Having Health info on the internet is?	informação na internet sobre saúde?	Do you use Apps?	alguma frequência	Mobile HealthApps	Mobile for Health Apps
4	Nunca	2	Importante	1	Sim		2 Não
3	Raramente	3	Nada importante	1	Sim		1 Sim
3	Raramente	2	Importante	1	Sim		2 Não
3	Raramente	2	Importante	1	Sim		2 Não
4	Nunca	1	Muito importante	1	Sim		2 Não
3	Raramente	2	Importante	1	Sim		2 Não
2	Às vezes	2	Importante	2	Não		2 Não
4	Nunca	2	Importante	1	Sim		2 Não
4	Nunca	2	Importante	1	Sim		2 Não
4	Nunca	1	Muito importante	1	Sim		2 Não
3	Raramente	1	Muito importante	1	Sim		2 Não
3	Raramente	2	Importante	1	Sim		2 Não
3	Raramente	1	Muito importante	1	Sim		2 Não
3	Raramente	2	Importante	1	Sim		2 Não
3	Raramente	2	Importante	1	Sim		2 Não
4	Nunca	2	Importante	1	Sim		1 Sim
2	Às vezes	2	Importante	1	Sim		1 Sim
2	Às vezes	1	Muito importante	1	Sim		1 Sim
4	Nunca	2	Importante	1	Sim		1 Sim
4	Nunca	2	Importante	1	Sim		2 Não
4	Nunca	1	Muito importante	1	Sim		1 Sim
4	Nunca	3	Nada importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	2	Não		1 Sim
4	Nunca	2	Importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	1	Sim		1 Sim
2	Às vezes	1	Muito importante	1	Sim		1 Sim
2	Às vezes	2	Importante	1	Sim		1 Sim
2	Às vezes	1	Muito importante	1	Sim		2 Não
4	Nunca	2	Importante	2	Não		2 Não
2	Às vezes	2	Importante	1	Sim		2 Não
4	Nunca	2	Importante	1	Sim		2 Não
4	Nunca	2	Importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	1	Sim		1 Sim
2	Às vezes	1	Muito importante	1	Sim		1 Sim
2	Às vezes	1	Muito importante	1	Sim		2 Não
4	Nunca	2	Importante	2	Não		2 Não
2	Às vezes	1	Muito importante	1	Sim		2 Não
3	Raramente	1	Muito importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	1	Sim		1 Sim
2	Às vezes	1	Muito importante	1	Sim		2 Não
2	Às vezes	2	Importante	2	Não		2 Não
3	Raramente	2	Importante	2	Não		2 Não
3	Raramente	2	Importante	1	Sim		2 Não
3	Raramente	2	Importante	2	Não		2 Não
3	Raramente	2	Importante	1	Sim		2 Não
3	Raramente	2	Importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	1	Sim		2 Não
3	Raramente	1	Muito importante	1	Sim		2 Não
3	Raramente	1	Muito importante	1	Sim		2 Não
4	Nunca	2	Importante	2	Não		2 Não
3	Raramente	2	Importante	1	Sim		2 Não
3	Raramente	1	Muito importante	1	Sim		2 Não
2	Às vezes	2	Importante	2	Não		2 Não
2	Às vezes	1	Muito importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	1	Sim		2 Não
3	Raramente	1	Muito importante	1	Sim		2 Não
3	Raramente	1	Muito importante	1	Sim		2 Não
2	Às vezes	2	Importante	1	Sim		2 Não
2	Às vezes	2	Importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	1	Sim		2 Não
3	Raramente	2	Importante	1	Sim		1 Sim
3	Raramente	3	Nada importante	1	Sim		2 Não
2	Às vezes	1	Muito importante	1	Sim		1 Sim
3	Raramente	2	Importante	2	Não		2 Não
4	Nunca	1	Muito importante	1	Sim		2 Não
2	Às vezes	2	Importante	2	Não		2 Não
2	Às vezes	2	Importante	2	Não		2 Não

CONT. APPENDIX 2 - Table of results of the questionnaire data

3	Raramente	2	Importante	1	Sim	2 Não
3	Raramente	2	Importante	2	Não	2 Não
4	Nunca	2	Importante	1	Sim	2 Não
4	Nunca	2	Importante	1	Sim	2 Não
2	Às vezes	2	Importante	1	Sim	1 Sim
3	Raramente	2	Importante	1	Sim	1 Sim
2	Às vezes	1	Muito importante	2	Não	2 Não
