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From Patient Needs to Market Leadership: A Comprehensive Strategy for Salvia Healthcare
in Digital Health

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Abstract

This work project investigates strategies to enhance Salvia Healthcare's value proposition by identifying key features for patients with chronic conditions and developing a sustainable business model to support its market entry and growth in the U.S. and French markets. To achieve this, we have two interconnected research objectives. The first (task 1) research question centers on understanding the unmet needs of individuals with chronic conditions noncommunicable diseases to develop patient-centered solutions. By conducting qualitative research and interviews with patients, this study identifies key challenges in chronic care management, highlighting the need for personalized and holistic healthcare solutions. The insights from this analysis have informed the design of tailored features for Salvia Healthcare's platform, enhancing its value proposition for chronic disease management. The second (task 2) research question centers on Salvia's competitive positioning and business model development in the United States of America and French digital health markets. Through a comprehensive market analysis, key competitors—both direct and indirect—are identified and evaluated. The study also investigates potential revenue streams, including patient subscriptions, fees from healthcare providers, and partnerships with pharmaceutical companies. Financial projections provide insights into revenue potential and strategic growth opportunities. These findings deliver actionable recommendations to strengthen Salvia's market presence and optimize its business model for sustainable success. Together, these two complementary studies provide a comprehensive framework for Salvia Healthcare to address both the competitive and patient-centric dimensions of its growth strategy. By integrating market insights with patient-centered innovation, this work supports Salvia's mission to improve healthcare delivery through technology-driven solutions.

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Keywords

Chronic disease management, Chronic illness challenges, Digital health platforms, Health management, Health technology, Integrated care, Market entry strategy, Patient-Centered care, Patient empowerment, Personalized care, Strategic business models.

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1. General Introduction

In recent years, the healthcare industry has been undergoing a profound digital transformation, with technology becoming increasingly embedded in medical processes and patient care (Thornton, 2023). Salvia Healthcare, a Paris-based startup founded by Christopher Brucker and Malek Mouazer, seeks to position itself as a leading digital platform for personalized health knowledge and expand its business to the American and French markets. Salvia provides healthcare professionals and patients with seamless access to comprehensive medical information, addressing the growing need for real-time, accurate data on medications, treatment protocols, and patient-specific factors. The digital platform is designed to visualize drug treatment and support clinical decision-making by integrating diverse healthcare data points, thereby enabling the healthcare industry to deliver more efficient and safer care as well as an understanding of the environment in which the medication will be used.

Salvia Healthcare places a particular emphasis on drug management, a critical component of modern healthcare delivery (Health Systems, 2024). Effective drug management is essential for minimizing medication errors, optimizing treatment outcomes, and reducing healthcare costs. However, fragmented systems and inconsistent access to accurate medication data have long been challenges for healthcare providers. Salvia's platform addresses these issues by offering a centralized, real-time resource for drug management. It provides healthcare professionals with up-to-date information on drug interactions, contraindications, dosage adjustments, and alternative therapies. For patients, the platform simplifies medication adherence through features such as reminders, symptom tracking, and personalized education about their prescriptions. By bridging gaps in communication and ensuring that both providers and patients have access to reliable drug-related data, Salvia seeks to improve medication safety and efficacy (See Appendix 20).

This work project focuses, in the first task, on finding relevant features for patients with chronic conditions that will enhance the value proposition of its product, and in the second task, on identifying key competitors of Salvia Healthcare in the U.S. and French markets and developing a business model to support its sustainable growth and profitability. Currently, the U.S. digital health market is valued at USD 81.17 billion in 2023 and growing at a compound annual growth rate (CAGR) of 19.6%, and the French market is expected to reach USD 4.09 billion in 2024. Both present significant opportunities for digital health platforms like Salvia (ICLG, 2024). However, both markets are characterized by complex regulatory environments, requiring a tailored approach to market entry and competition.

1.1 Overview of chronic disease management and its challenges

Each year, 41 million people die of chronic illness worldwide. Notwithstanding that living conditions have greatly improved in the past decades, there is still an increase in chronic disease diagnoses. Furthermore, improvement in life expectancy gives rise more frequently to multimorbidity. Patients with multimorbidity generally need to consult various specialists, which makes the coordination of care even more convoluted. In the United States of America (U.S.), six in ten Americans have at least one chronic illness and four in 10 manage two or more (CDC, 2024). The Centers for Disease Control and Prevention stipulates that chronic disease and mental health care costs around USD 3.7 trillion per year. In France, in 2022, the National Health Insurance reimbursed EUR 167 billion to 66.3 million citizens with a chronic condition. That same year, global health expenses represented EUR 313.6 billion, 11.9% of the country's GDP, one of the highest numbers in Europe with Germany (Rachas et al., 2022).

Chronic disease can't be cured but can be controlled with pharmaceutical and non-pharmaceutical treatments. Through a combination of behavior change efforts, efficient medical management, and monitoring of the condition, the consequences of chronic illness can

be managed and limited (Center for Managing Chronic Disease, n.d.). In general, people with chronic diseases deal with symptoms daily and require frequent visits with healthcare practitioners. Health-related quality of life (HRQoL) is a scale used in research to evaluate how a patient's social, physical, and psychological situation fluctuates over time due to their condition (Hu et al., 2024). This multidimensional concept is a mix of objective and subjective perspectives and refers to the assessment an individual has on their position in life. There are also cultural factors involved in the evaluation of one's condition. People assess through interviews and surveys how they experience their illness through different interconnected concepts: physical variables, symptoms status, functional health, general health perfection, and overall quality of life (QoL). For patients with chronic disease, HRQoL often deteriorates due to many factors like poor body image, difficult relationships, fatigue, depressive feelings, physical disabilities, insomnia, and many others. Subsequently, evaluating HRQoL is used to organize and deliver care for patients with chronic illnesses (Megari, 2013).

A patient's journey with chronic disease is an individual experience. There are three main components in the journey: pre-service, service, and post-service. The itinerary begins when the person registers at the clinic for a one-day visit. Afterward, the patient meets the healthcare professional for the first time and evaluates the reason for consultation. In the service part, there are regular check-ups with the patient with chronic disease to discuss the results of previous tests and review their health status. Finally, the post-service period mainly involves administrative tasks, like updating medical records and scheduling new appointments (Maas et al., 2023).

For people with more than one chronic disease, care becomes more complex and costly. Certain combinations of conditions increase functional impairment. Patients require regular use of healthcare services for each condition which can make coordination of care between

practitioners tremendous (Vogeli et al., 2007). Although healthcare systems are organized around episodic care, chronic disease and multimorbidity are becoming more common and increasing with age, especially in low- and middle-income countries (World Health Organization, 2016). Besides, a consequence of non-communicable diseases that weigh on healthcare systems is polypharmacy. While discussing treatment with a patient, clinicians need to acknowledge potential medication non-adherence and ensure that the different drugs are safe to use simultaneously to avoid adverse outcomes or unnecessary drug usage (Perrella et al., 2024). This represents an extensive decision-making process to ensure patient safety and optimal treatment. Furthermore, dealing with chronic disease often leads to a “prescription cascade” where each new drug is administrated to minimize the side effects of the previous one. This phenomenon is worsened for people with multiple chronic illnesses who have to manage several prescriptions at the same time. In the end, polypharmacy is reported to have a negative impact on HRQoL (Van Wilder et al., 2022).

As it requires continuous attention, chronic disease puts on the surface the limitations of current healthcare models. Resources are often poorly allocated which adds pressure on health institutions (Garcia-Olmos et al., 2012). With the increasing demand in care, healthcare professionals lack time with each individual. As for patient engagement, there are multiple barriers in healthcare systems that do not facilitate patient involvement in health management. Communication gaps can make it difficult for a patient to understand the medical jargon, but giving access to medical records has proved to improve doctor-patient communication, patient education, and empowerment (Maas et al., 2023). With a lack of support, patients can lose confidence in their management abilities. Plus, the role of the health professional as a teacher is rarely well-defined. Priorities are not identical for all parties involved in the disease’s management. This can leave patients and healthcare providers confused and unsatisfied (Ocloo et al., 2021). Within the medical team, poor communication leads to a lack of information and

coordination of care among members, as well as increased chances of medical errors when treating the patient (Fradgley et al., 2015). There are also financial barriers to chronic disease management. Who will pay for the different components? Prevention, education, and coordination of medical teams are all different expenses that are not covered by health insurance companies and the payment methods depend on the country's health system organization. On the structural level, the lack of data accessibility and transparency made health professionals reluctant to get involved in the development of chronic disease management. Some health practitioners are asking for a program divided with clear roles and steps without reducing their autonomy. Research also demonstrates that patients and physicians are interested in self-management classes for chronic diseases (Lauvergeon et al., 2012).

There are multiple improvements that can be made to make sure the patient feels safe in engaging deeper in their condition. Research shows that patients have manifested an interest in digital alternatives to do touchpoints with their medical team. Since the pandemic, video appointments have increased in popularity and are not a barrier to patient satisfaction. This option also solves the issue of transportation for multiple patients (Maas et al., 2023). A digital platform like Salvia's can help assist care at home and in healthcare institutions by giving access to tools that will provide continuous disease monitoring and improve doctor-patient communication.

1.2 Market overview of digital platforms

The integration of digital platforms into the healthcare industry has revolutionized the way medical care is delivered, accessed, and managed (Hermes 2020). Over the past decade, the rise of digital health platforms has significantly transformed healthcare by enabling the digitalization of medical records and providing real-time access to critical health data. In 2023, the global digital health market was at USD 240,9 billion, and it is expected to grow at a compound annual growth rate (CAGR) of 21.9% from 2024 to 2030, indicating the sector's

rapid expansion (GrandView, 2023). Digital health platforms serve as a bridge between healthcare providers and patients, offering tools for remote patient monitoring, telehealth services, electronic health records (EHRs), and mobile health applications. These platforms enable healthcare professionals to provide timely and accurate care while allowing patients to actively engage in managing their own health (Kobiljak, 2024). One of the key benefits of digital health platforms is their ability to improve healthcare accessibility. In rural or underserved areas where medical facilities may be scarce, telehealth platforms allow patients to consult with specialists without the need to travel. According to a report by McKinsey, telehealth utilization in the United States has grown to a level of 38 times higher than it was before the COVID-19 pandemic, accounting for 13-17% of all outpatient visits in 2021 (McKinsey, 2023). Similarly, in France, the government has encouraged the use of digital health tools to relieve the pressure on the healthcare system, especially during the COVID-19 pandemic (WHO, 2023). Despite their advantages, digital health platforms face several challenges. One of the most significant is data privacy and security. Given the sensitive nature of health data, platforms are often targets for cyberattacks. In 2022, healthcare was the most-targeted industry for cyberattacks, accounting for 21% of all incidents globally (IBM, 2024). Another major challenge is the interoperability of digital health platforms. Many healthcare organizations use different systems for electronic health records and other services, leading to fragmented data and inefficient workflows. The lack of standardization across platforms can be a hindrance to effective communication between healthcare providers, making it difficult to create a seamless care experience for patients. Forrester Research estimates that poor data interoperability leads to an annual loss of USD 30 billion in the U.S. healthcare system alone (Forrester, 2023). Despite these challenges, the adoption of digital health platforms is expected to accelerate as healthcare systems increasingly turn to technology to address inefficiencies and improve patient outcomes. Artificial intelligence (AI) and machine learning (ML) are also

expected to play a more significant role in enhancing platform capabilities and enabling personalized care through predictive analytics and real-time decision support (Bajwa, 2021). The healthcare technology sector has seen the emergence of various business models, reflecting the diverse needs of stakeholders and the evolving nature of digital health. Existing research highlights several common revenue models, including subscription-based services, partnerships with pharmaceutical companies, and collaborations with insurers (Petra, 2024).

1.3 Significance of the Study

Why should we find a solution to improve chronic disease management? The number of people with chronic diseases is on the rise continuously, with the WHO predicting that by 2025, 86% of annual deaths will be due to chronic diseases (United Nations News, 2023). Chronic disease is a recent global epidemic, and its current management is unsustainable (Gottfredson, 2021). Western medicine has failed to support chronic disease prevention and relies in an undue way on costly pharmaceuticals of unpredictable success (Verkerk, 2009).

In the United States, unaffordable health insurance causes multiple families to not have appropriate access to care. There are also important gaps in coverage. Citizens are waiting to be approved by insurance plans before going to consult a doctor. This timeframe can be fatal for certain people whose health conditions get worse quickly, such as heart disease. With the aging population, the high demand for care, and the increasing costs for health services, waiting time for insurance coverage approvals is certain to be extended (DeVoe, 2008). Healthcare management often represents large expenditures for both rich and poor countries (Gottfredson, 2021). By 2030, the costs associated with chronic disease management internationally are expected to rise to USD 47 trillion (Hacker, 2024).

Current healthcare systems have been prepared to address episodic care needs rather than the ongoing medical attention required for people with lasting conditions, resulting in disorganized

and fragmented care for chronic illness (Reynolds et al., 2018). Due to its continuous need for support, it is difficult to coordinate activities between healthcare practitioners to treat chronic illness. Consultations are likely to be repetitive and short since physicians lack time to evaluate the patient. Nonetheless, inefficient follow-ups are associated with poor patient outcomes, which increases the costs of treatment (Joo, 2023). Unfortunately, physicians are confronted with time constraints, and it is difficult to estimate the time required to appropriately take care of a patient with chronic disease (Østbye et al., 2015). To improve value for all parties involved in chronic disease management, it is primordial to rethink how care is delivered and find innovative solutions that are accessible and efficient.

2. Research Objectives and Questions

The aim of this work project is to provide strategic insights and actionable recommendations that enable Salvia Healthcare to navigate two interconnected challenges: optimizing its market positioning in diverse healthcare markets and enhancing its value proposition through a patient-centered approach. By addressing both the competitive and patient-oriented dimensions of Salvia's digital health platform, this research aims to support the company in achieving long-term growth and impact.

The first task investigates the identification of relevant features for patients with chronic conditions or severe pathologies, emphasizing the importance of adopting a patient-centered approach in the design and delivery of healthcare solutions. The second task of this research is a research of Salvia's market entry strategy in the U.S. and French digital health sectors. This involves an analysis of both direct and indirect competitors, as well as an exploration of potential revenue streams, to ensure that Salvia can establish a sustainable presence in these highly competitive markets.

A patient-centered approach places the needs of the patient at the core of care delivery, integrating physical, emotional, social, and financial factors into a holistic care model. This method has been shown to improve patient outcomes, reduce costs, and minimize resource usage, making it a critical element of Salvia's strategic objectives. By combining insights into market positioning with patient-focused innovation, this work seeks to address the guiding question: How can Salvia Healthcare incorporate a patient-centered approach to improve the value proposition of its product and enhance the management of chronic diseases? Through the integration of these two perspectives—market strategy and patient-centered care—this research provides a comprehensive framework for Salvia Healthcare to navigate the complex dynamics of digital health. This approach not only aligns with the company's mission but also positions Salvia to meet the evolving demands of healthcare providers and patients in a competitive and rapidly changing industry (Gluyas, 2015).

3. Task 1 Enhancing Patient-Centred Solutions for Chronic Disease Management

The first task aims to identify relevant features for patients with chronic conditions or severe pathologies. First, there will be user research done through surveys and interviews to create a global portrait of the implications of chronic illness in patients' lives. Followed by an analysis of the answers provided by the participants will help to pinpoint which features could be added to Salvia's drug management tool to enhance the value proposition of their platform.

3.1 Literature Review

Opportunities for Innovation

Current research highlighted that chronic disease management requires primary care (Reynolds et al., 2018), based on accessible, patient-centered, first-contact services, corroborating continuous, comprehensive, and efficient coordinated care customized to individual needs (WHO, 2024). The idea behind this statement is to switch from a reactive healthcare system,

focused on episodic care, to a proactive health system that leans towards prevention. States that adopt this model report better health outcomes and lower costs (Reynolds et al., 2018). To take a step in this direction, there is growing attention to self-management support (SMS) interventions. This is described by the ability of a patient to take care of their health and well-being while getting efficient support from healthcare practitioners. This approach combines psychological, emotional, and social facets of an individual's life to care for their chronic disease and prevent other health problems. Examples of actions that patients take while doing SMS are management of rougher episodes of symptoms, physical activity, relaxation, management of emotions, smoking stoppage, and interacting with the community and physicians efficiently. This is partly done through telehealth and telecare. It reduces dependency on traditional healthcare services, reduces costs, and encourages patients' engagement in care, improving their health outcomes. However, patients need to be trained appropriately for this role to avoid feelings of anxiety, lower the risk of reducing the quality of care, and developing coping issues (Panagioti et al, 2014). Mobile technology represents a great opportunity for innovation in chronic illness management and SMS to combine people, data, and healthcare systems. This high-efficiency, cost-effective, and accessible solution can be used by different parties, such as patients, physicians, healthcare managers, and other people involved in the condition's care process. It can be incorporated into multiple devices, like mobile phones, tablets, wearable devices, digital assistants, etc. In chronic disease management, mobile health has proved itself to be impactful on economic, clinical and self-efficiency levels (Fan et Zhao, 2022).

Current research has proved that integrating mobile health (mHealth) tools can improve the value proposition for patients and ameliorate their healthcare experience. Mobile health refers to devices that ensure healthcare connectivity, like applications or wearable instruments (Steinhubl, 2015). Using mHealth enhances patient engagement and improves their behavior

regarding their health (Ghose et al., 2021), especially when incorporating interactive reminders (Anmar et al., 2021). It builds intrinsic motivation to be consistently involved in health activities and creates autonomous self-regulation habits (Ghose et al., 2021).

Digital health technologies are a step towards health equity as they make healthcare more accessible. For example, they can offer appointment scheduling and online consultations, overcoming geographic barriers (Bitomsky et al., 2024). It also enables continuous monitoring of chronic disease by tracking multiple parameters like vitals and physical pain. Nonetheless, research highlights the importance of defining a clear framework to guide the monitoring of the disease and the evaluation of patient outcomes (Bashi et al., 2020). Altogether, better access to information and healthcare professionals' support leave patients feeling more empowered (Mirza et al., 2008). However, more research needs to be done on the specific consequences of mHealth on care outcomes to identify specifically how health practitioners are adjusting their practice (Ghose et al., 2021).

Tools that provided metrics trackers, such as sleep, food intake, and physical activity, measured that users would do more sports, eat healthier and have better constant sleeping habits (Yan and Tan, 2024). For example, those changes translated into lower blood glucose levels among participants with diabetes (Ghose, 2021). In the long-term, allowing patients to participate in their health journey also resulted in less pressure on healthcare services and a reduction of costs associated with care (Mirza et al., 2008). Patients would opt for more online consultations with physicians rather than in-person visits. Besides, visits and readmissions in healthcare facilities decreased, reducing costs associated to care (Yan and Tan, 2024).

Digital health tools give better access to personalized care by offering guidance and reminders tailored to the patient's needs. However, research shows that personalized messages do not always receive positive feedback as they can appear tiresome and intrusive. On the opposite,

general non-personalized content about a disease proved to enhance user engagement (Ghose et al., 2021). Additionally, Yan and Tan have focused their research on the impact of online healthcare tools on mental health. It was brought to light that digital tools which provided access to an online community, allowed users to benefit from other patient's advice. Incorporating a social facet to the product creates a support system around the patient that improves their welfare (Yan and Tan, 2024).

Once information about a patient and their condition is collected, the value proposition can also be enhanced through shared decision-making. Digital health technologies gather data in a common space that both the patient and the doctor can consult. Looking at scientific evidence and the patient's information, values, and preferences, the different parties can decide on a clinical course of action to treat the disease. A digital tool also improves communication between clinicians and the patient as they can communicate through the platform (del Olmo Rodriguez, 2024). Overall, the use of mHealth improved patients' symptoms (Yan and Tan, 2024) as users could be more in control of their health situation.

3.2 Methodology

3.2.1 Research Design

The research design is based on mixed methods. Also, here both qualitative and quantitative data are used to support a comprehensive analysis of patients' experience with chronic disease management. The qualitative part of the research entailed semi-structured interviews with patients and healthcare professionals. On both sides, the goal of the interview was to shed light on the issues that chronic disease can cause to identify the main challenges faced by participants and gaps in current healthcare tools. This information will be used to help Salvia Healthcare develop relevant features that can be implemented in its digital solution to support people involved in chronic illness management. Combining both quantitative and qualitative data validates insights and supports the solidity of conclusions resulting from the analysis.

3.2.2 Data Collection Methods and Limitations

An online survey was created via Google Forms to gather quantitative data (see Appendix 8). The questionnaire contained 13 questions meant to collect information about age, the type of illness, the time of diagnosis, its impact on daily life, the main challenges encountered because of the disease, the use of technology to manage personal health, and the level of satisfaction of the care received to treat the condition. It was available in English and French.