2	Às vezes	1	Muito importante	1	Sim	2 Não
3	Raramente	2	Importante	2	Não	2 Não
3	Raramente	2	Importante	2	Não	2 Não
2	Às vezes	2	Importante	1	Sim	1 Sim
4	Nunca	2	Importante	2	Não	2 Não
3	Raramente	3	Nada importante	1	Sim	2 Não
3	Raramente	2	Importante	2	Não	2 Não
3	Raramente	1	Muito importante	2	Não	2 Não
2	Às vezes	1	Muito importante	2	Não	2 Não
3	Raramente	2	Importante	1	Sim	1 Sim
4	Nunca	3	Nada importante	2	Não	2 Não
2	Às vezes	2	Importante	1	Sim	2 Não
2	Às vezes	1	Muito importante	1	Sim	1 Sim
2	Às vezes	1	Muito importante	1	Sim	1 Sim
4	Nunca	2	Importante	2	Não	1 Sim
3	Raramente	2	Importante	1	Sim	2 Não
4	Nunca	2	Importante	2	Não	2 Não
2	Às vezes	1	Muito importante	1	Sim	2 Não
3	Raramente	1	Muito importante	1	Sim	2 Não
4	Nunca	2	Importante	1	Sim	2 Não
2	Às vezes	1	Muito importante	1	Sim	1 Sim
3	Raramente	1	Muito importante	2	Não	2 Não
3	Raramente	2	Importante	1	Sim	2 Não
3	Raramente	2	Importante	1	Sim	2 Não
3	Raramente	1	Muito importante	1	Sim	2 Não
3	Raramente	1	Muito importante	1	Sim	2 Não
1	Quase sempre	1	Muito importante	1	Sim	1 Sim
3	Raramente	2	Importante	1	Sim	2 Não
2	Às vezes	1	Muito importante	1	Sim	2 Não
2	Às vezes	1	Muito importante	2	Não	2 Não
2	Às vezes	1	Muito importante	1	Sim	2 Não
3	Raramente	2	Importante	1	Sim	2 Não
2	Às vezes	1	Muito importante	1	Sim	1 Sim
2	Às vezes	1	Muito importante	1	Sim	1 Sim
3	Raramente	2	Importante	2	Não	1 Sim
3	Raramente	1	Muito importante	1	Sim	2 Não
2	Às vezes	2	Importante	1	Sim	2 Não
3	Raramente	1	Muito importante	1	Sim	2 Não
4	Nunca	2	Importante	1	Sim	2 Não
2	Às vezes	1	Muito importante	2	Não	2 Não
2	Às vezes	2	Importante	1	Sim	2 Não
3	Raramente	3	Nada importante	1	Sim	2 Não
2	Às vezes	2	Importante	2	Não	2 Não
3	Raramente	2	Importante	2	Não	2 Não
2	Às vezes	1	Muito importante	2	Não	2 Não
2	Às vezes	1	Muito importante	1	Sim	1 Sim
4	Nunca	2	Importante	2	Não	1 Sim
3	Raramente	2	Importante	2	Não	2 Não
3	Raramente	2	Importante	1	Sim	2 Não
4	Nunca	1	Muito importante	1	Sim	2 Não
2	Às vezes	1	Muito importante	2	Não	2 Não
2	Às vezes	2	Importante	2	Não	2 Não
1	Quase sempre	1	Muito importante	1	Sim	1 Sim
4	Nunca	3	Nada importante	2	Não	2 Não
4	Nunca	3	Nada importante	2	Não	2 Não
4	Nunca	3	Nada importante	1	Sim	2 Não
3	Raramente	1	Muito importante	1	Sim	2 Não
4	Nunca	2	Importante	2	Não	2 Não
2	Às vezes	2	Importante	2	Não	2 Não
4	Nunca	3	Nada importante	2	Não	2 Não
3	Raramente	2	Importante	1	Sim	2 Não
3	Raramente	2	Importante	1	Sim	2 Não
3	Raramente	1	Muito importante	2	Não	2 Não
4	Nunca	3	Nada importante	2	Não	2 Não
4	Nunca	2	Importante	2	Não	2 Não
4	Nunca	2	Importante	2	Não	2 Não
4	Nunca	2	Importante	2	Não	2 Não
4	Nunca	3	Nada importante	2	Não	2 Não
4	Nunca	3	Nada importante	2	Não	2 Não
4	Nunca	3	Nada importante	2	Não	2 Não
4	Nunca	2	Importante	2	Não	2 Não
1	Quase sempre	1	Muito importante	2	Não	2 Não
4	Nunca	2	Importante	2	Não	2 Não
4	Nunca	2	Importante	1	Sim	2 Não

CONT. APPENDIX 2 - Table of results of the questionnaire data

Internet Solution No Dr. Needed?	Alguma vez evitou a ida ao médico porque encontrou a solução na internet?	Confirmation using Internet	Alguma vez foi confirmado o diagnóstico ou o tratamento prescrito pelo médico na internet?	Stop Prescription due to Internet Info?	Já parou ou alterou algum tratamento prescrito pelo médico devido à informação encontrada na internet?	Change prescription due to Info	Já alterou algum tratamento a meio devido à informação obtida na internet?	Assinale quais as seguintes aplicações de que tem conhecimento
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	1	Sim	2	Não	2	Não	
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf
2	Às vezes	2	Não	2	Não	2	Não	myCuf
4	Nunca	2	Não	2	Não	2	Não	
3	Raramente	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	myCuf
3	Raramente	2	Não	2	Não	2	Não	
3	Raramente	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf, AlarmPill
3	Raramente	2	Não	2	Não	2	Não	Farmácias Portuguesas, Dador.pt
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, eMed.pt
4	Nunca	1	Sim	2	Não	2	Não	
3	Raramente	1	Sim	2	Não	2	Não	Medscape
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf, DocForYou
3	Raramente	1	Sim	2	Não	2	Não	HeartRate, DocForYou
4	Nunca	2	Não	2	Não	2	Não	
3	Raramente	1	Sim	2	Não	2	Não	Medscape
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, AlarmPill
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, Dador.pt, myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, eMed.pt, myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
3	Raramente	2	Não	2	Não	2	Não	
2	Às vezes	1	Sim	2	Não	2	Não	Farmácias Portuguesas
2	Às vezes	1	Sim	2	Não	2	Não	
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf, AlarmPill
3	Raramente	1	Sim	2	Não	2	Não	Farmácias Portuguesas, AlarmPill
4	Nunca	2	Não	2	Não	2	Não	AlarmPill
3	Raramente	1	Sim	2	Não	2	Não	Farmácias Portuguesas, eMed.pt, myCuf
2	Às vezes	2	Não	2	Não	2	Não	myCuf
4	Nunca	2	Não	2	Não	2	Não	eMed.pt, myCuf
4	Nunca	2	Não	2	Não	2	Não	HeartRate
4	Nunca	2	Não	2	Não	2	Não	myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, Dador.pt, myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, Dador.pt
3	Raramente	2	Não	2	Não	2	Não	HeartRate, DocForYou
3	Raramente	2	Não	2	Não	2	Não	myCuf
3	Raramente	2	Não	2	Não	2	Não	Farmácias Portuguesas
3	Raramente	2	Não	2	Não	2	Não	Farmácias Portuguesas
2	Às vezes	1	Sim	2	Não	2	Não	myCuf
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf, AlarmPill
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, knok
4	Nunca	1	Sim	2	Não	2	Não	
4	Nunca	1	Sim	2	Não	2	Não	
4	Nunca	1	Sim	2	Não	2	Não	WebMD
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, Dador.pt, eMed.pt, my
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
1	Quase sempre	1	Sim	2	Não	2	Não	Farmácias Portuguesas
3	Raramente	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf
3	Raramente	1	Sim	2	Não	2	Não	Farmácias Portuguesas, Dador.pt
3	Raramente	1	Sim	2	Não	2	Não	Farmácias Portuguesas
2	Às vezes	1	Sim	1	Sim	1	Sim	Farmácias Portuguesas, myCuf
3	Raramente	1	Sim	2	Não	2	Não	Farmácias Portuguesas, eMed.pt
3	Raramente	2	Não	2	Não	2	Não	
4	Nunca	1	Sim	2	Não	1	Sim	Farmácias Portuguesas
3	Raramente	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf
3	Raramente	1	Sim	2	Não	2	Não	
2	Às vezes	1	Sim	2	Não	2	Não	
3	Raramente	2	Não	2	Não	2	Não	