Semi-structured interviews were carried out with 11 patients over the course of two months and a half to collect qualitative data about daily routine, challenges, technology usage, care path, and satisfaction of overall care of individuals dealing with chronic illness. An interview guide of seven questions covered all topics and opened the discussion with the interviewees (see Appendix 9). In general, each interview lasted between 15 to 20 minutes. However, some interviews lasted more than one hour as the respondent felt the need to share more information about their experience with chronic disease. To understand the point of view of health professionals in relation to the management of chronic diseases, email messages were sent to associations of doctors specializing in this field requesting an interview. One health practitioner accepted to participate in a 15-minute interview containing seven questions aiming to obtain information about the challenges faced by people with chronic illness and how they can be tackled.

All participants were informed about the work project's purpose and how the data collected will be used. A description of the project and Salvia Healthcare accompanied the survey, and every mail sent to organizations and professionals. A letter of support signed by the CEO of Salvia Healthcare and the student explaining the work project was provided to every party contacted (see Appendix 10). Before answering the online questionnaire, participants have been notified in writing that their anonymity and confidentiality will be maintained throughout

the whole process. For people who agreed to participate in the qualitative interview, a description of the work project and its purpose were repeated orally before asking the questions to ensure informed consent. Patients were also reminded that their answers would remain anonymous, and confidential, and that recordings would be deleted after submission of the final paper.

Despite the challenges associated with recruiting participants for a study on a subject as sensitive as health, the efforts resulted in 83 responses. This outcome was achieved through a combination of various recruitment techniques. A wide outreach was sent by email to 90 patient associations worldwide, primarily targeting France and the United States. Only one patient association agreed to share the survey among its members. Many organizations refused to participate because of concerns regarding user privacy, ongoing internal studies, or overexposure to research requests.

Recruitment was extended to social media, where the survey was shared via our team members' personal networks, including Chris Brucker's account, and published on LinkedIn, Facebook, and Instagram. The survey was also shared in two LinkedIn health forums and a Facebook support group for individuals with chronic skin diseases. Approximately 2,000 people were reached but this did not increase the number of responses. Reaching out to Nova Medical School and Nova SBE Health Economics Research Lab, provided valuable methodological insights, although they were unable to distribute the survey.

The most effective recruitment method was word-of-mouth, which resulted in most of the responses. Attending conferences, like the Patient and Customer Experience in Healthcare conference at Nova SBE and speaking with colleagues, friends, and family helped to reach healthcare practitioners and patients. Despite the diversity of respondents, research is limited to the diseases listed in the questionnaire. There were 33 different conditions stated in the

survey. Considering the multiplicity of chronic diseases and the need for personalized care, some conditions have not been covered in this research. This limitation will be important to address in the discussion.

3.2.3 Participant Selection and Interview Process

The research was opened to people of all ages and nationalities. The only requirement was to have a minimum of one diagnosed chronic illness. At the end of the survey, respondents were invited to leave their email addresses if they were interested in participating in the interview. A 20-minute online meeting was then scheduled in the previous days to deepen the answers entered in the first survey. Most interviews were done through Google Meet. Facebook Messenger video calls were organized with individuals with people who were uncomfortable with the Google Suite. Subsequently, the transcript of the interviews

An interview was also conducted with Joana Santos Afonso, certified nurse and CEO of Careceiver, an online platform that offers support and information to caregivers in Portugal. At the same time as she is developing her company, Joana is also a nurse specializing in palliative care and cardiac surgery. The questions asked were aimed to better understand healthcare professionals' perspectives when it comes to diagnosing and managing chronic diseases. This discussion also provided great business insights on how to create a sustainable business model and incorporate continuous feedback and data from the patients in the value proposition.

3.2.4 Data Analysis Techniques

The main themes found in the interview with Joana Santos Afonso were highlighted in highlighted with a color code (see Appendix 11). Transcripts of patients' interviews were transferred to the mixed methods analysis software MAXQDA. This software enables the application of color codes and create ensembles of codes to identify the main themes mentioned during the interviews (see Appendix 12).

Survey results were transferred in Excel files to divide answers from each question. All quantitative data of the survey was sorted and classified in Excel. The product of this sort was visualized using various graphs.

Qualitative answers of the questionnaire were transferred in individual Excel sheets and treated with the mixed-methods analysis software Dedoose. This platform is used to analyze mixed methods research. A thematic analysis was used to help similarities in answers. Short descriptive codes were created to classify the answers. Once all data was coded, the results were summarized in tables compiling the frequency of use of each code. An analysis of the themes identified was carried out. This allowed to illustrate the main tendencies in patients' answers and go one step further towards the identification of the main challenges that they face.

3.3 Results

3.3.1 Key insights from patients

Answers were gathered from 83 respondents across 21 countries distributed in Europe, South America, North America, and Asia. The respondents came from various age groups (see Appendix 13). The most represented group comprised respondents aged 61 and over, accounting for 36% of the answers. The second largest group consisted of individuals aged 21–30, representing 27% of the participants. Most respondents have been recently diagnosed as 43% of the respondents have known between 1 to 5 years. This can be explained by the fact that many respondents are quite young. 19% have been diagnosed since 6 to 10 years and only 3% of respondents have been living with the diagnosis for 30 years or more (see Appendix 14).

Qualitative answers from this sample provided deeper insights into chronic disease management. At the beginning of their journey, patients have reported experiencing extensive symptoms and sometimes misdiagnoses before being certain about their condition. For example, Patient 1 experienced coughing and other flu symptoms for 20 years before doing the appropriate tests that led to the diagnosis of chronic pneumonia, while Patient 2 had to insist

on pursuing more tests before the Type 1 diabetes diagnosis was confirmed. Doctors often blamed stress as the cause of the symptoms, stating that it would eventually go away.

To cope with the consequences of the disease, interviewees have stated changes in lifestyle and routine (see Appendix 15). The main categories where they adapted their routine are physical activity, diet, resting, alcohol consumption, social life as well as mental health support like psychotherapy and meditation. All patients have made positive changes in those aspects of their lifestyle to reduce the symptoms of their condition. However, participants who are students have mentioned that it was hard to keep a balanced lifestyle as a tight routine did not merge well into their schedule. When asking respondents which lifestyle habits (Appendix 16) had the greatest impact on their condition, 41% said that doing more physical activity had a beneficial impact on their well-being, which represents the most stated answer. In second place, 21,7% of respondents have said that being careful about their diet has helped them to avoid triggering foods or to add ingredients that would support their metabolism. For example, some people have eliminated gluten or have switched to a plant-based diet to reduce symptoms. Sleep was the next most popular lifestyle habit that respondents were careful about with 10.8% of patients saying that they are careful about getting enough sleep to recover. The next most frequent answers were the need for a satisfying social life, taking appropriate medication, finding enjoyable hobbies, and doing slower movements with breaks if needed to avoid feeling pain. Participants were also asked if they had to modify their daily routine since they had been living with the disease. Having to take regular medication was the most frequent change in patients' routine as 16,9% said it was now part of their routine. Again, diet changes were the second most popular routine change added to people's routines. It represented 12% of the answers. Subsequently, 10,8% of respondents said they incorporated more rest into their daily life and 8,4% said that their condition caused movement difficulties in everyday activities.

Different questions were elaborated to identify the main challenges faced by people with chronic disease. Respondents were also asked to assess the quality of care that they received for their illness (see Appendix 17). The most common dissatisfaction regarding patients' care was the lack of acknowledgment of the individual's life outside the medical sphere. 15,7% of participants explained that they wished their doctor would detach from a medication-centered approach to treatment and explore more alternative therapies. As for other improvements, popular answers were about shorter waiting times to consult specialists, proper follow-ups with doctors instead of rushed consultations, both online and in-person, and quick appointment scheduling. Despite these dissatisfactions, 21,7% are satisfied by the care they receive. People were also asked to evaluate if they felt like they had a balance between chronic disease management and their personal and professional lives. For most individuals, 55,4% of participants said that they felt like they had a good balance. On the opposite, sources of discontentment, which accounted for 6% of the answers each, are reduced physical abilities and dissatisfaction in the workplace. Participants wished that their employer were more accommodating by allowing more breaks, to work remotely, or to work four days a week as their job often makes them feel very exhausted and inflexible to their symptoms. Older patients have mentioned being better since retirement as they have more time to take care of themselves. Some patients also had to retire early to put more emphasis on taking care of their health. In general, stress was a recurring theme, both as a trigger of symptoms and as an obstacle to effective illness management. Patient 3 explicitly connected the stress of daily life to difficulty controlling diabetes. Rightfully, patients were asked to answer one question about the challenges that they face in managing their health daily (see Appendix 18). The most common issues, accounting for 13,3% of responses each, are exhaustion and the need to rest frequently, and being in a bad emotional state, often involving anxiety and stress. The next most frequent challenge is medication management, representing 12% of answers. 10,8% of participants have

said that physical pain was a daily problem when managing their disease and 9,6% struggled with managing their diet and checking the safety of ingredients that could trigger symptoms. Other issues that accounted for 7,2% of answers are bursts of symptoms and difficulty moving. This was described by a lack of dexterity or a need to make shorter and slower movements to avoid physical pain.

As for the use of technology, it was presented both as a helpful tool and as a source of frustration. Patients were satisfied with the live tracking of vitals and the automated tasks of devices like glucose monitors and smartwatches. On the other hand, they also described inconveniences with device size, functionality, size, and discomfort, as well as the need for technological improvements, like automatic data analysis and live recommendations on how to deal with symptoms. Of note, it is worth highlighting that 57% of the respondents affirmed not using any technological tool to manage their disease (see Appendix 19) but 75% could think of features they would like to benefit from if they had access to an improved digital tool.

3.3.2 Key insights from a healthcare professional

Thanks to her experience as a nurse, Joana's expertise is transmitted within the structure of her innovative business. The discussion highlighted the multiple problems faced by caregivers and patients, such as access to quality information, poor knowledge of the disease, financial burden, information overload, and the understanding of medical language. After discharge from the hospital, families are often left by themselves and are not given the proper resources to ask questions. The two main problems were identified during this discussion: access to quality information and dealing with too much quality information. After a long day of work, people are often too tired to do their own research about the illness or to reach out for help. This situation is worsened when the person controls the disease poorly. Caregivers and patients are not trained to take care of the illness. They need to learn how to manage their time, treatments, medication, and finances as care often comes with a lot of expenses. Despite having to go

through all these challenges and learning to live with the diagnosis, patients become experts on their condition and are better informed than health professionals.

Miss Afonso also discussed the importance of creating an ecosystem around the user and giving them as many services as possible to tackle the complex issue that is chronic disease management. Chronic illness is not a one-sided problem. It is then important to offer a solution that considers the plurality of issues that arise from it. After this interview, there was one issue that remained: How do you measure the effectiveness of your platform on patients? To improve the value proposition for its users and assure the effectiveness of its product, Salvia will need to track different factors, like stress levels, expenses, or medication intake, to gather data and offer useful feedback to patients that can empower them in managing their health.

3.4 Recommendations

Through both quantitative and qualitative data, the main challenges and the gaps in the care of chronic illness were underlined. For the same disease, patients have reported a variety of personal issues. This highlights the importance of personalized interventions to support health management. The findings from this research reveal the complexity behind the patient's situation. To treat a chronic illness, it is important to consider the patient and their environment. Salvia would not only benefit in creating a patient-centred product but also by incorporating a holistic approach that considers physical, mental, and social aspects. There is a new tendency in healthcare to focus on wellness at the same time as treating the condition (Mayo Clinic Press Editors, 2023). This change offers a new opportunity to shift towards integrative medicine. The main goal of this outlook is not to replace conventional Western medicine but to complement it with approved alternative treatments, like mindfulness, nutraceuticals, physical therapies, and others. The approach will also vary on the personal experience of the patient with the disease. Patients have reported feeling more accountable while making lifestyle changes.

(Rhon et al., 2021). In summary, adopting a holistic method to manage chronic illnesses can lead to improved patient outcomes and quality of life by acknowledging the multiplicity of factors having an impact on health.

As for the product itself, Salvia should develop an intuitive product to support patient adherence. The solution should provide verified and clear information about the diseases to synthesize data for users of the platform. When asking patients what features they would like to see in a new healthcare technological tool, the second most requested feature was daily life and care advice. The most demanded characteristic is a symptoms tracker, mentioned eight times by respondents. Participants have also brought up interest in multiple other trackers, like medication, attacks, cholesterol, food, pain, periods, physical activity, sleep, and vitals. Patients would also like to find exercises and diets that are adapted to their limitations to keep a healthy balanced lifestyle. To ensure patient engagement, the product should create a sense of community and support through chat groups, forums, planned events, or other functions to help people cope with chronic illnesses. For example, patient 2 admitted the positive impact of attending a diabetic camp, where connecting with others facing similar challenges cultivated resilience and a sense of belonging.

4. Feasibility and regulations

The feasibility of Salvia Healthcare's market entry strategy depends largely on how well its research has addressed the challenges of expanding into the U.S. and French markets. While the research in the work project does a good job of showing the growth potential of digital health platforms and identifying key competitors, it falls short in addressing important external factors, especially the political and regulatory challenges in these two countries. The research does not explore in enough detail how political changes, like the upcoming 2025 U.S. presidential election, could impact the regulatory environment. It also doesn't fully account for

the difficulties of working within France's centralized healthcare funding system. These gaps raise concerns about whether the strategy is ready to handle the real-world challenges of entering these complex markets. For example, in the U.S., the research mentions the need to follow laws like HIPAA (U.S. Department of Health and Human Services, 2024) and meet interoperability standards under the guidance of the Office of the National Coordinator for Health Information Technology (ONC). However, it doesn't address how differences in regulations from state to state or political changes after the election could disrupt Salvia's plans. In France, the research highlights opportunities from government programs but the problem there is that it relies too heavily on public funding without fully considering how slow and complicated that process can be. Without a clearer look at these issues, it's uncertain whether Salvia's strategy is strong enough to succeed. In the U.S., the regulatory landscape is both dynamic and fraught with uncertainty. While initiatives such as the 21st Century Cures Act (U.S. Food and Drug Administration, 2024) and ONC interoperability mandates (ONC, 2024) have streamlined digital health innovation, the upcoming 2025 U.S. presidential election introduces substantial unpredictability (The Economist, 2024). An article in *The Economist* highlights the likelihood of significant changes in healthcare policy, particularly if a conservative administration gains power, which could result in deregulation of telehealth while imposing stricter data sovereignty requirements. Such shifts could complicate Salvia's compliance efforts, especially as a foreign entity seeking to integrate into one of the most fragmented and politicized healthcare systems globally. While France provides a structured and predictable framework, the U.S. presents a larger and faster-growing market, although with heightened risks. Preparing for the potential impact of the 2025 election is paramount for Salvia's success. A conservative shift could lead to policy reversals that undermine existing interoperability mandates, making integration with existing Electronic Health Record (EHR) systems more challenging (ONC, 2024). In the U.S., contingency plans that account for both

deregulation and increased protectionism are essential (U.S. Department of Health and Human Services, 2024). Localized compliance measures and partnerships with influential healthcare stakeholders will mitigate risks. In France, engaging directly with policymakers to streamline reimbursement pathways and leveraging General Data Protection Regulation (GDPR) compliance as a trust-building tool will enhance Salvia's credibility and adoption rates. The feasibility of Salvia's market entry hinges on its ability to navigate these complexities with precision. While its current research provides a strong foundation, addressing the gaps in regulatory analysis and anticipating political shifts will be critical for success in these highly competitive and constant changing markets.

5. General Discussion and Recommendation

This work project examined how Salvia Healthcare can grow and succeed in the competitive digital health markets of the U.S. and France while addressing the ongoing challenge of improving chronic disease management. The research highlighted the strong link between understanding patient needs and strategically positioning the company within these distinct markets. It became clear that success in one area depends heavily on insights gained from the other. The U.S. market stands out for its rapid innovation and fragmented structure, offering opportunities for Salvia to target specific niches with advanced, data-driven health solutions. In contrast, the French market, with its consolidated structure and dominant players, demands a more targeted approach, focusing on partnerships or niche strategies. Despite these opportunities, both markets present significant challenges that Salvia must navigate by leveraging its technological strengths and forming strategic alliances.

When considering mergers and acquisitions (M&A) as a strategy for startups like Salvia Healthcare, it's essential to look beyond just the immediate financial and growth benefits. While M&A offers startups a way to scale faster, gain resources, and enter new markets with

greater ease, the reality of such a process is far more complex—both operationally and emotionally—for the company and its employees.

One of the most immediate consequences of an acquisition is the shift in company culture. Startups like Salvia are often driven by passion, innovation, and a tight-knit team dynamic. Joining forces with a larger, more established corporation can introduce a level of structure and bureaucracy that might clash with the startup's original identity. For example, acquisitions like Amazon's purchase of PillPack or Teladoc's merger with Livongo brought significant scale to these companies, but they also faced challenges in aligning teams, maintaining innovation, and integrating operations effectively. For Salvia, an acquisition could mean greater resources, access to larger networks, and faster market entry, but there's a risk of losing the agility and creativity that make startups unique (Burns, Lawton R., and Mark V. Pauly, 2014).

Another important consideration is the impact on employees. Mergers often bring uncertainty, with fears of job cuts, restructuring, or shifts in roles. Employees at startups tend to wear multiple hats and work in highly collaborative, flexible environments. Transitioning into a more corporate structure may leave some feeling alienated or undervalued. However, a successful M&A can also open doors for career development, new skills, and exposure to larger projects.

On the technical side, merging platforms and integrating systems is rarely straightforward, particularly in the highly regulated digital health sector. Ensuring compliance with data privacy laws like HIPAA in the U.S. and GDPR in France requires careful alignment of processes and technologies. Startups like Salvia must prepare for these challenges by building a strong quality management system (QMS) and ensuring their platform's interoperability with existing systems. A failure to do so could slow down the integration process or even jeopardize patient trust (Cutler, 2013).

Future research should explore how successful M&A strategies within digital health can maintain the balance between innovation and scalability. For instance, companies like Livongo thrived post-merger because their patient-focused mission remained central even as they scaled. Studying similar cases would help Salvia anticipate and mitigate challenges while staying true to its mission of improving chronic disease management.

Ultimately, while an acquisition or merger can catapult a startup into new levels of success, it requires careful consideration of the human, cultural, and operational challenges that come with it. By exploring the real impact of M&A on digital health companies—through case studies, employee interviews, and patient outcomes—Salvia can develop a roadmap that ensures growth without compromising its core values. In the end, success isn't just about scaling—it's about maintaining the vision that made a company valuable in the first place (Highmark, 2024).

Also, a strong recommendation from this project is for Salvia to focus on creating patient-centered features that engage users and improve chronic disease management. Features such as symptom tracking, personalized recommendations, and tools for community building can directly address patient needs. Additionally, diversifying revenue streams through subscription models, insurer collaborations, and partnerships with hospitals and pharmaceutical companies is crucial to ensuring financial stability. Incorporating artificial intelligence for predictive analytics and real-time advice could further enhance the platform's appeal, offering valuable insights for both patients and healthcare professionals.

While the recommendations offer a clear path forward, there are several factors that could challenge their implementation. Although mobile tools are now a mainstream part of our lives, there can be resistance to technology usage due to the reduction of in-person interactions. People could be resistant to sharing their personal data. There are also socioeconomic determinants. Users must have a certain level of health and digital literacy to understand the

content and use the platform. Furthermore, there are financial implications associated with technology usage. In certain countries, there are high costs associated with internet connection. In parallel, patients with chronic disease often need to spend significant sums on care related to their condition. There is also the risk that users might be unwilling to pay for the premium subscription to the service. Besides, technical concerns require a lot of rigor. There are compliance standards for data security and privacy. Simultaneously, quality data needs to be shared with healthcare practitioners for them to interpret and improve decision-making (Mirza et al., 2008).

Further research should focus on understanding the rules and regulations in both the U.S. and French markets to help the startup follow these necessary requirements and prepare appropriate documentation. It would also be valuable to extend the work toward healthcare professionals and survey physicians to evaluate if they would be interested in incorporating a digital platform in their daily practice to improve chronic disease management. Similarly to the data collection process done among patients with chronic illness, research could be pursued among health professionals to understand more deeply the difficulties they face when it comes to treating chronic illnesses and to learn about their current use of technological tools. Moreover, longitudinal studies that look at how patients benefit from features like symptoms tracking and community support over time could be done to document the effectiveness of the features. Socioeconomic factors should also be explored in more depth how different variables can affect access to care and its delivery as well as technology usage. Additionally, exploring how startups can prepare for partnerships or acquisitions with bigger companies can help organize growth objectives. This research would help ensure that digital health solutions continue to meet the needs of patients and healthcare providers in a changing industry. By exploring these future directions, Salvia can not only refine its strategy but also ensure that its product remains significant and impactful in the evolving digital health landscape.

6. Reflection

Writing this thesis has been a thorough learning process that has allowed us to grow both personally and academically. We started with exploring two interconnected but distinct areas: chronic disease management and business model development for Salvia Healthcare. We went on a journey that required adaptability, teamwork, and critical thinking. Reflecting on this experience, we see how each phase of the project challenged us to learn, evolve, and produce a comprehensive piece of work that aligns with Salvia's goals.

From the beginning, we understood the significance of our tasks. Chronic disease management remains a global healthcare challenge, and understanding the needs of patients provided valuable insights for task 1. Simultaneously, task 2 addressed the equally complex challenge of navigating competitive digital health markets in the U.S. and France. This combination required us to balance a patient-centric approach with a market-driven strategy, ensuring that our findings were both actionable and meaningful for Salvia's growth.

One of the most noteworthy realizations during the process was the alignment between patient needs and Salvia's strategic objectives. Patients emphasized the need for tools that simplify and improve chronic disease management. Features such as symptom tracking, medication adherence reminders, and access to supportive communities resonated strongly with users. These insights informed our recommendations, ensuring that Salvia's platform remains patient-focused while also addressing market demands. On the other hand, the competitive analysis in task 2 revealed the necessity of strategic partnerships and diversified revenue streams, which directly support Salvia's mission to deliver high-quality, accessible healthcare solutions.

Collaboration has been central to this work project. Regular discussions and feedback sessions ensured that our individual tasks remained cohesive to create, an aligned vision. For example, insights from task 1 influenced the proposed business model in task 2, ensuring that Salvia's platform not only meets user expectations but also stands out in competitive markets. This

synergy between the tasks demonstrated the importance of teamwork and communication in achieving our objectives. However, the process was not without its challenges. One of the most significant hurdles was navigating the large amount of data and information available.

In task 1, conducting patient interviews and analyzing survey data required careful attention to detail and sensitivity to the needs expressed by individuals. Meanwhile, task 2 demanded a thorough examination of market reports, competitor strategies, and regulatory frameworks. Balancing these responsibilities while ensuring the accuracy and relevance of our findings was both demanding and rewarding.

Another challenge was the dynamic nature of digital health. The field is evolving rapidly, with new technologies, regulations, and market trends emerging frequently. Staying updated and ensuring that our recommendations remained relevant required continuous effort and adaptability. This experience taught us the value of staying proactive and maintaining a growth mindset in the face of uncertainty.

Looking to the future, we recognize the need for further research to build on our findings. For Salvia to expand, it will be essential to explore additional areas such as regulatory compliance, physician engagement, and the integration of emerging technologies like artificial intelligence. Surveying healthcare professionals to gather their perspectives on digital health tools could further refine the platform's features, ensuring it meets the needs of all stakeholders.

This work project has been more than an academic exercise. It has been a transformative journey that deepened our understanding of healthcare innovation and equipped us with valuable skills. By combining theoretical insights with practical recommendations, we have not only contributed to Salvia's mission but also gained a deep appreciation for the complexities and opportunities in the digital health sector. This experience has strengthened

our ability to tackle future challenges with confidence and creativity, leaving us well-prepared for the next steps in our academic and professional journeys.

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Appendix 1 Microsoft Excel dataset US and French companies in digital health (data retrieved from annual reports)

40

Gini Coefficient Calculations for U.S. and French Digital Health Markets

Introduction

The Gini Coefficient is used to analyze the concentration and inequality within a market. A Gini value closer to 0 indicates a highly competitive market with evenly distributed market shares, while a value closer to 1 suggests high concentration with a few dominant players. Below are the Gini Coefficient calculations and results for the U.S. and French digital health markets, highlighting the levels of competition in each.

Gini Coefficient Calculation for the U.S. Market

Given market shares for key companies in the U.S. digital health market:

Market Shares (in percentages) : $s = \{2.54, 13, 6.16, 2.77, 5, 2, 13.6, 10.49\}$

1. Calculate the mean market share:

$$\bar{s} = \frac{2.54 + 13 + 6.16 + 2.77 + 5 + 2 + 13.6 + 10.49}{8} = 6.945$$

2. For each pair of companies, calculate the absolute differences in market shares $|s_i - s_j|$ and sum them:

$$\sum_{i=1}^N \sum_{j=1}^N |s_i - s_j| \approx 401.86$$

3. Substitute into the Gini formula:

$$\text{Gini}_{\text{US}} = \frac{401.86}{2 \times 8^2 \times 6.945} \approx 0.29$$

****Result****: The Gini Coefficient of approximately ****0.29**** for the U.S. market suggests a moderate level of market concentration, indicating that while some companies hold larger shares, there is significant distribution across multiple competitors, reflecting a fairly competitive market.

Gini Coefficient Calculations for U.S. and French Digital Health Markets

Introduction

The Gini Coefficient is used to analyze the concentration and inequality within a market. A Gini value closer to 0 indicates a highly competitive market with evenly distributed market shares, while a value closer to 1 suggests high concentration with a few dominant players. Below are the Gini Coefficient calculations and results for the U.S. and French digital health markets, highlighting the levels of competition in each.

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Given market shares for key companies in the U.S. digital health market:

Market Shares (in percentages) : $s = \{2.54, 13, 6.16, 2.77, 5, 2, 13.6, 10.49\}$

1. Calculate the mean market share:

$$\bar{s} = \frac{2.54 + 13 + 6.16 + 2.77 + 5 + 2 + 13.6 + 10.49}{8} = 6.945$$

2. For each pair of companies, calculate the absolute differences in market shares $|s_i - s_j|$ and sum them:

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$$\text{Gini}_{\text{US}} = \frac{401.86}{2 \times 8^2 \times 6.945} \approx 0.29$$

****Result****: The Gini Coefficient of approximately ****0.29**** for the U.S. market suggests a moderate level of market concentration, indicating that while some companies hold larger shares, there is significant distribution across multiple competitors, reflecting a fairly competitive market.

Gini Coefficient Calculation for the French Market

Given market shares for key companies in the French digital health market:

Market Shares (in percentages) : $s = \{1.1, 1.2, 0.8, 35, 20, 43.5\}$

1. Calculate the mean market share:

$$\bar{s} = \frac{1.1 + 1.2 + 0.8 + 35 + 20 + 43.5}{6} = 16.6$$

2. For each pair of companies, calculate the absolute differences in market shares $|s_i - s_j|$ and sum them:

$$\sum_{i=1}^N \sum_{j=1}^N |s_i - s_j| \approx 986.4$$

3. Substitute into the Gini formula:

$$\text{Gini}_{\text{France}} = \frac{986.4}{2 \times 6^2 \times 16.6} \approx 0.65$$

****Result****: The Gini Coefficient of approximately ****0.65**** for the French market indicates a high level of market concentration. This suggests that a few companies dominate the French digital health market, with less distribution of market share, pointing to a less competitive environment.

Conclusion

The Gini Coefficients for the U.S. and French digital health markets demonstrate contrasting levels of market concentration. The U.S. market, with a Gini value of ****0.29****, is more competitive, with market share distributed among several players. Conversely, the French market, with a Gini value of ****0.65****, is more concentrated, indicating dominance by a few key players. These results imply that new entrants like Salvia Healthcare may find greater opportunities in the U.S. market, while a niche-focused approach may be more effective in the highly concentrated French market.

Appendix 2 Business model canvas for Salvia Healthcare

Business Model Canvas

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
Healthcare Providers: Hospitals, clinics, and telemedicine networks for direct integration of Salvia's platform into patient care systems. Pharmaceutical Companies: Partnerships for shared data insights, clinical trials, and real-world evidence research. Insurance Companies: Collaborations for reimbursement models, particularly around telehealth services and digital therapeutics. Technology Providers: Cloud services, AI, and machine learning firms for data infrastructure and analytics capabilities. Regulatory Bodies: Collaboration to ensure compliance and quick adaptation to evolving health regulations.	Platform Development: Continual improvement of the platform's functionality, including personalized healthcare insights, telemedicine support, and real-time medical data integration. Data Management and Analytics: Collection, storage, and analysis of healthcare data to support both providers and patients. Market Expansion: Strategic entry into new markets through partnerships or acquisitions to enhance Salvia's footprint. Compliance and Security: Ensuring all data handling meets strict regulatory standards (e.g., HIPAA in the U.S., GDPR in the EU).	Real-Time, Personalized Health Information: Enhances patient care by providing healthcare providers with instant access to relevant medical information. Improved Clinical Decision-Making: Supports doctors with up-to-date data and patient insights, reducing risks associated with outdated information. Accessibility and Efficiency: Simplifies patient access to healthcare resources and promotes informed self-management for chronic conditions.	B2B Partnerships: Long-term partnerships with healthcare providers, insurance firms, and pharma companies. Patient Support: Providing direct, accessible digital healthcare support for patients, particularly those with chronic or complex conditions. Feedback Loops: Regularly gathering feedback from both healthcare providers and patients to improve platform functionality.	Healthcare Providers: Hospitals, clinics, and individual practitioners seeking efficient, data-driven care tools. Patients with Chronic Conditions: Individuals managing ongoing health needs who benefit from personalized insights. Pharmaceutical Companies: Seeking access to healthcare data and analytics for research purposes. Insurance Companies: Interested in integrating Salvia's digital tools for cost-effective, reimbursable care options.
Key Resources		Channels		
Proprietary Technology: Salvia's digital platform and algorithms for real-time decision support. Human Capital: Skilled professionals in technology, healthcare, and regulatory fields. Partnership Network: Established relationships with healthcare providers, pharmaceutical companies, and insurers.		Direct Sales: Targeting hospitals, clinics, and telemedicine providers. Digital Marketing: Reaching patients and smaller healthcare practices via online channels. Partnerships: Leveraging relationships with larger healthcare networks and insurers for wider adoption.		
Cost Structure		Revenue Streams		
Platform Development: Ongoing costs related to software development, upgrades, and R&D. Human Resources: Salaries for software engineers, healthcare professionals, and compliance officers. Marketing and Sales: Costs associated with brand-building and customer acquisition. Data Management: Cloud storage, data security, and regulatory compliance expenses.		Subscription Fees: Monthly or annual subscriptions for healthcare providers. Patient Premium Services: Additional features for patients with a subscription fee. Pharmaceutical Partnerships: Licensing fees for access to anonymized healthcare data for research. Insurance Reimbursements: Revenue from insurers for reimbursed telehealth services. Data Analytics and Consulting: Paid analytics services for healthcare providers and pharmaceutical companies. Exit Strategy via Acquisition: Revenue from a potential acquisition by a larger healthcare or tech company, offering Salvia's stakeholders a profitable exit.		

Appendix 5 Interview Transcript João Raposo

Harm Pieter Waalkens: Thank you so much for sitting down with me, João. As I'm researching Salvia Healthcare and potential partnerships within the healthcare sector, I'd love to get your insights on whether a hospital like APDP might be open to working with a digital health platform like Salvia.

João: Absolutely, Harm Pieter, it's a pleasure. I think partnerships between healthcare providers like APDP and digital health platforms could be very promising, especially as we see hospitals moving more toward integrated digital solutions. But it's not without its challenges—there are certain concerns and priorities that institutions like APDP would want addressed before even considering such a partnership.

Harm Pieter Waalkens: That makes sense. What would you say are some of those top concerns for APDP when it comes to partnering with a digital health platform?

João: Well, first and foremost is patient data security. Hospitals, especially in places like APDP where sensitive patient information is handled, need to be sure that any partner can guarantee robust data protection. Compliance with privacy laws like GDPR in Europe is essential. A digital health startup must demonstrate an ironclad commitment to data security if they're to have any chance of a successful partnership with a hospital like APDP.

Harm Pieter Waalkens: Data security—absolutely. So, from APDP's perspective, would Salvia's technological capabilities be a selling point if they demonstrated those security measures?

João: Definitely. If Salvia can show that their platform meets security standards and actually improves patient care without compromising privacy, that's a major plus. But APDP would also need to see that Salvia's platform can be integrated into their existing systems with minimal disruption. Hospitals like APDP run on tight schedules, and patient outcomes can't be compromised by complex onboarding or long training periods. The technology needs to be user-friendly and seamlessly integrate with our EHR (Electronic Health Record) systems.

Harm Pieter Waalkens: I see. Integration sounds like a critical factor. What about other strategic goals? Are there any healthcare-specific needs APDP has that Salvia might address through a partnership?

João: Certainly. One of APDP's strategic goals is enhancing patient engagement and outcomes, especially in managing chronic conditions. A platform like Salvia that offers real-time, patient-specific insights would be attractive, especially if it helps clinicians make more informed decisions quickly. For instance, if Salvia could provide insights on medication interactions or alerts for high-risk patients, it could directly support APDP's mission of providing proactive, personalized care.

Harm Pieter Waalkens: That's interesting. So, it sounds like Salvia's value lies in how it could support clinical decision-making and ultimately improve patient care. Do you think there would be any resistance from clinicians to adopting an external platform like Salvia?

João: There could be, yes. Clinicians are often cautious about adding new tools, especially if they feel it could disrupt their workflow or if it doesn't fit naturally into their routine. If Salvia wants to partner with a hospital like APDP, they will need to show the clinical staff that the platform will genuinely save them time and add value to their daily work. Training is another aspect—Salvia would need to provide robust, ongoing support to ensure that staff are comfortable and proficient with the platform.

Harm Pieter Waalkens: It sounds like clinician buy-in is just as important as institutional support. So, building a smooth user experience is crucial. How would APDP view the financial aspect of a partnership with a digital health company?

João: Financial feasibility is definitely a major consideration. Hospitals operate on tight budgets, especially public ones. For APDP, the partnership would need to have a clear ROI. Salvia would likely need to offer flexible pricing or show APDP how the platform could reduce other costs, like lowering readmission rates or improving resource allocation. For example, if Salvia can show that by using their platform, APDP could prevent complications in chronic patients, that would save both time and money in the long run, making it a more attractive option.

Harm Pieter Waalkens: That's a great point—showing how the platform's benefits translate to cost savings could be key. Let's say Salvia could demonstrate these things: data security, seamless integration, positive impact on patient care, and cost savings. Do you think APDP would then be open to the idea?

João: Yes, I think they would. The healthcare sector is definitely moving toward more partnerships with digital platforms, especially as we see the success of telemedicine and remote patient monitoring solutions. If Salvia can provide a comprehensive solution that aligns with APDP's values and goals, I believe there would be significant interest in collaboration. But Salvia would need to show commitment to a long-term relationship rather than just a quick solution—hospitals value partnerships that grow over time and adapt to changing needs.

Harm Pieter Waalkens: That's reassuring to hear. It sounds like there's a real opportunity, but also a high bar for trust and reliability. Just to wrap up, are there any additional steps Salvia could take to increase their chances of success with a partnership like this?

João: I would recommend that Salvia start with a pilot program. By offering a small-scale trial, APDP's clinicians and administrators could see the platform in action without committing fully right away. It's a low-risk way for APDP to evaluate Salvia's impact and understand how well it fits their needs. If the pilot is successful, then APDP would likely feel much more confident moving forward with a full-scale partnership.

Harm Pieter Waalkens: That's a great strategy—a pilot program could really help build confidence and prove the platform's value. João, thank you so much for all of these insights. This conversation has been invaluable for understanding the considerations for a partnership like this.

João: You're very welcome, Harm Pieter. I hope this helps, and I wish you the best of luck with your research. Partnerships like these have the potential to truly transform healthcare delivery, so it's exciting to see Salvia working in this direction.

Appendix 6 Interview Simon Gisby

Interview Transcript

Interviewer (Harm Pieter Waalkens): Thank you so much for taking the time to speak with me today, Mr. Gisby. As you know, my research focuses on the competitive landscape and business strategies for startups in the digital health sector, particularly Salvia Healthcare. I'd love to hear your insights on how mergers and acquisitions (M&A) can play a role in scaling a startup like Salvia.

Simon Gisby (Principal, Deloitte): It's my pleasure, Harm Pieter. The digital health space is highly dynamic, and I think your research is addressing some critical issues. Startups like Salvia although I don't personally know them, face unique challenges—limited resources, regulatory hurdles, and fierce competition—which make M&A strategies particularly relevant.

Interviewer: Could you elaborate on why M&A might be a good strategy for a startup like Salvia?

Simon Gisby: Absolutely. Let's break this down. For a startup like Salvia, entering competitive markets such as the U.S. or France requires significant investment in infrastructure, regulatory compliance, and market penetration. Partnering with or being acquired by an established player can help overcome these barriers. Established companies often have the resources, industry connections, and market trust that startups lack.

Interviewer: So, it's more about leveraging the strengths of the acquiring company?

Simon Gisby: Exactly. Take an established digital health company, for instance—they might already have partnerships with healthcare providers, access to distribution channels, and the credibility to navigate regulatory requirements. By merging with such a company, Salvia could instantly scale its operations and reach without having to build that infrastructure from scratch.

Interviewer: That's very insightful. But wouldn't there be risks associated with a merger or acquisition?

Simon Gisby: Of course, no strategy is risk-free. For one, the startup needs to ensure its vision and value proposition align with the acquiring company's objectives. There's also the risk of losing some of the agility and innovation that make startups like Salvia stand out. However, if structured well, an M&A can maintain Salvia's core identity while benefiting from the parent company's scale and resources.

Interviewer: Do you think timing plays a role in deciding when to pursue M&A?

Simon Gisby: Timing is critical. For a startup like Salvia, the ideal moment is when you've developed a unique product or service but need additional resources to capture market share before competitors do. M&A can also be strategically timed to coincide with regulatory shifts or market expansions, like we're currently seeing in the U.S. with telemedicine or in France with digital health adoption.

Interviewer: That makes sense. Are there specific examples of successful M&As in this space that Salvia could look to as a model?

Simon Gisby: One example is Teladoc Health's acquisition of Livongo. Livongo brought innovative chronic care management solutions, while Teladoc had the scale and market presence. Together, they created a stronger, more comprehensive offering. Salvia could follow a similar trajectory by identifying a partner with complementary capabilities, such as a robust patient network or advanced AI tools.

Interviewer: That's fascinating. Finally, from an investor's perspective, how does an M&A strategy impact the attractiveness of a company like Salvia?

Simon Gisby: Investors see M&A as both a growth accelerator and an exit strategy. For Salvia, demonstrating readiness for acquisition could signal to investors that the company is scalable and positioned for long-term success. It also opens up options for stakeholders, whether they aim to exit or continue as part of a larger entity.

Interviewer: Thank you, Mr. Gisby. This has been incredibly valuable for my thesis. Your insights into the role of M&A in scaling digital health startups like Salvia are precisely what I was hoping to explore.

Simon Gisby: You're welcome, Harm Pieter. Best of luck with your research—I think Salvia has the potential to make a significant impact in the digital health space, and I look forward to seeing your findings.

Appendix 7 Non transcribed Interviews task 2

<i>Name of interviewee</i>	<i>Company Name</i>	<i>Function</i>
H. ten Brink	NLC Health venture	Lead Venture Finance, Investment Director
A. de Vries	N/A	Chronic disease Patient not using a digital platform
Dr. B. Pinxter	Huisartsen Oog in Al	General Practitioner at Huisartsen Oog in Al. He has experience integrating digital health solutions into primary care.
A. Overkamp	Association Innovative Medicines	Chairman of the Association Innovative Medicines, focusing on innovation in healthcare.
E. de Vries	N.A.	M&A Analyst
J. van Hogedennen	N.A.	Analyst in Private Equity

Interviews that aren't transcribed but did give important insights for the research and personal knowledge.

Appendix 8 First Survey on Google Form

Salvia Healthcare - Understanding life with chronic illness

Thank you for taking the time to share your experience. All information you provide in this questionnaire will remain strictly confidential. Your answers will be anonymized and used for this thesis to better understand the challenges and needs of people living with a chronic disease. The information contained will only be shared with Salvia Healthcare.

If you have any questions or concerns about the confidentiality of your answers, please do not hesitate to contact us.

Salvia Healthcare is a company specializing in the development and distribution of health products. Based in Paris, Salvia is interested in the needs of the French and international community in terms of chronic disease management.

* Indique une question obligatoire

1. How old are you? *

2. Which country are you from? *

3. Do you have a chronic illness diagnosed? Which one? *

4. When did you get this diagnosis? *

5. Who do you talk to about your illness outside the medical team? *

6. How has chronic disease changed your daily routine? *

7. What challenges do you face in managing your health on a daily basis? *

8. Do you currently use health applications to manage your health? Which ones? *

9. What features would you like to see in a new healthcare IT tool? *

10. Currently, which action(s)/lifestyle habit(s) has the greatest impact on your condition? *

11. Do you feel that you have a good balance between managing your illness and your personal/professional life? If not, what could you change or improve to achieve this?