CONT. APPENDIX 2 - Table of results of the questionnaire data

2	Às vezes	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
3	Raramente	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf, HeartRate
3	Raramente	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, eMed.pt, myCuf
3	Raramente	1	Sim	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf, AlarmPill
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
3	Raramente	1	Sim	2	Não	2	Não	Line health
4	Nunca	1	Sim	2	Não	1	Sim	Farmácias Portuguesas
2	Às vezes	2	Não	2	Não	2	Não	HeartRate, AlarmPill
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	HeartRate
3	Raramente	2	Não	2	Não	2	Não	Farmácias Portuguesas
3	Raramente	1	Sim	1	Sim	2	Não	
2	Às vezes	1	Sim	2	Não	1	Sim	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, T.E.M.S - Tempos Médicos
4	Nunca	2	Não	2	Não	2	Não	myCuf
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	1	Sim	2	Não	2	Não	myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	2	Não	2	Não	2	Não	Knock
3	Raramente	2	Não	2	Não	2	Não	Farmácias Portuguesas, AlarmPill
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
3	Raramente	1	Sim	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
3	Raramente	1	Sim	1	Sim	1	Sim	
2	Às vezes	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	2	Não	2	Não	2	Não	eMed.pt
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
3	Raramente	2	Não	2	Não	2	Não	eMed.pt
3	Raramente	2	Não	2	Não	2	Não	WebMed
3	Raramente	2	Não	2	Não	2	Não	
2	Às vezes	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf
2	Às vezes	1	Sim	2	Não	2	Não	
2	Às vezes	1	Sim	2	Não	2	Não	Farmácias Portuguesas, DocForYou
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	1	Sim	2	Não	2	Não	
3	Raramente	1	Sim	2	Não	2	Não	
3	Raramente	1	Sim	2	Não	2	Não	
3	Raramente	1	Sim	1	Sim	2	Não	Farmácias Portuguesas
3	Raramente	1	Sim	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, Dador.pt, eMed.pt, my
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
3	Raramente	1	Sim	2	Não	2	Não	Farmácias Portuguesas, HeartRate
3	Raramente	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf, BMJ,WHONew
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, eMed.pt, HeartRate
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas
3	Raramente	1	Sim	2	Não	2	Não	HeartRate, DocForYou
4	Nunca	1	Sim	1	Sim	1	Sim	myCuf
2	Às vezes	1	Sim	1	Sim	1	Sim	Farmácias Portuguesas
3	Raramente	2	Não	1	Sim	1	Sim	Farmácias Portuguesas
3	Raramente	1	Sim	1	Sim	1	Sim	T.E.M.S - Tempos Médicos na Saúde
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, eMed.pt
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
1	Quase sempre	1	Sim	1	Sim	1	Sim	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas, myCuf
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas, Dador.pt
4	Nunca	1	Sim	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
3	Raramente	1	Sim	1	Sim	1	Sim	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	TE.M.S - Tempos Médicos na Saúde, Dador.pt
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	Farmácias Portuguesas
2	Às vezes	2	Não	2	Não	2	Não	
4	Nunca	2	Não	2	Não	2	Não	
4	Nunca	1	Sim	2	Não	2	Não	Farmácias Portuguesas