12. How do you assess the quality of care you receive for your illness? What improvements would you like to see in your care journey?

13. In an ideal world, what would be the solution to help you manage your condition daily? *

14. For my thesis, I also need to conduct short interviews (20 minutes). Those are anonymous and confidential. If you are open to meeting with me online or in person, you can leave your email here. Thank you in advance to everyone who is supporting me during this writing!

Ce contenu n'est ni rédigé, ni cautionné par Google.

Google Forms

Appendix 9 Qualitative Interview Canva

1. Can you describe the care path leading to your diagnosis?
2. Has your routine evolved over time? How?
3. Can you give an example of a particularly difficult day because of your illness?
4. Can you share a moment when you felt particularly resilient in managing your illness?
What helped you in this situation?
5. If the person is using a technology tool: How do you think current technologies can be improved to better meet your needs?
6. If you had to imagine an ideal technological tool to help you manage your illness, what would it look like? (More creative side)
7. What do you think would improve coordination between the different health professionals who follow you?

Appendix 10 Letter of support



Nova School of Business and Economics

Monday, October 7th, 2024

Subject: Collaboration for a Study on the Needs of Patients with Chronic Diseases

Dear Sir or Madam,

I would like to write to you on behalf of Salvia Healthcare, a company based in Paris that specializes in the development of health technologies. We are currently working on a project aimed at improving the management of chronic diseases, a field where patients' needs are often overlooked.

As part of this initiative, Léa Gibson, a master's student in healthcare innovation and entrepreneurship, is collaborating with us to better understand the main challenges faced by people with chronic diseases. Her work is essential for us to develop a technological solution that effectively addresses patients' real needs in managing their health.

To achieve this goal, Léa is conducting interviews and sharing an anonymous questionnaire with patients who have chronic diseases. The responses collected will be strictly confidential and used only by Salvia Healthcare and for her master's thesis.

We would be extremely grateful if you could share this questionnaire within your networks to help us gather as much data as possible, thus advancing this promising research.

Of course, we remain available to answer any questions or provide additional details about the project.

Thank you in advance for your time and consideration.

Sincerely,

A stylized, handwritten signature in black ink, appearing to be "CB", written over a horizontal line.

Christophe Brucker
CEO, Salvia Healthcare

A handwritten signature in black ink, appearing to be "Lea", written over a horizontal line.

Léa Gibson
Student, Nova SBE

Appendix 11 Transcript of interview with Joana Santos Afonso, certified nurse and CEO of Careceiver

Color code

Blue: Information about the interviewer

Turquoise: General information about Careceiver

Pink: Patients and caregivers' challenges

Yellow: Business model

Purple: Data usage

Léa Gibson (Interviewer): [00:00:00] I just wanted to make sure before we start. So, you were, a nurse before going into business. Right? What is your professional path and how did you mix both?

Joana Santos Afonso (Interviewee): [00:00:16] So a little bit of context. I graduated nursing school in 2019. I have been a nurse since then. I also, had, at the same time, a small project that today is a start-up. So, in the last 2 years, I have been doing research with Nova. So, I know all about your program, and I met Chris there. At a boot camp. We were both, participating teams. So, this is how we know each other. And, yes, I'm a nurse. I always worked in, palliative care and, cardiology surgery after, and always had at the same time my project. So my start-up is all about, having an online platform and mobile app for informal caregivers, family caregivers, and we support them in many, many, many ways. We do have, courses, resources, ebooks, nursing services. So although now I'm more in the management side of it, i'm still a nurse. I do a lot of, like, nurse training, capacitation sessions for the family caregivers for them to understand what they need to do to take care of their elder one or their father or whatever. So, yeah, that's about it.

Léa Gibson: [00:01:49] That sounds amazing. Thank you. Maybe we can dive already now more into the questions. I have 7 questions. It's going to go quite fast. What do you see are the most significant challenges that caregivers are facing when focusing on chronic disease? I think you also have patients with chronic disease. What do you think are the main challenges that caregivers face regarding chronic disease management?

Joana Santos Afonso: [00:02:22] I believe that after they are discharged from the hospital, they have this new diagnosis, they are a little bit lost in the process of gathering information, like quality information. They don't have the support that they should have. So, I think the level of knowledge that they know about the disease, sometimes is not that much, or sometimes they don't have anyone to ask a few questions along the way. I do have a few family caregivers that with time, they become even more experts than the health care professionals. But until they get to that point, they have a lot of questions. And sometimes because of the health care systems that are so busy and overloaded, they don't have time to answer simple questions from these families that, many times are confused. They are, very, like, overwhelmed with a lot of information, or sometimes they don't even understand the specific language of some of the

flyers that they give them, you know, that has a lot of specific scientific information, and they are a little lost in the complexity of the words. So I believe, quality information and sometimes having too much quality information they don't understand is too complex.

Léa Gibson: [00:04:00] Do you think that is also for patients or it only comes for the caregivers? You mentioned the caregivers, but do you think it's necessarily better for the patients as well when they leave the hospital?

Joana Santos Afonso: [00:04:17] I think it's the same because I can only tell you about the Portuguese reality because it's the only one I know and I have been working with. But, at least in the Portuguese reality, I do believe that patients and caregivers, unfortunately, don't have a lot of knowledge about their own health. And it's a lack of, honestly, sometimes it's a lack of common sense because people don't go look for the proper information. When they do, it's so complex, but they just, you know, leave it there. They don't try to dig deeper because it's hard. I went through the same thing. Before I was a nurse, I took care of my grandma. She has Alzheimer's. So I was a teenager, and I had to look for a lot of information to help my parents. And the thing that I noticed is people are so tired after a long day of work, some people don't have the, you know, the energy to physically go look for someone that can help them. And sometimes the disease, it's out of control Yeah. A little bit because the people, not just the patient, but the caregiver, is tired. So this happens a lot as well.

Léa Gibson: [00:05:45] How does how does Careceiver help people manage those challenges? How do you elevate the stress?

Joana Santos Afonso: [00:05:57] Okay. So first of all, we have very simplified, information. We translate everything that is medical language to simple language. After that, we have available several workshops and courses where we explain everything, every single task that they have to do. Like, if you have to do some kind of procedure with your grandma, your father, whatever, we will teach you how to do it in a very simple step program. We have a lot of different, training courses and opportunities. We also have, 8 nurses that are, available for, you know, answering questions, and they do, it's like you set an appointment. And you do not go there with your questions. All of this is, paid by the municipalities. Our business model is focused on the municipalities. Okay. So we sell them annual subscription of our platform, and our platform has all the services that the caregivers may need. This has been very useful for the municipalities, themselves because they have a lot of money and funds just for health and their local needs. So for us, we can help the caregivers without charging them because in Portugal, they don't usually, they don't have a lot of money. So for us to be sustainable, it had to be with the municipalities. So we try to populate with information, with training courses, and health care professionals. For now, it's mainly nurses, but we do have a doctor on board and a social security worker as well. To help them with some forms because sometimes they have the right to ask for some funding or whatever support.

Léa Gibson: [00:07:56] And with this team, how do you make sure that the patient is included in the whole process? The whole structure of your service.

Joana Santos Afonso: [00:08:07] Yeah. So it's very simple. We set up the appointments. We have, like, a diagnosis of the situation. We ask them a lot of questions, like, what is your job? How is your house? Is it a building? Is it an apartment? Whatever. We asked them a lot of questions to really understand the profile of the caregiver and the patients. After that, we talk with them about the disease, the treatments, the medication, how they can manage their time, how they can manage their own finances because it takes a lot of money to take care of someone. And, we do inform them of every social benefit they can have from the government. Besides that, we offer the app, and the app is very good and useful to have all this, like, very close to you. You have the tool for time management, for task management. We have the information library. You know?

Léa Gibson: [00:09:12] Very, very full service.

Joana Santos Afonso: [00:09:16] Yeah. It's like that we like to call it, like, the caregiver ecosystem. We don't give one thing. We try to give as many as possible. It's a very complex problem, the aging of the population, you know?

Léa Gibson: [00:09:31] Yes. That's also what I mean, what you're saying is also what a lot of people I met say. They also use this word as well. Like, they want their ecosystem, their whole lifestyle to be considered as well. Do you also integrate with other digital tools?

Joana Santos Afonso: [00:09:53] For now, we have started a partnership with the smart work watch. It's called Senor Dong. This smartwatch allows the monitoring of the vitals and falls. We have a safety area because of Alzheimer patients. If they stay in the safe area, it's okay. If they get out of the safe area, it gets, like, a notification. We do have this partnership with the hardware company. We are now doing a pilot with 15 families because it's, you know, it enriches our digital, platform. It's more attractive as well as a business proposition because it's a hybrid solution. And it gives a lot of peace of mind to the caregivers because I can be working but if my care dependent is at home, I can check their vitals and where they are, if they are doing their activities, if they took their medication because you can signal it in the watch. You are more relaxed doing your job and, you know, when they have some sense of independency. When they are very dependent, it's just good for the vitals because of the full control of the vital signs.

Léa Gibson: [00:11:19] What you're saying requires a bit of knowledge. So do you have a service for people that are less familiar with technology in general?

Joana Santos Afonso: [00:11:32] Well, it's very simple to pair up the watch. But, yes, we do the courses and the appointments. Teach people. Yeah. Yeah. And this year, we opened the capacitation center, the training center for the caregivers, and they can go there and just ask questions. Or we can set up a call online and just help them with it as close as possible.

Léa Gibson: [00:11:58] Perfect. I have one last question for you. It went by very quickly. How do you measure the effectiveness of your platform when it comes to chronic disease improvement?

Joana Santos Afonso: [00:12:14] Okay. Curious that you asked me that. This is one of my main concerns, how to make an impact through the use of our tools. We do it by, international

validated scales. We, as nursing professionals, we do work with different scales to evaluate strength, burnouts, communication. So all of these scales already exist. We use them at the hospital, at clinics, whatever. I just digitalize them into the app. And for the caregivers, then they answer a quiz from time to time, and they don't know that quiz is actually a validated scale. Okay. So we do track the stress levels. We do track the sleep monitoring. We do track the money and the expenses that they have. And we are now doing the work of research of finding what is the relation between if you have more money, you can be less stressed. We did verify that in the end of the month, the caregiver is less stressed because they receive their paycheck. So they have more money to help the person that they is dependent. And they have more resources, and they are you know? And we have been, discovering these little things in the last, like, 6 months, these little, conclusions through our different scales. So, we have been also discovering that they have a lot of injuries on their neck because we do have a daily tracker. Do any parts of your spine hurt? And they say, yeah, my back. And we ask them a bunch of questions. Why does it hurt? Did you do a lot of, you know, push or, you know, something like that? And by the end of the month, we have a report that says, okay, you have a lot of difficult work and you use a lot of your back, so your back is worse because you did this on what day, and you have to do this exercise to get better. So because I'm a specialist in rehabilitation as well, I try to have, like, exercises for each pain that they have. And we do have the ability to monitor the overall health care status of the caregiver as well. And that's it.

Léa Gibson: [00:14:58] This is super interesting. Thank you. I'm going to stop the recording.

Appendix 12 Transcript and coding of patient interviews

	1	Patient 1
	2	[00:00:00] Léa Gibson: Okay, first question, can you describe the care journey that led to your diagnosis, the first time you received the diagnosis?
Extensive symptoms	3	Patient 1: Yes. Well, for me, it started because, from October to May, I was coughing, coughing, coughing, coughing all the time. I went through large packs of cough drops, the 45- or 50-count ones, using about one pack per week. I constantly had a cough drop in my mouth because otherwise, I'd cough all the time. As soon as I got up in the morning, I'd cough for an hour before starting work. I was always exhausted. When I switched doctors, she told me it wasn't normal for my previous doctor to say, "It's just a bad flu this year." She ran a series of tests.
Wrong diagnosis		
Unsatisfying treatment	4	Then, two things came up: chronic pneumonia and arrhythmia. She had me do a battery of tests to examine my lungs—what was wrong with them. After doing the tests, I went to the hospital and breathed into a machine. They finally discovered what it was and called me to say I had chronic pneumonia. At first, she prescribed inhalers. They didn't work every day; I had to use one inhaler in the morning, and if it didn't help during the day, I had a blue inhaler—I don't remember the name. That one was like an extra dose I'd take occasionally. I had to take it regularly, but after a month or so, I realized I was coughing much less than before, and things improved. Yes, but that's it.
	5	At first, she said I'd need to use the inhalers all fall and winter and could stop in the spring. But I got the diagnosis in March 2020. At that point, the pandemic started, and we were all at home. Then, she told me I'd have to use the inhalers for life.
	6	Léa Gibson: That was in March, but you experienced symptoms from October to May. Was it since 2019?
Extensive symptoms	7	Patient 1: No, it's been going on for at least, I'd say, 15, 20 years.
	8	Léa Gibson: In the first questionnaire, I asked many questions about your routine, but now I'd like to know if this routine has changed over time and, if so, how you adapted to the illness?

	9	Patient 1: I had to take the inhalers. What kind of routine? What do you mean? The routine I have to follow because of it?	
	10	Léa Gibson: Has your routine changed [00:04:00], for example, regarding physical activity, daily tasks, household chores, taking medication, or doing tests? Has anything changed over time, as you've undergone tests and treatments, or other things to adapt? For example, with another condition, some people mentioned they used to do certain movements or physical activities and eventually had to switch to something else. They adapted over time as the disease progressed.	Resting/Taking breaks
Reduced physical ability	11	Patient 1: Okay, I often get out of breath for no reason. When I enter the house, I have seven steps. It's a bungalow, but there are seven steps at the entrance to reach the main level, and another seven steps to go down to the basement. Climbing those seven steps to the kitchen or living room already leaves me out of breath [00:05:00]. It's slowly improving, but when I walk with others, they have to slow down because I can't keep up. I have to do things more slowly and take breaks.	Resting/Taking breaks
Resting/Taking breaks	12	Before, I could swim 100 lengths of a 30-foot pool. After starting with the inhalers, I could barely do 10 lengths, not even 10. When I don't feel well, I slow down, take breaks. For swimming, it's starting to improve—I now do 12 lengths, take a one-minute break, do another 12, and so on. This summer, I managed to swim up to 80 lengths—not all at once, but gradually over the summer. I started with 30, then 40, 50, and eventually reached 80. I was so happy because these small steps allowed me to do so much more later.	Resting/Taking breaks
Reduced physical ability	13	Léa Gibson: What makes some days worse than others?	
Resting/Taking breaks	14	Patient 1: Many things, I'd say. Temperature changes make it harder. For example, right now, I'm inside where it's 20°C, but outside, it's 9°C. Those changes in temperature are tough. When I go outside or come back in, I start coughing again because of the contrast. It's less frequent now thanks to the inhalers—I don't need them every day anymore, only when necessary.	Influence of environment
Influence of environment	15	Léa Gibson: What do you think has reduced your need for the inhalers?	

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16	Patient 1: Good question. I think it's because I've been retired for a year now [00:08:00]. That's helped a lot—I talk less. At school, I used to talk loudly because students were noisy and wouldn't hear me. I also had follow-ups with an allergist, who suggested something at school might have caused a sort of allergy. I also have chronic sinusitis with coughing and sinus congestion. I was treated for chronic sinusitis and had medication for it, which I was able to stop.	
17	But during allergy season in spring, I have to take it again depending on the pollen levels outside. I take the prescribed medication nightly during allergy season.	Influence of environment
18	Léa Gibson: You've already given some clues in your responses, but can you describe a particularly difficult day because of this condition?	
19	Patient 1: Sure. When the pollen count is high, even if I stay inside, I wake up congested, with a headache, and have trouble breathing. My nose stays blocked. For the headache, Tylenol with coffee works wonders—it helps me breathe better within an hour.	Influence of environment
20	Léa Gibson: That wraps up the routine part of my questionnaire. Now let's talk about technology. Did you note using any technological tools to manage your illness?	
21	Patient 1: No.	
22	Léa Gibson: Okay, let's skip that. If you could imagine an ideal technological tool to help manage your illness, what would it look like?	
23	Patient 1: Maybe a smartwatch. I think they already exist, but I don't have one—a watch that could track palpitations from arrhythmia and guide me. For example, it could tell me to slow down if I'm going too fast or encourage me to speed up during cardio workouts.	Tracking vitals and Analyzing data
24	Léa Gibson: What do you think could improve communication between the healthcare professionals treating you?	Live recommendations

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25	Patient 1: It's very slow. Just getting a referral for tests took me two years. There's a lack of communication between specialists—they should talk to each other to adjust treatments or exercises. It seems like the cardiologist should communicate with my general doctor, but I don't get updates unless I follow up myself.	More communication between specialists
26	Patient 2:	
27	Léa Gibson: We can start with the with the first questions. So in the first survey, I had a lot of questions about lifestyles and technology. It's a bit the same, but more in depth. And so my first question for you is, can you describe the care path that led to your diagnosis?	
28	Patient 2: Yes, it was a pretty troubled path. I would say I had all the common symptoms of type one diabetes. I lost a lot of weight, I was extremely thirsty, always needed to go to the bathroom, all the common symptoms. And I went to my family doctors, and she said that I was fine, that nothing was wrong with me. I was just a bit stressed and anxious and that there was no need for me to worry about anything. And I kept insisting that I wanted to get some blood tests done, because I knew something was really, really wrong and I was right. So we draw this, like blood test, and my blood sugar was over 350 and so immediately, the day after my family doctor called my mom, because I was 14 at the time, and she was like: "You need to go to a doctor". Someone that is like, that knows, like an endocrinologist, basically, and because I was 14, they didn't know if I needed to go to a like a pediatric doctor. So at first, I went to an endocrinologist that was for adults. She was very professional, so was really nice, and she said that she was not equipped to deal with cases of type one diabetes in younger people, and so they contacted the hospital, the pediatric hospital, and after around a week, they found a spot for me, and I got hospitalized. And then I got all the education I needed. They taught me everything from how to inject insulin to testing my blood sugars, nutrition, I got assisted with a psychologist as well. So it got a little bit easier, but at first, it was kind of hard to get my diagnosis.	Extensive symptoms Wrong diagnosis Stress
29	Léa Gibson: With all of this, how long did it take to get like, the proper diagnosis?	
30	Patient 2: I would say, well, from the moment I contacted my doctor to the moment I did my blood test, it was a week. But then before I got hospitalized, I think it was two weeks because they had no spots, no beds in the hospital. So I was just sent home, and the first endocrinologist that I met gave	Education about chronic illness

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	me a very, very tiny dose of insulin just to make sure that I was not going too high with my blood sugar or too low.	
31	Léa Gibson: Okay, I understand. The second question is a bit linked to the first survey. I asked a question about your routine, if it had changed because of the management of the disease. Now what I'm asking is has your routine evolved over time, and if yes, how?	
32	Patient 2: Yes, because my therapy with diabetes changed a lot during the years because of the technology progress. So at first, I used to do multiple injections a day and check my blood sugar through my finger. So I would prick my finger, and now I have both an insulin pump, which gives me continuous insulin throughout the day, and I also have a continuous glucose monitor, so it's always on my body, and it gives me my numbers, like my blood sugars, 24/7, basically. So I would say it has evolved in the sense that it's a little bit easier, it's a little bit more manageable. I don't have to do a lot of practical things like pricking my fingers, stabbing myself with a needle, so it's a bit smoother from the moment I wake up from to the moment I go to bed. I just have to check my numbers through a screen and eventually press some buttons if I need some insulin or make some adjustments. So I would say it's a bit easier now, yeah.	
33	Léa Gibson: Okay, and has the rest of your lifestyle changed, like everything like a diet or physical activity. Have you changed that as well?	
34	Patient 2: Yes, at first I had an I had a meeting with a nutritionist. So they give you guidelines. They give you a sort of diet to follow, even though, generally they just mean to eat healthy and exercise. I think obviously, growing up, when you don't have your parents with you, you don't have a lot of control. And, you know, I moved to another country and stuff, obviously, my life got a little bit more hectic. So I do not necessarily follow all the rules very strictly. Overall the rules are kind of always the same, and then you kind of have to try to apply them to your everyday life, which is very challenging.	Changes in diet Challenging lifestyle
35	Léa Gibson: Interesting, can you describe a day that was particularly bad because of the illness?	
36	Patient 2: Yes, I have so many, um, let me think about one specifically, hmmm. Oh, well, I had one recently. This summer, I got COVID. And when you get an infection and you have Type 1 diabetes, it can be a bit more hard on your system. And I remember that I didn't know I had COVID. I thought I had a cold. And one night, I woke up and I couldn't walk.	Extensive symptoms

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Extensive symptoms	tried to stand up, and my legs were kind of like I had cramps, and I was kind of physically hurting, and I didn't know what was going on. I basically could not walk. And then I discovered that it was because of my diabetes. But that's more an inconvenience. But then there are other like examples. I had days where I had multiple low blood sugars, which basically stop you from doing anything that you were doing. So I was hiking that day, I was with my family, and I had five low blood sugars, which is a lot, and I had to stop every time, rest, take some like sugar, yeah, but I have plenty of other examples. Every time technology fails you and it doesn't work and you have to go back home, or something rips off your body.	
Technology failures	37 Léa Gibson: That day that you had five low blood sugars, do you know why it happened?	
Lack of explanation/information	38 Patient 2: I think it was because I was on a hike with my family, and maybe my body was not really used to that much, but sometimes the problem with diabetes is that sometimes things happen, and there's no reason why. You know, there's so many different factors influencing the way your blood sugars go that sometimes you're just like, I don't know why it's happening, but it's happening.	
	39 Léa Gibson: Did you go to the doctor because to get some more explanation, or do some tests, or you stayed home? You said that you rested that day?	
	40 Patient 2: Yes, yes. I eventually went back home and I just rested because, again, unfortunately, there are certain instances where you want to call your doctor, obviously, but I would say that was a pretty it. Obviously, it's not normal to have that many blood sugars in a day. But again, sometimes it can happen, and it's just part of dealing with a disease. I guess so.	Technology failures
	41 Léa Gibson: On the opposite, can you describe a day when you felt particularly resilient when you managed diabetes, and what did you do that made you feel resilient?	
Sense of community	42 Patient 2: Okay, this is a very good question. Let me think about it. Um, so a couple of years ago, I went to a diabetic camp that is organized by my hospital. And I don't remember, like a specific day, but I feel like this, being with a lot of other young kids that had diabetes, and seeing people struggling with the same things, dealing with the same problems, I think it made my problem a little bit easier to handle, or at least, yeah, I don't know, seeing other people dealing with it just helped me a lot. I felt like I was part of a bigger community. And so anytime I would face a struggle like having a low blood sugar or a high blood sugar, or	

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Sense of community	anything else, I think it kind of shifts your perspective a little bit. And you feel like you have a bit more control, or you're not alone, and it's not like this crazy thing that you have to do on your own. And I feel like that overall makes me feel a bit more resilient.	
	43 Léa Gibson: Super interesting that you mentioned something external rather than something you would do yourself. That was the first part of my questions, more about lifestyle. Second part is more towards technology. You use a technological tool to manage diabetes, and my next question would be, how do you think that the technology that you use right now could be improved to better meet your needs?	
	44 Patient 2: Hmm, okay, um, okay. Well, I would say my insulin pump has a, how would you call this, like a tube? Let me show it, because it's a little easier. So basically, it has this clip, and I have to clip it to my, like to my pants or anywhere I can clip it. And I used to have a device that was tubeless, and it was so much better, but unfortunately, it was not communicating with my sensor. So basically, this one communicates with my glucose monitor so it says, like, oh, your blood sugar is this. And if my blood sugar is a little high, it will automatically give me some insulin to bring it back to normal levels, which is great, but at the same time, having this thing always like, clip somewhere. It's extremely annoying to me, maybe because I was used to having something that did not have that. But every time I want to wear like a dress, every time I want to go to the beach, every time I need to go to a bathroom. Honestly, I always have to find a way, like hold it in my hands, put it somewhere else. So I would say, yes, I love the technology that makes the glucose monitor and the insulin pump communicate. I love that. I think it gives a great improvement, but, yeah, but the tube is very, very annoying, and this is also a pretty big device, and it's also pretty heavy, and even whenever you sleep, you might sleep on it. It's very uncomfortable. So yeah, maybe smaller devices and tubeless devices would be great.	Technology failures
	45 Léa Gibson: How long did you have the first one, because you said you had to change?	
	46 Patient 2: Yes. So the first one that I had, actually, it was maybe 2018 I would say. And I kept it on for, let me think for at least four years, because I think I've had this since May of 2023. Three, okay, four years, okay, and then just couldn't work anymore.	
	47 Léa Gibson: Was there a specific reason because if it worked for four years?	

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Technology failures	48 Patient 2: I had the glucose monitor, but the two parts were not communicating with each other because it was not meant to do that. It was two separate devices, and I would have to read my blood sugars and then manually say, oh, I need some insulin. Whereas this has like a system where it directly communicates with my sensor.	
	49 Léa Gibson: Okay, so that's why you could keep it for four years before that, okay, I get it.	
	50 Patient 2: Yeah, because basically my blood sugars were not really great. My diabetes management was not really great. And so we needed something that was a little bit more technologically advanced, basically. So they would do some things for me. But the like, the downside is that they have tubes, and they are a little heavy.	
	51 Léa Gibson: I have a question to use more your creative side now that you seem to be in the path for this. If you could imagine the ideal tool to help you manage diabetes, what would it look like?	
Solution with low maintenance	52 Patient 2: I can be totally creative with this one. So I would say definitely a smaller device. If we want to go even further, it would be so nice to have a device that you don't have to change because I have, like, a little needle, a little cannula in my body, basically, and I have to change it every three days or five days, depending on the on the specific device. And same thing with your sensor, you have to change it every seven to 10 days. It would be really nice to have something that you never have to change. And if we get a step even further, something maybe like under the skin. I know that they're doing crazy things like chips and stuff like that, so anything that is more comfortable and that you don't have to change, that would be great.	
	53 Léa Gibson: My last question, now, already at the last question. What do you think would improve coordination between the healthcare professionals that follow you at the moment?	
	54 Patient 2: Hmm, you mean between me and them?	
	55 Léa Gibson: It could be you and them, and between each other. You mentioned already a few healthcare practitioners, like nutritionists and a general practitioner as well. How could everything be improved for them to coordinate their care?	
	56 Patient 2: So I think my medical practitioners are very well	

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	coordinated, because I am followed by basically, the hospital has an endocrinology what's the name? Not department. But yes, there is this, like endocrinology department, let's say, and they are a medical team, so they are already coordinated, because they all work in the same space and environment. So there is my endocrinologist, there's nurses, there's nutritionist and a psychologist, and they all work in coordination, basically. I think it would be really, really nice to have like medical staff all together in just one place. But I know that this only applies, for example, to my specific case, because this is a pediatric hospital. I was really lucky because it's in my city of origin, and it's one of the best pediatric hospital in the entire country, in Italy. So they are very well coordinated. But I don't think this applies to every, every situation, but to have everyone in the same space, and they communicate with each other. They do a lot of teamwork together. They organize diabetic camps and stuff like that. And so I think from that point of view, I do not have any complaints, I would say maybe one thing that can be improved between the relationship, like between me and like the patient and the doctor. I would say maybe there should be a little bit more understanding of the fact that dealing with a chronic disease means dealing with it and then dealing with your life as well. And I feel like sometimes doctors just look at the numbers, they look at the rules, and they're like, oh, you should be doing this. You should be doing that. But it's not always that easy to manage both your normal life and then all the aspects of dealing with a chronic disease, so I don't know, maybe there should be a little bit more understanding and communication between patient and doctor.	
	57 Léa Gibson: I get that, especially as a student, I feel like you have such a flexible schedule, it's easy to just lose your routine.	
	58 Patient 2: Exactly. They might not always know that.	
	59 Patient 3	
	60 Léa Gibson (Interviewer): [00:00:18] My first question is, can you describe the care path that led to your diagnosis? How did they ended up getting this diagnosis?	
	61 Patient 3 (Interviewee): [00:00:40] Okay. I had a car accident, and after the car accident, in the distress of it caused my diabetes to activate. So since then, I had diabetes.	
	62 Léa Gibson: [00:01:01] Okay. And, for the process with the doctors, what tests led to the diagnosis?	

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	63	Patient 3: [00:01:11] Okay. Well, I was, first of all, at the emergency because it was a bad accident. And, the doctor that I'd seen, did some tests, and it showed up in the tests.	
	64	Léa Gibson: [00:01:27] Okay. So it was a very quick diagnosis. I understand. I'm just going to take some notes. In the survey, I have a lot of questions about how your routine might have changed or how you had adapted your lifestyle, because of the condition. And I wanted to know, has your routine evolved over time? And if it did, how?	
Challenging lifestyle	65	Patient 3: [00:01:56] Honestly, I'm really bad about my routine that I should do. I'm careful anyway. I've always eaten really well. But I often eat a lot of really well. Like, I like vegetables and I like fruit, and I often eat a lot of them, which is okay, but it's not okay if you're diabetic and you eat a lot of fruit that has sugar and, you know, that kind of thing. So, I pick and choose what I eat more. I have regular medication all the time. Not much else difference. And I lost weight because the medication causes me to lose weight. Not a lot of weight, but I lost weight.	
	66	Léa Gibson: [00:02:49] Okay. Can you describe a day where your illness was especially bad?	
Challenging lifestyle	67	Patient 3: [00:03:01] Maybe when I'm at work, often because often I don't get to eat regularly hours. So, like, I get there early in the morning, so I'll eat something in the morning, like, at let's say 4 o'clock or 4:30. And then I don't eat anything until 1 o'clock. Because that's when lunch is at 1:30 or 2 o'clock. And then after that, you work again. And then, you know, so it's kind of like the stress from well, I'm sure your father has talked about work, so we work at the same place. So you understand that it can be a pain and stressful. I'll have to be careful about my language.	
	68	Léa Gibson: [00:03:44] It's okay. I can understand you. I've heard about it.	
Stress	69	Patient 3: [00:03:54] It was a pain. But with the stress often I'm more irritated easily.	
	70	Léa Gibson: [00:04:06] So workdays are tough or make it tougher. I the connection is really bad probably because you have low battery.	
	71	Patient 3: [00:04:41] Maybe yeah. I'm gonna you know what? I'm gonna, I'll hang up, and I'll call you back with my cell phone.	

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	72	Léa Gibson: [00:04:49] Okay. Perfect.	
	73	Patient 3: [00:04:51] That that's better. Okay. How do I do that? Okay. Now I won't have to be able to put my fingers on the phone on the microphone. I'm bad at that stuff. Okay. Go ahead.	
	74	Léa Gibson: [00:05:07] So you just talked about a day that was especially, hard to manage in the workplace. On the other side, can you share a moment when you felt particularly resilient when managing your illness?	
	75	Patient 3: [00:05:25] Particularly resilient?	
	76	Léa Gibson: [00:05:26] Yes. Like, if it has happened and what do you think helped you to manage it well in that moment?	
	77	Patient 3: [00:05:37] Oh, that's a good question. But I think when I'm able to get away, for instance, on my days off, I try to get out of the house and away from everything in the mornings for as long as I can. That always helps.	
	78	Léa Gibson: [00:06:03] Okay. What do you mean? Taking a break of stress or?	
Resting/Taking breaks	79	Patient 3: [00:06:10] Well taking more me time from everything. Like, yet for instance, my brother lives with me. So he can be quite trying sometimes, we'll put it that way. And, so just getting out of the house and getting away from him and obligations and things like that, it's very helpful to put the stress down. And if the stress goes down, usually the diabetes is easier to control. Because it all has to do with stress, I think.	Stress
	80	Léa Gibson: [00:06:46] Okay. So stress is a big factor for you.	
	81	Patient 3: [00:06:49] That's probably one of your questions.	
	82	Léa Gibson: [00:06:54] It was not, but it's really going to help me eventually to, pursue some research maybe on that, on that path. I can't see who answered what in the survey, but, there was a question about people using a technology to manage their disease. Do you use any sort of technological tool to manage yours?	
	83	Patient 3: [00:07:17] Well, technology that I use, I test my sugar, my blood. So there's that. I don't know if you're going to call that technology. It's kind of a subtle technology, but it's a technology I have. That and blood tests. Every 6 months, I	

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		get a blood test or for sure once a year to check off everything. But, yeah. Blood test and, and, checking my blood sugar with my needle.	
	84	Léa Gibson: [00:07:45] Regarding that, my question is, how do you think those tools could be improved to better meet your needs?	
	85	Patient 3: [00:07:55] Oh, I see what you mean. I don't think they can, can they? I don't see what anything can be done differently. A blood test is a blood test. Other than that, what can you do better? What could be done better?	
	86	Léa Gibson: [00:08:12] Sometimes it's about, like, data accessibility.	
	87	Patient 3: [00:08:14] Or you want me to give you that.	
	88	Léa Gibson: [00:08:16] No. It's just to give you an example.	
No technological literacy	89	Patient 3: [00:08:20] I can't because I don't know what they could do better.	
	90	Léa Gibson: [00:08:22] Okay. That's a perfect answer. There's no right answer or wrong. And then using your more creative side, can you imagine an idea tool that could help you manage your illness and what it would look like?	
A "magic" solution	91	Patient 3: [00:08:38] If there was a pill, just a pill. That would completely, you know, get rid of it or at least control it so that you only took one pill. Because, like, now I started, for example, I started with Metmorfin, which is one pill, and then they added another pill, and then they added a pill that activates the other pill. I mean, it's kind of, like, on the stupid side. And then they wanted me now to do something about, I can't think of the name of the thing. It's a shot, a needle that you take once a week or something like that. And I refused it because it's like you're not removing any medication. You're just adding more. And, I think that's stupid. I mean, if you're going to give me another medication, the idea is supposed to replace something that you're already taking. Otherwise, I might just as well go to the pharmacy and say give me everything you have.	Unsatisfying treatment
Fighting polypharmacy	92	Léa Gibson: [00:09:49] I see what you mean.	
	93	Patient 3: [00:09:52] It finishes, like, ridiculous, I find.	
	94	Léa Gibson: [00:09:55] I see. So a magic pill. And if it would be more related to technology, can you think of something that could help you?	

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No technological literacy	95	Patient 3: [00:10:11] I don't see. I'm not tech. I'm not very technology intelligent. So I can't imagine see what they would use. You mean, like, are you suggesting, like, an implant that they would put in the body?	
	96	Léa Gibson: [00:10:29] It could be anything. You can use your creativity. You can say something completely utopian.	
A "magic" solution	97	Patient 3: [00:10:35] Well, my treat, it would be really if it was just a pill. I don't really wanna, I can't really think of myself implanting, machinery of some kind to take care of diabetes, that would be another kind of a problem because then you have to have maintenance on it eventually.	
No technological literacy	98	Léa Gibson: [00:10:55] Okay.	
	99	Patient 3: [00:10:57] So that's going backwards.	
	100	Léa Gibson: [00:10:59] Something with no maintenance.	
Solution with low mainten	101	Patient 3: [00:11:01] Something with no maintenance would be a good idea because even people that get an example, pacemakers, eventually, you have to repair this and change things. So I can't imagine that a technological device, I got to get the word right myself, and to put in your body that you could use to be better at diabetes. It's kind of like, well, it's scary, isn't it, when you think about it?	No technological literacy
	102	Léa Gibson: [00:11:35] I can imagine.	
	103	Patient 3: [00:11:38] You're lucky so far. You've only had cancer.	
	104	Léa Gibson: [00:11:43] I can also for my research, I also can meet with people with cancer. It's really interesting to hear what they have to say as well.	
	105	Patient 3: [00:12:00] You got very lucky, girl.	
	106	Léa Gibson: [00:12:02] I know. I know. I remember it every single day. I know that I'm very lucky.	
	107	Patient 3: [00:12:10] Sure. And I remember when your father told me about it, I was in the kitchen and I started to cry because I don't really know you, but I remember you as a little girl coming to work. Yeah. And the big glasses and the little girl and I just thought it was heartbreaking. So I was very upset about it. But anyway, you're good now. So that's good.	

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108 Léa Gibson: [00:12:37] No. I'm very good now.

109 Patient 3: [00:12:40] And you got and you have 2 great parents.

110 Léa Gibson: [00:12:43] I know. I know.

111 Patient 3: [00:12:45] You're so lucky with this.

112 Léa Gibson: [00:12:47] I know everyone keeps repeating this to me. I mean, I already knew it, but then people keep reminding me.

113 Patient 3: [00:12:55] Well, sometimes it's good to be reminded. We forget sometimes.

114 Léa Gibson: [00:12:58] Yeah. Of course. Of course. Especially if it's your parents, then you get into fights.

115 Patient 3: [00:13:07] You expect things from them and you don't realize that, not every kid gets those chances.

116 Léa Gibson: [00:13:13] I know.

117 Patient 3: [00:13:14] You know, private school in Portugal. Sweet.

118 Léa Gibson: [00:13:21] I'm very, very lucky. But now I hope that I can use all of those tools and things I've learned to create a positive change in the field that I'm doing research for right now. So let's see where it goes.

119 Patient 3: [00:13:35] Positive and changing the world.

120 Léa Gibson: [00:13:37] Yes. We want to change the world.

121 Patient 3: [00:13:41] Yes. It's like a Coca Cola commercial. There used to be a Coca Cola commercial with that song in it. I wanna change the world to sing something like that. Anyway, so continue, darling.

122 Léa Gibson: [00:13:56] I actually only have one last question. What do you think would improve coordination between the different health professionals who follow you?

123 Patient 3: [00:14:09] Oh, god. I think communication would be better. I think because often, for example, I go for tests or whatever, and then, I don't get the results. I don't hear back from the doctor or the nurse or whatever it is. And I'm like, no. No. I need to know this because meanwhile because the way I am, if I have an x-ray or I have a blood test, my first

More communication bet-
Better access to persona

Unsatisfying treatment

Better access to personal h

More communication betwe

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thought is, okay, something's wrong with me. I want to know what it is if there's anything. So you need to know, even if it's like nothing. Everything is the same or something's a bit better, but the communication I find is lacking. Like, I end up having to phone the secretary of my doctor to say, listen: Did the results, did you get them and what are they? Am I going to be okay? Am I living still? Am I going to die? What is it? So I always have to sort of run after it to find out.

124 Léa Gibson: [00:15:11] Okay. I see. So a way to better communicate the results.

125 Patient 3: [00:15:15] I know people say that if they don't call you, it's because it's okay. I don't believe that. I think sometimes, I think sometimes that people just forget about it. They have so many patients or they just, you know, forget about it. An example, my sister, she died, 4 years ago of cancer. But earlier, she was diagnosed with Crohn's disease, and it turns out it wasn't Crohn's disease at all, it was cancer that she had, but they didn't realize it. So she ended up dying of cancer where it could have been maybe treated earlier. So that's kind of tragic.

126 Léa Gibson: [00:16:00] Because of a miscommunication. So a way to better access to your well, to your own data, actually.

127 Patient 3: [00:16:12] Yes. Exactly. Well, even if I even if I could be told you know, when you go, for an example, you go for an x-ray, they have the results, but the technicians are never allowed to say to you. No. There is no cancer or no. You know what I mean? They're not allowed to say anything, and I don't understand why. Is it a law that they're not allowed? Or you know what I mean? Is it like a law that they can't say to you, no, everything's fine. There's not a broken leg. It's not or something. You know? It's just weird that they're not allowed to tell you. No. It's only a fracture. You'll be okay. Something. Nothing. Nothing. Nothing. So the communication is very bad, I find.

128 Léa Gibson: [00:16:59] So main idea is the miscommunication. Perfect.

129 Patient 3: [00:17:09] No problem.

130 Patient 4

131 Léa Gibson (Interviewer): [00: 01:26:02] I remember you already talking about it during the run club, it's been a while. First question is, can you describe the cure that led to your diagnosis?

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132 Patient 4 (Interviewee): [00:01:34:11] Okay. So basically I noticed I had some kind of, bump, the left side of my neck. And I went to the doctor about it. I noticed this in about 2021. I would say that because of me being here in Germany and my doctor being in Portugal, I kind of pushed it a bit farther than I should have and I only asked about in 2022. But then because I had some kind of issues with my insurance because of being in Germany for so long, in 2022, I was not given the access to the things I would have needed when I was at home in Portugal. So I only go about three times a year and once for Christmas, twice after exam season. And it just didn't happen. Where after the exam season or Christmas, I had the possibility to like book what I needed. So all this year there and then 2023. But I don't know my family doctor, my family doctor said very plainly: Oh, if it hasn't changed any size, if you feel like it's as big as it was before, since you found it, it shouldn't be that worrisome. So I did for the meantime, bloodwork and check hormone levels, etc. and never something came up. And then 2023, finally I got, what I need. Two sessions of ultrasound once in October 2023 and once in December 2023. And because of my exam season, after the second season of ultrasound, they knew something was abnormal because I didn't show any symptoms and the bloodwork didn't show any symptoms, but the tumor was sizable enough or something was off. So after the exam season, which I had, I decided in April to do an MRI scan. I think it's MRI magnetic resonance thing and there they didn't find any conclusive answers, which made them do a biopsy on the spot when they know. They knew that I had to go to Germany. This was now April 2024, and one month and a half later, I got the results back that it was indeed cancer. Could tell you that the Portuguese of the type of it. But I don't know it in English. And then I got operated in July 2024 to remove the thyroid and a few tumors that were on the neck as well.

Across borders challenges

Mood swings

Unsatisfying treat

Changes in diet

Challenging lifes

Difficulty eating

Challenging lifestyle

133 Léa Gibson: [00:04:37:06] Thank you. Very extensive process. There's no right or wrong. But that was very amazing details. Thank you. In the survey, I put a question about the routine, how it might have changed because of the disease. And now I wanted to know, has your routine evolved over time, and if yes, how?

134 Patient 4: [00:05:13:01] I mean, it's still the same issue of not being able to eat breakfast, which makes me feel a bit off like immediately during the morning because I usually wake up very hungry. So because I really want the medication to work, because I know thyroid is quite important to like hair and skin health. I usually wait even a bit more to eat after taking the medicine. So it has like maximum effectiveness,

Unsatisfying treatment
Changes in diet
Challenging lifestyle

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or at least not reduced effectiveness. So I guess I would say like an hour after I wake up, I'm kind of like moody and just grumpy and just in general, not very pleasant. It doesn't have to be relevant, but I used to really focus on meeting my protein goals across the day so I can't do, like, the yogurt or the protein shake immediately after waking up. So that usually tends me to make me eat a lot at dinner. And then I feel like kind of bad when I go to bed because I'm so full. I don't know if that's relevant or what.

135 Léa Gibson: [00:06:27:18] No, of course, protein is so important.

136 Patient 4: [00:06:30:34] Yes, haha.

137 Léa Gibson: [00:06:33:27] Can you describe a day that was particularly difficult because of your illness?

138 Patient 4 [00:06:44:09]: I mean, there's two ways to go about this. I guess, like, first off, because I'm supposed to take it more or less on the 24 hour cycle, this means that when I have to go to the airport, let's say at 5 a.m., that means I usually have to stay three, four hours without eating. So I take the medication at around seven in the morning. 7-10 ish in the morning is more or less like the sweet spot. So this is kind of annoying on those days. And then just sometimes I have like a box with like Monday, Wednesday, Thursday, blah, blah, blah. But sometimes I just am so asleep when I wake up that I don't remember taking the medication. And I just wonder, very confused if I did take it, I don't remember, or if I didn't take it, I should take one, but I know I shouldn't take two doses at the same time. So it's weird.

139 Léa Gibson: [00:07:49:14] I get it. And, on another perspective, can you describe a day when you felt particularly resilient?

140 Patient 4: [00:08:00:04] Resilient? I would say most days it's kind of a routine, and, I don't know, I just usually make, like, a list in the goals of my day and making, like, a check mark every time, like, took medications. Kind of good, I guess. Just for the check mark.

141 Léa Gibson: [00:08:17:17] Okay, perfect. The next part of the survey is more about the technology part. I don't know who answered what in the survey. But did you say that you were using technology for the management of your disease?

142 Patient 4: [00:08:37:06] Kinda. I use, like, the physical box to check. Well, if I took the medication, like, if they are not.

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But sometimes I also do it on the phone so that I have, like, double security.

143 **Léa Gibson:** [00:08:54:23] Perfect. Then, how do you think that current technologies could be improved to better meet your needs?

144 **Patient 4:** [00:09:07:04] If there was, one thing I would have liked is to be some kind of doctor. The hospital approved, like apps that give you more or less information about your disease and what to expect and when to expect. Especially because I don't trust to Google myself. Is the symptom normal? But I also don't want to take like an extra hour of my day to go to the doctor to check a question that may be, like, completely meaningless. Especially now, being in Germany, like every doctor visit, it kind of, always has to have a point. It can never be something I consider like a waste of time, more or less.

145 **Léa Gibson:** [00:09:59:13] I completely get that, it happened to me to have the same questions also. This question is to use more of your creative side. If you had to imagine an ideal technological solution to manage your illness, what would it look like?

146 **Patient 4:** [00:10:27:02] I mean, I guess what I just said before is an app that would give me doctor approved advice, or at least, counsel as to what to expect from your given disease. I guess I felt, there was like, a point because of, like, the surgery. It still kind of hurts. Like the left side of it still doesn't really have feeling. And for a while, I was wondering, like, is it still normal after three months to experience this or did something go wrong? Or maybe did I do any kind of physical activity too soon? Is the healing process kind of stagnating? And I guess that would have been nice to maybe have like a general, like Q&A instead of having to go to the doctor, like, every time. Or at least I called. I mean, my doctor gave me this phone number, which is very helpful in that regard, but in the past, it wasn't like that. There were more hurdles to speak to my doctor directly.

147 **Léa Gibson:** [00:11:32:11] We're already at the last question. What do you think could improve coordination between the different health care professionals that are following you right now

148 **Patient 4:** [00:11:51:12] That's kind of, a good question. I guess it could be like a very big access to healthcare system. I think there's can be very specific to my case, especially there. And then, how useful it is. But basically, I was under the care of, like, the General Hospital of Santa

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Better access to personal h

Maria for most part. But then there's some kind of different agency that is more like specialized in cancer treatment, which is the IPO in Portugal. And one thing that I found kind of annoying was when I finished the surgery, like the actual surgery itself and just the removal of the tumors, I was then dispatched to the IPO and had to meet a new doctor and had to give them basically the same information again. And I don't know, it just felt not very smooth as a process as I would have expected, in a way. I would have expected them to, because I have to bring in the documents, or at least some of them, like myself, I had to show, like, the records, and I would have expected them to already have that in, like, a database. Or maybe, have sent them between themselves without my personal input. So maybe, I guess that was annoying. But in general, surgery was booked very quickly and without any issues. And all of the following, I don't know, small consultations were fine. I mean, there was no issue in those regards. It's only the transfer from one institute to the next one that was kind of rough, or at least in both places.

149 **Patient 5**

150 **Léa Gibson (Interviewer):** [00:00:07:02] Can you describe the care path leading to your diagnosis?

151 **Patient 5:** [00:00:13:05] The care path?

152 **Léa Gibson:** [00:00:14:21] Like when doing tests and exams, what led to your diagnosis?

153 **Patient 5:** [00:00:24:23] Well, for me, it was like, I went to the doctor, like my regular GP. Yeah. So my doctor's clinic that my family goes to, and I spoke to him about how I was feeling. I told him about my daily lifestyle, that I, you know, that like, I told him about everything that I do on a daily basis and how I was feeling in terms of my emotional state and then based on that, he asked me a couple more questions. I can't really remember because this was a couple of years ago. And then after that, he kind of told me about my diagnosis. Well, he basically, he gave me a checklist, and then he, like a checklist of questions that he wanted me to ask or to answer. After that, he basically told me what I have, and then he prescribed me medication.

154 **Léa Gibson:** [00:01:30:00] In the first survey, there were a lot of questions regarding your habits and your routine. But now more in the long term, has your routine evolved when it came to managing your condition?

155 **Patient 5:** [00:01:55:10] I would say that my routine has evolved, I became physically active, which has helped to manage my diagnosis. So, I'm physically active. Oh, wait,

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what was the question? Like, what is my, like, daily?

156 **Léa Gibson:** [00:02:16:22] If your routine has evolved, did you have to adapt things in any way, like let's say right now you're managing it in a certain way and has that changed over time? And you can name the diagnosis also if you want.

157 **Patient 5:** [00:02:29:23] Okay. So yeah. Yeah, it's probably better if I say it. So like, I mean my doctor told me that I have like very bad anxiety. So I've been diagnosed with anxiety, and also depression. And the doctor told me like so at that time maybe I was less physically active. I it was also at the peak of the pandemic period. So, you know, I wasn't able to socialize as much. I think a lot of that was also a factor. But I think over the years I've been able to deal with those symptoms through like reducing alcohol consumption, increasing my physical activity, increasing my social awareness, doing like therapy sessions. I would say that, like, relying on those kinds of coping mechanisms has helped me to manage it. So I would say it's more of like-Yeah, and like journaling, meditating, stuff like that, going to the doctor frequently, telling them about like, you know. I do a regular six month call with my doctor, and I tell them if the medication is helping me, if it needs to be adjusted, increased. I think I'm managing my doses based on, like, a mixture of the medication that I'm taking. And also, just like my daily habits. And also just recently, because my anxiety has flared up quite badly again, I recently also went to the doctor again and they prescribed me, extra medication that I could take additionally. And it's just supposed to like calm my anxiety down that I can take. Like, I usually take half a pill, whenever I need it. And also because, a lot of my anxiety and my emotions are also tend to be because of the, because of, like, maybe possible hormonal fluctuations, my doctor, also prescribed me birth control pills to take for three months. I could maybe mellow out my hormones. But in regards to that, I think that was to me, it felt more like, I don't know how to explain it. Like a a Band-Aid over like a wound. Like it's more like you kind of just brushed it off. And I think in terms of that kind of standard of care, I think it could have been better if I had been referred to maybe someone else like to a specialist maybe look at my hormones as well to see how that's contributing to my anxiety.

158 **Léa Gibson:** [00:05:08:02] There's definitely many, many different aspects of your life that influence your anxiety levels. Then, can you describe one day when it was especially bad?

159 **Patient 5:** [00:05:22:17] Maybe, I would honestly say even maybe like a day like today or like, the last couple of weeks,

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Lack of social life
Alcohol consumption
Physical activity
Psychotherapy/Mindfulness
Frequent checkups
Mood swings
Unsatisfying treatment

like any random day. It's been very, very bad. Now that I like, came like to like last. So I saw my doctor last Thursday, and since then he's prescribed me Xanax and I've been using that like I take half a pill for anti-anxiety whenever my anxiety is extremely bad. On a day like today as well, I've been going for a lot of walks as well. So yeah, I would say like a day like today has been pretty bad.

160 **Léa Gibson:** [00:05:59:13] Okay. Can you also name, a moment when, on the opposite, you felt very resilient managing your illness? Well, not necessarily opposite, because you could also be having a bad day and just feeling resilient. But is there a moment when you felt particularly resilient and what helped you in that situation?

161 **Patient 5:** [00:06:22:20] I think I feel more resilient when I, when I deal with my anxiety tackling whatever, I suppose, like whatever is giving me anxiety at that moment or maybe like, being surrounded by people who care about me or like family loved ones. Maybe the days that I do a lot of physical activity. For example, if I'm feeling very anxious then I go to the gym, which is a very big deal for me. So when I go to the gym, that really washes away a lot of the anxiety. Was that the answer you wanted?

162 **Léa Gibson:** [00:07:31:21] The connection was very bad, but you said that doing physical activities makes you feel more resilient, right?

163 **Patient 5:** [00:07:37:21] Yeah. Yeah.

164 **Léa Gibson:** [00:07:42:10] You can answer however you want, that is a good answer. Moving now towards the more, technological part of the survey. I can't see who answered what in the first part. So I was wondering, did you say that you use the technological tool to manage your disease?

165 **Patient 5:** [00:07:49:15] Like any technological tool?

166 **Léa Gibson:** [00:07:50:18] Tool. Yeah, any tool. It could be like a watch, an app, a software, anything.

167 **Patient 5:** [00:07:57:12] Okay. Well, maybe to manage that, I would say, like, I use like a period tracker app to track how my anxiety and my emotional state is. So I would use apps like that to meditate. I would follow, like a Spotify playlist or meditation app. That helps me. I would say more specifically like Spotify playlist. There's like certain that I would follow that help me to manage, to calm my anxiety down, maybe like that way.

Social life
Physical activity

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Tracking vitals and Analysis	Live recommendations	168	Léa Gibson: [00:08:53:05] How do you think those tools can be improved to better respond to your needs?	
		169	Patient 5: [00:09:13:01] I think it would be nice if the tools, if I would, if there was an opportunity, like, put exactly I'm feeling, like shortness of breath or like, spiraling thoughts or like, restlessness, like, put in specifically those, symptoms in the tool or the app or software. And then for it to be able to tell me what are the best techniques to manage that, like deep breath or like specific meditations or something that would help us.	Holistic understanding of th
		170	Léa Gibson: [00:09:47:09] Okay, we're going to continue to use your creativity here. If you had an ideal technological tool to help you manage your condition, what would it look like?	
Tracking vitals and Analysis	Live recommendations	171	Patient 5: [00:10:06:18] It would be nice to have, like, like an app or something where I could monitor, like, what I'm eating, what I'm drinking, how long I'm sleeping, how, like, sleep is disturbed or not during the night, my movements in my sleep. To be able to track and see how that plays out or is related to my feelings of anxiety and depression. And maybe like, if the app also included reminders to take the specific medication that I need to take Yeah, like, if it was able to incorporate, everything maybe. Yeah, maybe, like, if an app is able to tell me or like, if a watch or a tool or something told me when I wasn't breathing, I was hyperventilating. It would help me to acknowledge that, to help slow my breathing like stuff like that.	
		172	Léa Gibson: [00:11:19:13] Okay, so, like, a journal, kind of.	
		173	Patient 5: [00:11:23:03] Yeah. Like maybe like a technological kind of version of a journal. But I could, like, track even, like the biological thing. Well, I think having a biological side helps.	Extensive symptoms
Tracking vitals and Analysis	Medication reminders	174	Léa Gibson: [00:11:43:14] A more holistic point of view of what is happening. And we're already at our last question. What do you think would improve coordination between the different health professionals following you right now?	
		175	Patient 5: [00:11:58:19] In terms of health professionals, would that just be like specifically like doctor?	
		176	Léa Gibson: [00:12:15:33] I could be any health specialist. I don't know if you see like a chiropractor, a nutritionist, a psychotherapist, not necessarily only your general doctor.	Unsatisfying treatment
		177	Patient 5: [00:12:15:21] Ok and what was the question?	
				Challenging lifestyle

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178	Léa Gibson: [00:12:24:05] What do you think would improve coordination between the different health professionals following you right now?	
179	Patient 5: [00:12:36:19] I think if I, I think when I go to these different specialists, if my doctor, a psychotherapist, my psychologist, whatever, like whoever of those I go to, I think it would be nice if, because I discuss different things or bathe them or some of them have long history with me, they could come together to understand more deeply rather than just that level why my diagnosis is the way it is, but more on a deeper level, and how I could change it so that it stops being like a chronic thing. Because obviously with like chronic illnesses, these things, it obviously gets bigger. You're in a stressful period or something like. I think being able for them to kind of provide insight like, you know, like when I talk to them about like different points of view, they could be there to help, to be able to offer to me like how to manage the chronic thing.	
180	Léa Gibson: [00:13:49:01] Perfect. Thank you. That was the end of the interview. I'll stop the recording now.	
181	Patient 6	
182	Léa Gibson (Interviewer): [00:00:16:09] Has your routine evolved over time when taking care of your condition? And if it has, how?	
183	Patient 6 (Interviewee): [00:00:19:14] Well, evolving. You mean if, like, I've adapted it to my condition?	
184	Léa Gibson: [00:00:25:02] Yes, exactly.	
185	Patient 6: [00:00:25:04] I will be a special case here because I, I started having asthma when I was young. I didn't have it for, like, almost ten years. So finally, it returned again. So, I'm still in the process of adapting my lifestyle. I'd say my routine changed, and that's, I don't jog. I don't run. I don't do much of cardio because I can't. So that's one of the sprays I have, the pills I have. So, you take them and it's supposed to be fine, but, they don't always work as good as the doctors say. So, it's not like I can take one of these, and then you can run, too. So, cardio. It's like I dropped it completely from my life. I'm happy if I can go climbing without suffocating. Yeah, but I'd say that's the biggest limitation.	
186	Léa Gibson: [00:01:28:13] Okay, so it's a special case. You didn't have it for ten years. That's quite special. And did they say why that happened?	
187	Patient 6: [00:01:39:17] It sometimes comes because it's,	

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Stress	Challenging lifestyle		maybe it had to do with, puberty or no. But, it just went away. And now it's worse because of stress. But doctors like to push everything on stress as the cause. Maybe. I wouldn't say, but maybe because we're studying more and, we're sitting more in rooms. That's not a big point. If I sit in a room for a longer period of time, I, usually people, when they stress and they don't pay attention to the breathing to taking care of fresh air then they start breathing very shallow, which means that, they don't take in as much as your lungs need, but you don't notice it. So usually that's not a problem for most people. For me, it is. So at the end of the day like this, I like the volume in my lungs is much, much smaller, which is, which might be a problem if you want to sleep because you can't really sleep. Yeah, yeah. I mean. So much I would say it's like, studying is a problem, but I mean, that's, that's part of my life. And now working is going to be pretty bad. I have to find some job where they value the health of the workers. Probably not going to be investment banking.	
		188	Léa Gibson: [00:03:35:03] Can you describe the care path that led to your diagnosis?	
		189	Patient 6: [00:03:45:13] So how I realized that I have asthma, you mean?	
		190	Léa Gibson: [00:03:49:18] Yes.	
Extensive symptoms	Stress	191	Patient 6: [00:03:52:22] So when I was a kid, they ran some tests. So when I was young, my parents did it for me. I don't know, I had a bronchitis. Bronchitis? You know, when breathing aches. So, that was when I was a kid, and now, it was particularly in sports, I think, when I went to the gym, I realized that I'm getting dizzy, and I can't really, exercise as much, so I have to take breaks. And it got more and more breaks. My parents, my parents are very nice in this regard to stay, remind me of, like, bad behavior or weak behavior and when I'm at my parents and I talk to them at some point I breath with difficulty, and it happens, they ask me like, is everything fine? Did you asthma return? I'm like, no, no, no, it's the stress. And I said that for like 1 or 2 years. Back then it was stress. Now it's not anymore. So, yeah, I think people around me helped, helped me to notice.	
		192	Léa Gibson: [00:05:13:06] You say 1 or 2 years, it took a few years to finally get, like, a clear diagnosis?	
		193	Patient 6: [00:05:21:03] Yeah, but not because, not because of the medical system, but because I didn't go. Because I said, oh, it's not that bad. And, I mean, it's partly because of stress, but if it's for 1 or 2 years, it's very unlikely.	

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194	Léa Gibson: [00:05:37:05] Okay, okay. I understand. Can you give an example of a particularly difficult day that was due because of your condition?	
195	Patient 6: [00:05:59:01] No, I mean, it's not like one in particular. Bad, because, I try not to, let it get too bad. So, Oh, I don't know if it's bad, but it's very, inconvenient for me if, if there is someone talking. Recently we had guest speakers, in very small groups and, they were speaking and I was breathing very intensely, I was embarrassed and, I had to take deep breaths and, they were so loud that they were disturbing the people next to me. So it wasn't, like, very bad, but it was very, inconvenient for me to. It's an inconvenience, just sometimes. Before I got the spray, when I really couldn't, couldn't sleep because I was, lacking so much air. So I wasn't sleeping for, like, the first seven, eight hours of the night. That was a bad day.	Inconvenient perceivable sy
196	Léa Gibson: [00:07:09:17] My mom has it and I think that when it's humid outside or there are allergies, she also cannot sleep. Do you know what influences your asthma?	
197	Patient 6: [00:07:29:04] Yeah. Back then, I was allergic to dust, especially, there was, I don't know what they call this. It's like small animals, living in the dust. I definitely know for sure.	Poor sleep
198	Léa Gibson: [00:07:45:02] I know the word in French.	
199	Patient 6: [00:07:48:07] I know in German. It's called a milbe. And, I'm allergic to them. It's very, very popular among, people with asthma. And I was allergic to one sort of, pollen from the trees. You know, this, we call pollen in German and there was one particular kind that that was allergic to, but it wasn't that bad. So it's hard to say whether, it has to do with rain. When it's humid, for sure. It's more difficult to breathe. But, Yeah, usually, like, I don't know, when I, go to a hotel room or when I sleep on the couch or on the bed that is fresh like that. It smells new. It usually has a lot of dust in it. So the first night, wherever I go is usually pretty bad, especially when I sleep with friends. And they have, like, you know, student rooms, that are very similar and they don't take care. I know what you mean. Yeah, yeah. So, that was, that's usually pretty bad.	Influence of environment
200	Léa Gibson: [00:08:56:03] I know exactly what you mean. I have a picture in my mind.	
201	Patient 6: [00:09:03:07] There was one friend recently, he lives in Munich. And I was staying one night in Munich and the mattress! She was subletting a room, okay. So there was	

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someone living in there, and it was full. This room was crowded because there was the mattress that I was sleeping on. At first I had to dragged out of behind the wardrobe, I don't know, laying it on the ground. That was like. This is dusty. It's dirty. Probably. But I have to sleep on it because it's like 2AM and I am super tired. So I was like, one hour passed I'm not falling asleep. Two hours passed I'm not falling asleep. But that happens, yeah.

202 Léa Gibson: [00:10:25:22] Next question is, can you describe a day, where this time you felt resilient about your disease?

203 Patient 6: [00:10:41:06] What was that? What? Resilient? Oh, yeah.

204 Léa Gibson: [00:10:44:16] When you felt like this day that you managed it quite well.

205 Patient 6: [00:10:55:03] It's a funny question, because usually you don't realize the days where you, where you don't have this problem. Yeah. I think, like, two days ago. I, I didn't take my sprays for like 2 days recently, and, it's because I didn't, I didn't need it. So two days ago. But then yesterday, it got worse again and I took it again, and, you know, but that's it.

206 Léa Gibson: [00:11:33:00] I was going to ask, do you know why you felt better those days?

207 Patient 6: [00:11:45:17] I didn't work on my thesis these days. It's one point. I hate my thesis. It's horrible. It's really, it's really bad from all the course I've ever had in my academic career, and it's been like seven years. It is really the worst one.

208 Léa Gibson: [00:12:06:14] Are you doing a group thesis?

209 Patient 6: [00:12:10:06] No, I'm doing it by myself.

210 Léa Gibson: [00:12:22:02] What's the topic?

211 Patient 6: [00:12:23:27] It's inserting the net zero transition. It's the role that insurance play in, transitioning to carbon neutrality. It's not that bad, but I've never had anything to do with insurance. My professor suggested the two, and now he doesn't like it anymore, and there was no data, so. It wasn't my preference. It was not my preference. Yeah. And, when it's better, it's because of balanced lifestyle. It's a mix of everything. It's exercising, but not too much, having social connections. Very important. Very important for me

Resting/Taking breaks {

Physical activity {

Social life {

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personally. Going outside. When I stay inside the flat for the whole day, I feel terrible. Eating balanced. So it's almost, almost like psychosomatic. It means that your mental health affects your physical health. It's facts for me. It's empirical evidence that when I have an unbalanced lifestyle, I breathe bad, I sleep bad, and it's works together, right? If I breathe bad, I sleep worse, if I sleep bad, I breathe worse. So it's like a vicious circle.

212 Léa Gibson: [00:14:09:12] Yeah, it's like an ecosystem around you.

213 Patient 6: [00:14:13:18] Yeah, yeah. And then sometimes there's, like, a trigger, dusty room for example, dusty mattress, or too much exercise. I like to hike. When I go in the mountains and the air is getting smaller, like less air and it's humid, and you are exhausted, that's pretty bad. But it's also a good exhaustion because it helps you to increase the volume in your lungs for some reason. I'm not, I'm not a normal doctor, but that's something that's more good I would say.

214 Léa Gibson: [00:14:57:07] My last question is more about the technology part. I don't know who answered what in the survey, but did you see that you were using a technological tool to manage your asthma?

215 Patient 6: [00:15:10:17] I said that I'd like to use one.

216 Léa Gibson: [00:15:13:19] Well, we're going to skip the next question then. If you were going to use a tool, this is more like the creative part, how would you imagine the tool to help you manage your disease?

217 Patient 6: [00:15:31:00] I don't have a smartwatch, but I'd like to. So I imagine, there was one brand that's really good. It's called Garmin. And they measure your heart rate. I'm not sure if they measure your oxygen levels. That would be, for example, what I need. So, having something that permanently measures the oxygen levels, that gives you notifications if they are particularly bad. Because I'm not a fan of apps that will measure you because they tell you, like, take a 50-minute break after four hours of sitting like. That's too general. So specific recommendations based on your health evidence. When you should take a break? What you should do? How long you should do it? Because if you take a break for 15 minutes and nothing changes, that's not helping. Right? And best case, it costs less than €1,000. The watches that I'm currently interested in because, like five hundred so it's not much less. Yeah, super expensive but they're also good.

Social life {

Changes in diet {

Psychotherapy/Mindfu {

Influence of environment {

Tracking vitals and Analysis {

Live recommendations {

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218 Léa Gibson: [00:16:51:02] I did not know that.

219 Patient 6: [00:16:53:11] Yeah. Garmin. Depends what model you want, but the good ones that are also resistant. I'm not a fan of smartwatches in particular. Because like an Apple Watch or the Galaxy Watch, they break easily when you fall on them while running, for example. They break easily, and I don't like that. So. Yeah. That would be nice.

220 Léa Gibson: [00:17:46:04] I have one last question. What do you think right now could be helps the health professionals that are following you to coordinate their actions?

221 Patient 6: [00:18:02:06] The health insurance in general?

222 Léa Gibson: [00:18:05:08] Any health professionals that you met that are aware of your condition or not, how do you think the coordination between them could be improved?

223 Patient 6: [00:18:19:03] I mean, on one hand, it would be great to have, like, data exchanges between countries, but that's probably super difficult to make. If I go to the doctor her, they don't have my medical background, which is bad because that might be something that I might have already done it or might be allergic to it. I think that's one problem. I mean, health systems in countries are big, big thing, big, big difference, right. Portugal I think, is a state owned health insurance. In Germany, it's like a private market. So that's super difficult. That's the general, I'd say. I like health experts who target people, specifically who don't give general advices or have a general approach. But they say: "Okay, you're a student, so for you, for example, you can try this and this, and this. If you go to the gym, if you go to friends, take this with you". For example, the bracelet, the smartwatch, that's a very young thing to use. For example, it wouldn't suit someone who's 80 obviously. It's hard because I don't know how the industry functions, right? So coordination, I've never thought about it.

224 Léa Gibson: [00:20:08:18] It helps also to see where people are missing information. There's no right or wrong answer.

225 Patient 6: [00:20:21:05] Yeah so data. Data is a big part. Not using data, wasting data, not exchanging data, not gathering data by the bracelet, for example. That's a big problem.

226 Léa Gibson: [00:20:37:04] Perfect, thank you very much!

227 Patient 7

Across borders challenges {

Live recommendations {

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228 Léa Gibson (Interviewer): Can you describe the care path that led to your diagnosis?

229 Patient 7 (Interviewee) : For skin cancer, I saw sores and after a biopsy I received the diagnosis. For the illness, I went to see a doctor in another city. They gave me some cream at first, but it wasn't enough. For arthritis/osteoarthritis, I had back and finger pain. I had x-rays, blood tests, skin samples, bone density tests. I got a diagnosis within a month.

230 Léa Gibson: Okay, now I would like to ask you, has your routine evolved over time? How?

231 Patient 7: I am now taking injections for all three to get better, but my condition has deteriorated, especially because I recently injured myself in a fall.

232 Léa Gibson: Can you give an example of a particularly difficult day because of your illness?

233 Patient 7: If I don't have medicine, when it's humid and it's very cold.

234 Léa Gibson: Can you share a time when you felt particularly resilient in managing your illness? What helped you in this situation?

235 Patient 7: My injections help me, but at the end of the three months my legs hurt a lot. Heat helps too.

236 Léa Gibson: If you had to imagine an ideal technological tool to help you manage your illness, what would it look like? You can use your creativity here, it can be anything.

237 Patient 7: I don't know anything about this type of tool and I'm fine without it, because I have my routine.

238 Léa Gibson: What, in your opinion, would improve coordination between the different health professionals who follow you?

239 Patient 7 : I don't feel like I can improve anything.

240 Patient 8

241 Léa Gibson (Interviewer) : Before we start, I just want to talk a bit about your background, your life. So you are 25 years old and you work full time. What is your job?

242 Patient 8 (Interviewee) : I'm a staffing officer for the army. It's an office job. I started one year ago.

Extensive symptoms {

Unsatisfying treatment {

Heat {

No technological literacy {

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	243	Léa Gibson: What is the name of your diagnosis?	
	244	Patient 8: Seronegative rheumatoid arthritis. Wait, let me send you an article that explains what it is.	
	245	Léa Gibson: Okay, thank you! I received it. And when did you get the diagnosis?	
	246	Patient 8: It was at the beginning of the pandemic, so March 2020.	
	247	Léa Gibson: To whom do you speak about your condition besides your medical team?	
	248	Patient 8: Everyone. A nutritionist, my osteopath, everyone. I have no fear to talk about it. I also talk about it with my employer.	
	249	Léa Gibson: How has chronic disease changed your daily routine?	
Reduced physical ability Resting/Taking breaks Alcohol consumption Side effects of medication Accepting the disease Reduced physical ability Impact on work	250	Patient 8: It depends on the days when I take medication or not. Without medication, I have constant pain. I need to do smaller movements, shorter actions. I also need to do a lot of prevention, but it can be a challenge to rest. I needed to change my lifestyle, like drinking less alcohol, dealing with the side effects of the medication, being patient, because it does not heal. Sometimes, I cannot go to work because I can't drive, I have a lack of control, but then I work from home.	
	251	Léa Gibson: You already mentioned a few aspects, but can you give an example of a particularly difficult day because of your illness?	
	252	Patient 8: When I change medication, I feel very bad for days.	
	253	Léa Gibson: What challenges do you face in managing your health on a daily basis?	
Accepting the disease/ finding Issues with personal life	254	Patient 8: There are a lot of psychological challenges. I need to tackle the idea that I'm "young" to have such a diagnosis. It was a journey to make peace with the diagnosis. Otherwise, on the long-term, thinking of having children is much more complex.	
	255	Léa Gibson: Has your routine evolved over time? How?	
Side effects of medication More sleep	256	Patient 8: On days when my medication isn't working, because I'm adapting to a new one or I did not take a certain pill, I feel very bad. I need to sleep a lot more even though	

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	257	Léa Gibson: Do you currently use health applications to manage your health? Which ones?	More sleep
	258	Patient 8: No, not anymore because my medication is working well. However, I use ergonomic tools, like an adapted keyboard, a footrest.	Influence of environment
	259	Léa Gibson: How do you think those tools could be improved to better meet your needs?	
	260	Patient 8: I could use a tool to write long dissertations. When I was still a student, it was very hard to write long texts but the current tools that help you write require a lot of training and clarity. There is a specific to work with them to get good results. I do use technology to order my groceries.	Technology for common tasks
	261	Léa Gibson: Currently, which action(s)/lifestyle habit(s) has the greatest impact on your condition?	
	262	Patient 8: Taking baths, taking my time, changing my diet. Everything that is like beans, gluten, lactose, peppers, chili peppers, peanuts, eggplant, blueberries, tomatoes, soy... The foods in the family of the solonaceous. I also need to consume less carbohydrates.	Resting/Taking breaks Heat Changes in diet
	263	Léa Gibson: Do you feel that you have a good balance between managing your illness and your personal/professional life? If not, what could you change or improve to achieve this?	
	264	Patient 8: 100% for the personal life. In my surroundings, everyone knows me. Professionally, it's hard to perform even though I want to. I can't push myself as far as I would want to.	Impact on work
	265	Léa Gibson: What improvements would you like to see in your care journey? What do you think would improve coordination between the different health professionals who follow you?	
	266	Patient 8: I have incredible doctors. However, my family doctor is in another province. It was impossible to find a family doctor in the province that I moved to so someone from another province is helping me. I also have a family member who is a doctor and it's a huge advantage. One time, I did not get the results of my tests and turns out I had a cyst but because it was not harmful, they did not call so to have the results no matter what would be great. The healthcare system is bad but I have a good personal	Across borders challenges

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Across borders challenges		experience because I have a contact.	
	267	Léa Gibson: In an ideal world, what would be the solution to help you manage your condition daily?	
A "magic" solution Education about chronic	268	Patient 8: A miracle pill or life insurance companies that don't discriminate. They need to be more educated about chronic disease but it does not mean that it's the end.	
	269	Patient 9	
	270	Léa Gibson (Interviewer): Thank you so much for agreeing to meet with me today. My first question for you is what is the name of your diagnosis?	
	271	Patient 9 (Interviewee): It's early rapid progressive osteoarthritis.	
	272	Léa Gibson: When did you get this diagnosis?	
	273	Patient 9: I was diagnosed in 2017, so it's been 7 years.	
	274	Léa Gibson: Who do you talk to about your illness outside the medical team?	
	275	Patient 9: I talk about it with my nutritionist, my physiotherapist, my occupational therapist, for alternative medicine, my dance teacher, my friends, my family. I have no shame in talking about it. I also talk about it in dating.	
	276	Léa Gibson: How has chronic disease changed your daily routine?	
Impact on work Stress More sleep	277	Patient 9: I do not work anymore, since 2017. I just moved this year to a very calm place. I sleep more but I also take a lot of medication. I don't even remember everything. However, I needed to stop taking anti-inflammatory pills because they were hard on my stomach, and they could lead to other problems like cancer. I take painkillers but these have an impact on my digestive system so I take other pills to stimulate my system. I have to be sure that the medications match together so I have a lot of confidence in my pharmacy. I also participate in a lot of activities related to health and different studies.	
Fighting polypharmacy			
	278	Léa Gibson: What challenges do you face in managing your health on a daily basis?	
Reduced physical ability Accepting the disease/ finding	279	Patient 9: My movements are limited. I'm scared I will break some bones if I move a certain way. I also need to occupy myself if I don't work. What am I if I'm not a career woman? I	

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Accepting the disease/ finding Issues with personal life		needed to gain back self-confidence, and I had to mourn the loss of the person I was before the illness. I also have limitations in love. Who is going to accept me with my illness? A lot of people want someone to do sport activities and go outdoors but I can't follow all those things or at their pace.	
	280	Léa Gibson: Has someone ever commented on this?	
	281	Patient 9: Yes, for some people it's scary and this is where they draw their limit. They don't understand or don't know what it's like. They want someone who will be as active as them, but I can't be that person.	
	282	Léa Gibson: Do you currently use health applications to manage your health? Which ones?	
Technology for common tasks Tracking vitals and Analysis Physical activity	283	Patient 9: I order my meds through my pharmacy's website. I book appointments online. I have a watch to calculate my steps and my sleep. I use Apple fitness to get some exercises remotely. I also use YouTube to get some exercises but online they don't adapt to your limitations as when I go to my classes in person, the teacher will adapt exercises for me and show me some alternatives.	
	284	Léa Gibson: How do you think current technologies can be improved to better meet your needs?	
Better access to persons Live recommendations Tracking vitals and Analysis	285	Patient 9: I would want everything in the same place. Like a health folder in Québec and have access like the doctors to all my information. I would also want to have access to exercises that are adapted to my limitations because I need to move even though my joints hurt. But it would be nice to see what is suggested, what is not and also see tips that are not related to the medical aspect, like nutrition, and be able to track what I eat.	
	286	Léa Gibson: Currently, which action(s)/lifestyle habit(s) has the greatest impact on your condition?	
Changes in diet More sleep Stress Psychotherapy/Mindfulness Alternative therapies	287	Patient 9: I play a lot with food. I tried multiple diets. I sleep more. I removed all big sources of stress in my life. For example, when it comes to work, divorce. I need to live a stress-free life. I meditate. I need to calm my inner being. I also tried hormonal therapy.	
	288	Léa Gibson: Do you feel that you have a good balance between managing your illness and your personal/professional life? If not, what could you change or improve to achieve this?	

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Accepting the disease/ find	289	Patient 9: Illness forced me to stop, to slow down, to take care of myself, to live a healthier life. I now see illness as a gift. It allowed me to review my life.
	290	Léa Gibson: What do you think would improve coordination between the different health professionals who follow you?
Unsatisfying treatment	291	Patient 9: I don't receive care except my medication because the doctors don't know what to do anymore. But I found a rheumatologist that believes in integrative medicine. I can share with you her contact. She really considers the ecosystem around the patient and not only the pharmaceutical side. But we need the pharmaceutical side for comfort but it has its limits. She gives an incredible service, and she even gives you her phone number. If you have questions, you call. But its at your own expense because it's not recognized by the ministry.
Alternative therapies		
Holistic understanding		
	292	Léa Gibson: In an ideal world, what would be the solution to help you manage your condition daily?
Holistic understanding of th	293	Patient 9: Integrative medicine. We need doctors that integrate all facets of life, not just the pharmaceutical side.
	294	Patient 10
	295	Léa Gibson (Interviewer): What is the name of your diagnosis?
	296	Patient 10 (Interviewee): Wait let me send you a link because it's a very long title.
	297	Léa Gibson: Okay, thank you. I got it. Okay, never heard of this. And when did you get this diagnosis?
	298	Patient 10: The symptoms started when I was 14, so 10 years ago but I only got the diagnostic when I was 18 years old. I did not question it as much when I was 14, I thought I was growing but then when I got older we did more tests and that's when I had a proper diagnosis
	299	Léa Gibson: Okay so it did not take four years to diagnose. There were just breaks during the process.
	300	Patient 10: Yes, exactly.
	301	Léa Gibson: Okay, and who do you talk to about your illness outside the medical team?
Psychotherapy/Mindfulness	302	Patient 10: I went to see a therapist because I went to the private sector. I talk about it with my parents and closed ones but I don't really talk about the rest of my life.

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More sleep
Reduced physical abilities

Mood swings
Substance use
Lack of social life

Impact on work
Reduced physical abilities
Difficulty eating

Accepting the disease/ find
Poor sleep

Impact on work

Resting/Taking breaks
Mood swings

Tracking vitals and Analysis

303	Léa Gibson: How has chronic disease changed your daily routine?
304	Patient 10: There are long periods when it's fine.
305	Léa Gibson: How long are those periods?
306	Patient 10: It depends but it could be, like one time, 9 months. I take my meds, I sleep enough, it hurts but there is not a lot of difference. When it hurts, I need to not do certain activities. It really fluctuates in a year.
307	Léa Gibson: What challenges do you face in managing your health on a daily basis?
308	Patient 10: When it's bad, everything is a challenge. Sometimes I use substances because I'm in a bad mood. I have less social activities, working is really hard, I can't drive. I don't eat and I feel useless.
309	Léa Gibson: Can you give an example of a particularly difficult day because of your illness?
310	Patient 10: It happened one day that I could not sleep for 26 hours because of the pain. There are also days when I feel completely useless. Recently I was in a lot of pain and I knew it was going to get very bad in the next days so I quit my job. Now I have more time to run some tests and I'm taking a break to help myself before I'm not able to to help myself anymore.
311	Léa Gibson: And through another perspective, can you share a moment when you felt particularly resilient in managing your illness? What helped you in this situation?
312	Patient 10: I would say stopping before I feel too bad. Like quitting my job before it's too late and I'm just in a lot of pain and in a dark place.
313	Léa Gibson: You don't use technological tools to manage your disease but what features would you like to see in a new healthcare IT tool?
314	Patient 10: A journal that offers an assessment of things like what I ate, what are my pain levels and have a general portrait with graphs. Sometimes just writing is hard to read and understand. It would be better to go see the doctor with graphs. It would be good to quantify information.
315	Léa Gibson: Currently, which action(s)/lifestyle habit(s) has

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		the greatest impact on your condition?
Changes in diet	316	Patient 10: I changed my diet, I take my meds and I hope to get more sleep.
More sleep		
	317	Léa Gibson: And do you feel that you have a good balance between managing your illness and your personal/professional life? If not, what could you change or improve to achieve this?
Issues with personal life	318	Patient 10: The only time in my life when I felt I had a balanced life was when I was a pizza deliverer. I did not go to school at the time. I would just sleep and relax, I did not have much of a social life though.
	319	Léa Gibson: What do you think would improve coordination between the different health professionals who follow you?
Unsatisfying treatment	320	Patient 10: I really like my doctor because he's funny but he's not very useful. He uses modern medicine and it's not excellent. They don't consider the person as a whole and consider their quality of life. They treat the symptoms with medication but it's not enough. We just end up with a fair quality of life and you have to do research about alternatives on your own.
Holistic understanding of		
	321	Léa Gibson: In an ideal world, what would be the solution to help you manage your condition daily?
A "magic" solution	322	Patient 10: Getting money to not have to work even if you're in pain. To not be forced to work even through the suffering. Or like just a certain amount of money, like a million, and I can manage with that.
	323	Patient 11
	324	Léa Gibson (Interviewer): Thank you so much for accepting this interview and talk about Crohn's disease. My first question for you is, when did you get your diagnosis?
	325	Patient 11 (Interviewee): In 1989
	326	Léa Gibson: Who do you talk to about your illness outside the medical team?
	327	Patient 11: My partner, my sisters, close friends
	328	Léa Gibson: How has chronic disease changed your daily routine?
Changes in diet	329	Patient 11: I changed my diet. I eat healthier, I take probiotics every day. I also avoid abusing on things like
Alcohol consumption		

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Alcohol consumption

Mood swings
More sleep
Inconvenient perceivable sy

Technology for common tas

Tracking vitals and Analysis

Changes in diet
Physical activity

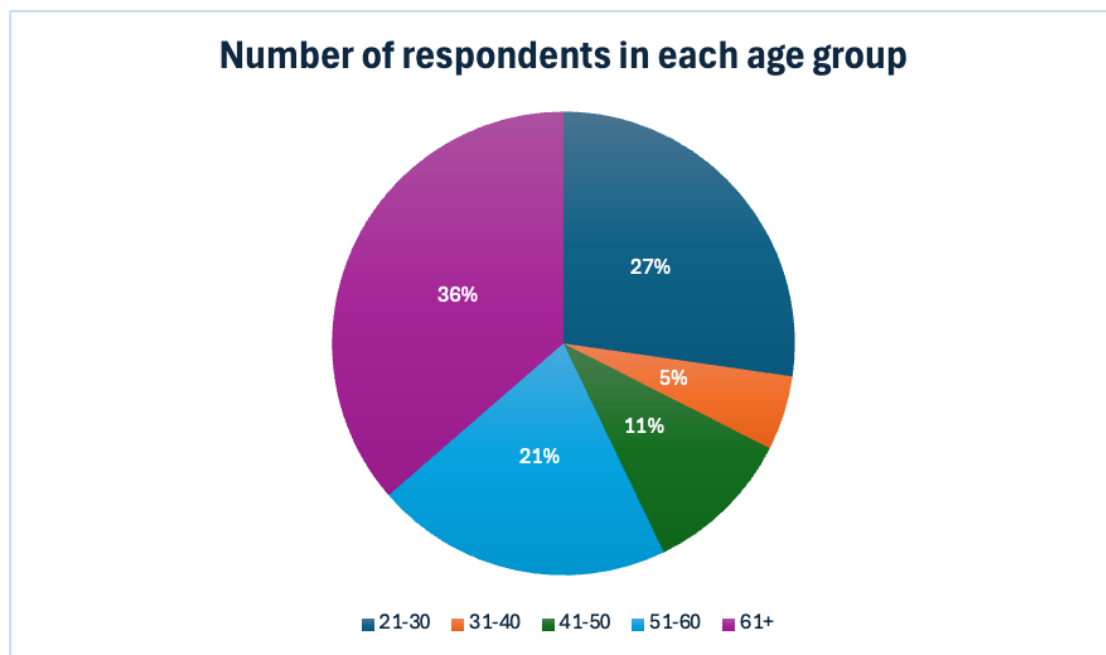
Physical activity
Alcohol consumption
More sleep

	alcohol.
330	Léa Gibson: What challenges do you face in managing your health on a daily basis?
331	Patient 11: I take vitamin B12 because the part of my intestine that absorbs it was removed. Before I was taking medication like one injection with a lot of side effects so I stopped.
332	Léa Gibson: And can you give an example of a particularly difficult day because of your illness?
333	Patient 11: When I'm sick, I'm more irritable. I'm also more tired. My stomach makes a lot of noises and sometimes people think I'm hungry.
334	Léa Gibson: Do you use any technological tools to manage your health?
335	Patient 11: I use an agenda to schedule my vitamin injections one time per month.
336	Léa Gibson: How do you think current technologies can be improved to better meet your needs?
337	Patient 11: It would be nice to have a smart watch that can measure vital signs and sleep.
338	Léa Gibson: Currently, which action(s)/lifestyle habit(s) has the greatest impact on your condition?
339	Patient 11: I changed my diet. I do more sports every week. I do boxing and other activities. In the summertime I bike a lot.
340	Léa Gibson: Do you feel that you have a good balance between managing your illness and your personal/professional life? If not, what could you change or improve to achieve this?
341	Patient 11: Yes, even if my work is demanding. I go to the gym and I don't drink alcohol when I work more or I need to travel. I also go to bed earlier when I feel like I'm about to get sick because it comes in episodes.
342	Léa Gibson: How do you assess the quality of care you receive for your illness? What do you think would improve coordination between the different health professionals who follow you?

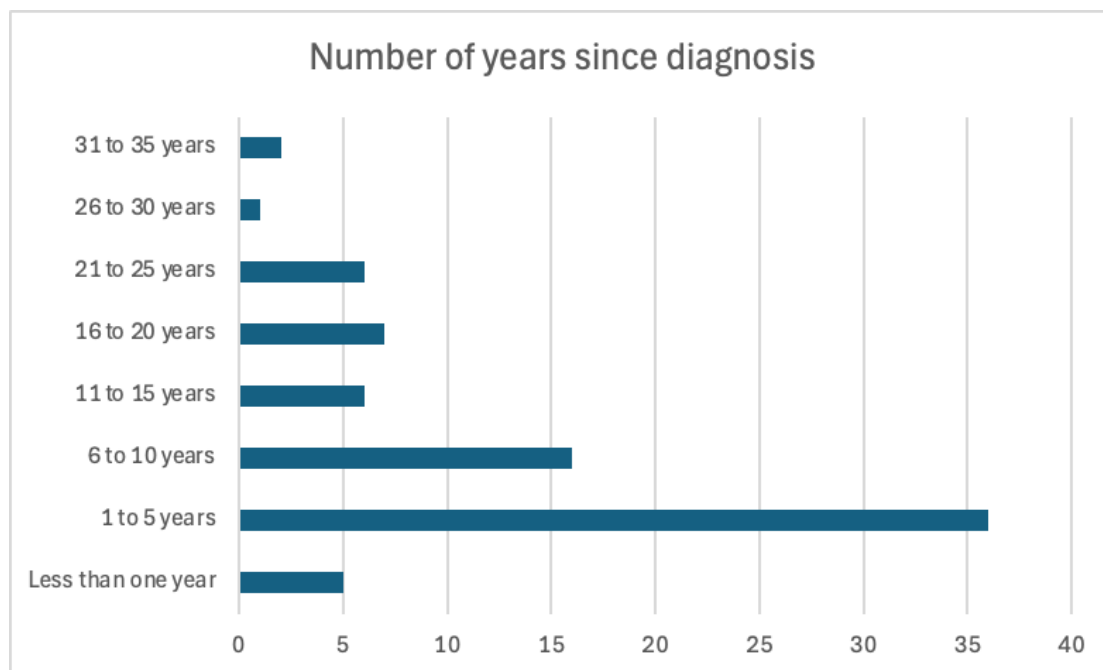
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Unsatisfying treatment	}	343	Patient 11: I see a gastroenterologist, but he doesn't have enough time and he's stressed. He tries too much to give pills without understanding why it happens. There is no identification of the source of the problem. I also see my doctor once a year and I give him a grade of like, 7/10.
		344	Léa Gibson: In an ideal world, what would be the solution to help you manage your condition daily?
Holistic understanding of	}	345	Patient 11: It would be nice to identify the real reason and the cure. It would also be nice to promote the use of prebiotics and other natural things to control the disease. We need more accurate research for example, on the effects of lactose and spices. We could also know if it's hereditary. But sometimes what I dream about that is a solution is that an alien comes to make me younger and healthier.

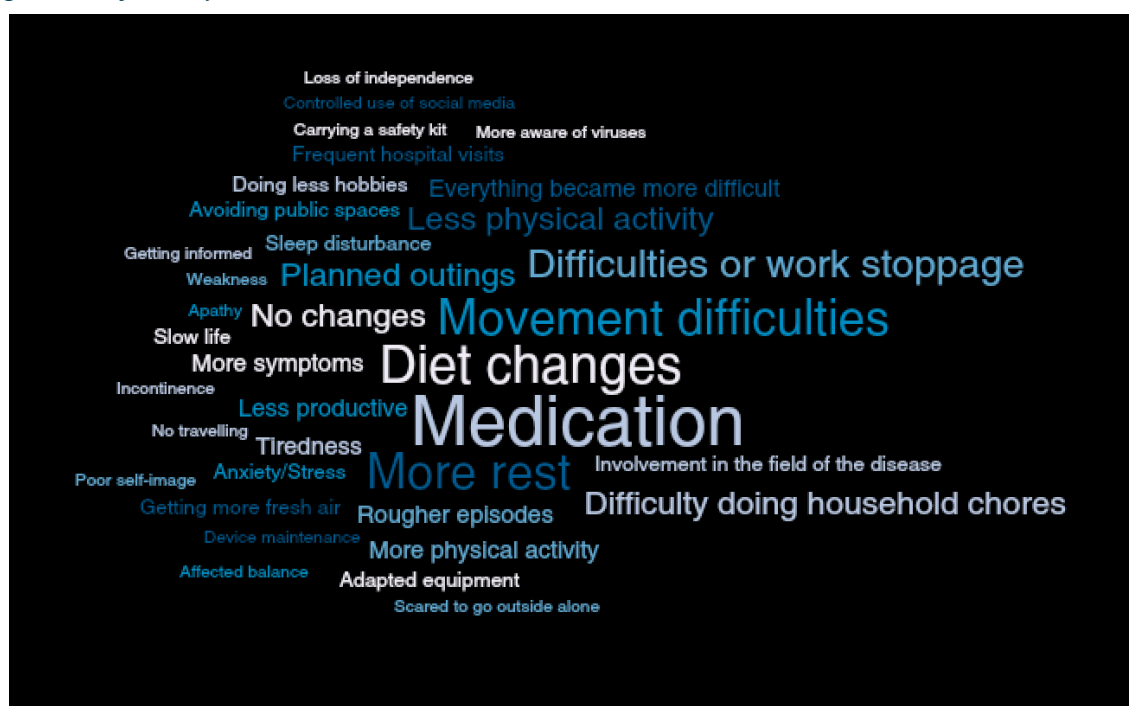
Appendix 13 Distribution of respondents in each age group



Appendix 14 Number of years since people have been diagnosed with a chronic illness



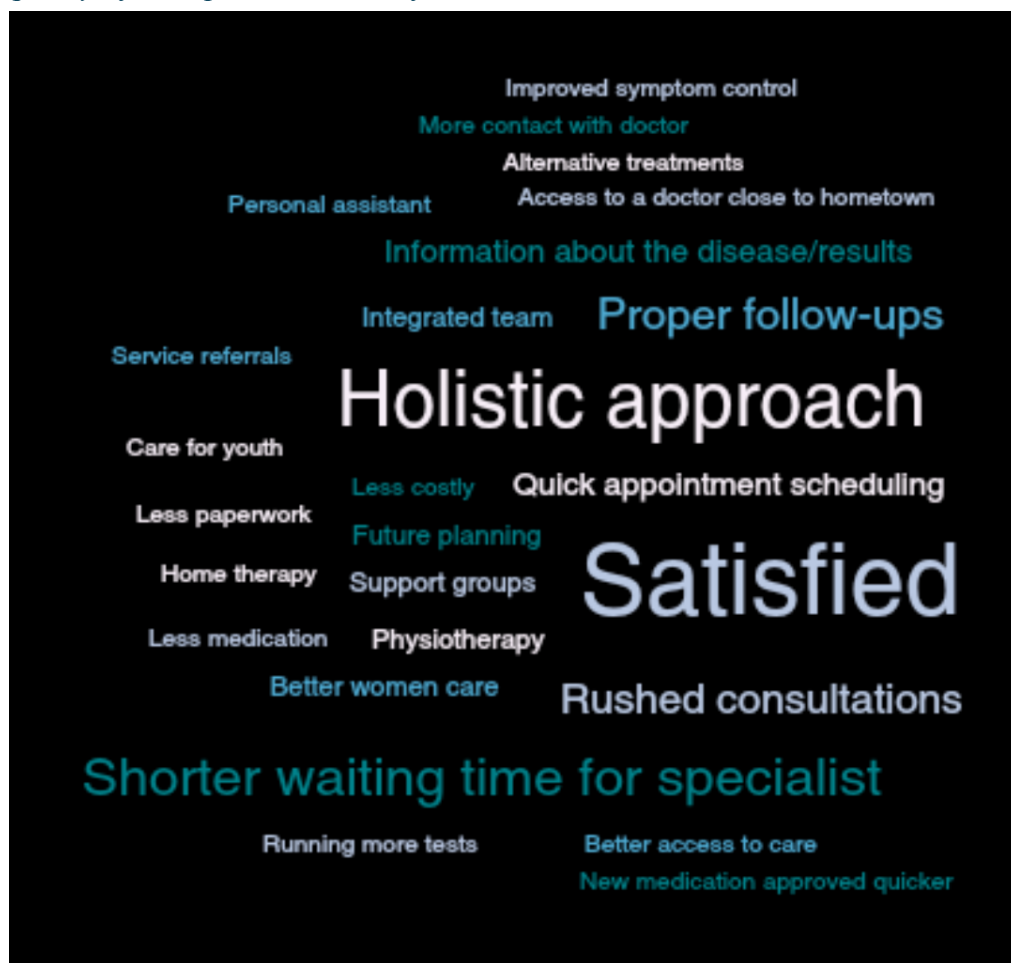
Appendix 15 Code Cloud representing the frequency of routine changes lived through the patient's journey with chronic illness



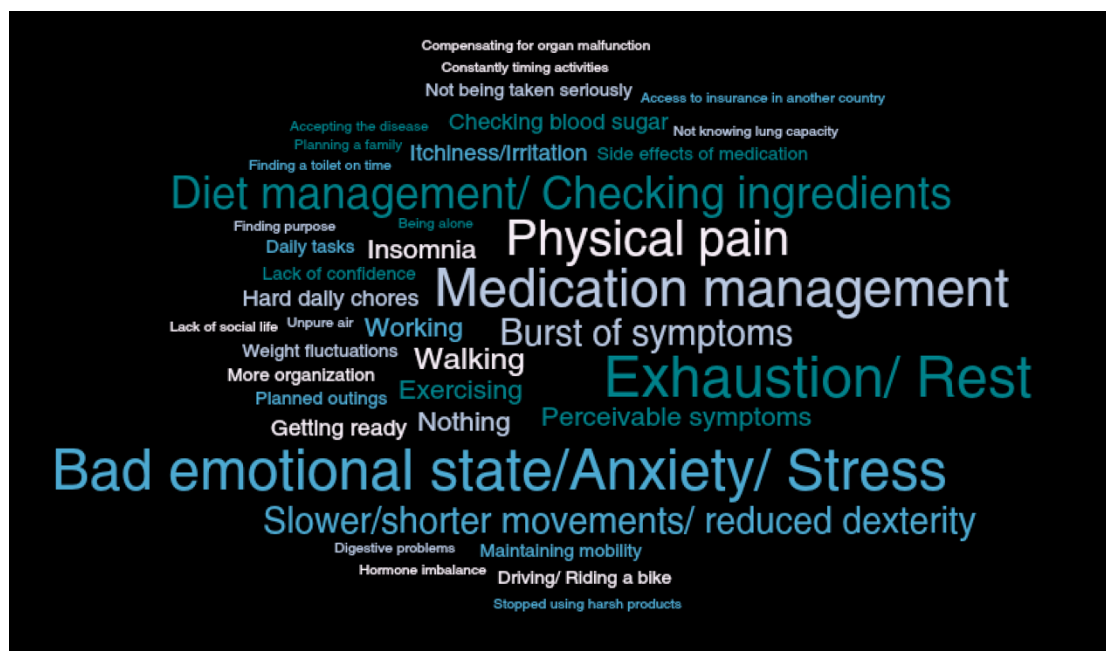
Appendix 16 Code Cloud representing the frequency of habits adopted by respondents to adapt to their condition



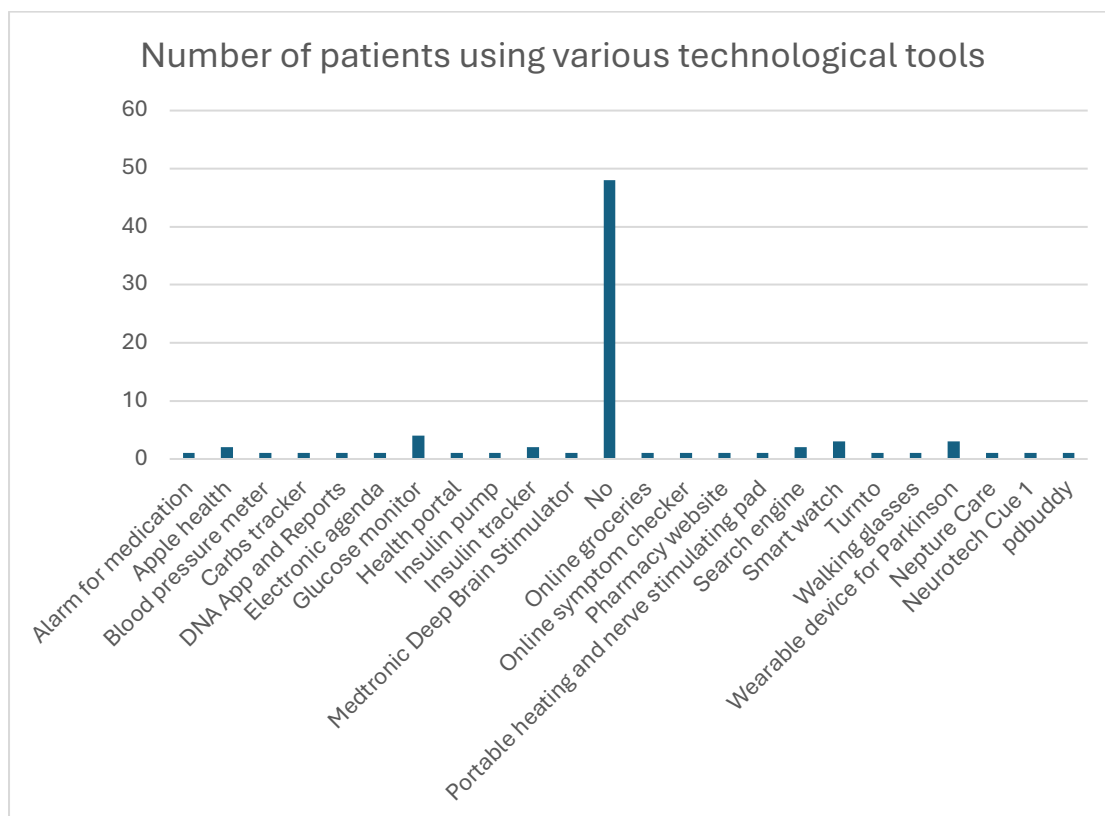
Appendix 17 Code Cloud representing the frequency of comments and suggestions about the quality-of-care patients receive for their condition



Appendix 18 Code Cloud illustrating the frequency of the challenges stated by patients with chronic disease



Appendix 19 Graph of number of patients using various technological tools to manage their chronic disease



Appendix 20 interview with Christopher Bucker CEO of Salvia healthcare

Interviewer (Harm Pieter Waalkens): What are the challenges right now?

Chris Brucker: The biggest challenge we're facing at Salvia is figuring out how to connect large-scale health data and make it genuinely accessible to patients. It's not just about collecting the data; it's about integrating it in a way that's user-friendly, actionable, and personalized for individuals. We're trying to bridge a gap—right now, health data often exists in silos. Hospitals, insurers, and pharmaceutical companies all have valuable insights, but they're rarely shared or interconnected. For us, the challenge is not only technical but also navigating the regulatory and trust barriers around handling sensitive health information.

Harm Pieter Waalkens: What is the current state or phase of Salvia right now?

Chris Brucker: Currently, we're in the distribution phase of our development. The foundational software has been written, and we're now focusing on rolling it out to key partners and end-users. It's an exciting phase because it's where the vision starts to meet reality. That said, distribution is also where we encounter real-world challenges, such as adapting to the specific needs of different healthcare systems and building the partnerships necessary for adoption. The technical side is mostly complete, but now we're focusing on scalability and user feedback to refine the product further.

Harm Pieter Waalkens: Getting the data—is that a problem?

Chris Brucker: Yes, it's a significant challenge. Healthcare data is some of the most regulated and sensitive information out there, and for good reason. The rules around accessing, sharing, and utilizing this data are complex, and they vary greatly between regions. In addition to regulatory hurdles, there's also a trust issue. For example, Doctolib, a well-known player in France, has unfortunately created a negative perception due to past controversies around data misuse. This has made both patients and providers more cautious, which is understandable. For Salvia, it's critical to demonstrate that we prioritize privacy and security to build that trust with our users.

Harm Pieter Waalkens: Would you say privacy issues are bigger in the U.S. than in France?

Chris Brucker: It's not so much a matter of bigger or smaller—it's more about being fundamentally different. In France, the privacy concerns have been amplified by the situation with Doctolib, which has made patients more skeptical about how their data is handled. In the U.S., privacy concerns are equally significant but are often shaped by different factors, such as the fragmented nature of the healthcare system and the influence of private insurers. In the U.S., patients might be less concerned about a single company misusing their data and more about

the broader ecosystem of insurers and tech companies accessing and monetizing their information. Each market requires a tailored approach to privacy and data governance.

Harm Pieter Waalkens: How is Salvia financed?

Chris Brucker: Right now, our primary financial backing comes from a partnership with a Parisian laboratory, which has been instrumental in supporting the initial development of the platform. Moving forward, we're in the process of exploring ways to finance the expansion and development of the patient-facing software. This is where investment rounds will likely play a key role. We're preparing to engage with investors who align with our vision and can help us take the platform to the next level. It's a critical time for Salvia, as we aim to secure the resources needed to scale effectively and reach a broader audience.