INST 710 Final Report

Research Question :
What factors contribute to changes in an individual's healthcare journey?

Aaditya Shete, Hyemi Song, Pratya Nellore, Rayna Arora, Sarah Hickey

Client : Anti-Fragility Health

Advisor: Dr. Heera Lee

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1. ABOUT OUR CLIENT

The client for our project is Anti-Fragility Health, a California based health clinic that focuses on naturopathic medicine, personalized lifestyle treatment, and overall preventative medical care. Anti-Fragility Health aims to help patients understand what conditions they are predisposed to, and how to proactively treat them before they become a real problem. Anti-Fragility Health is working on developing a new patient portal system that will help visualize the patient's health journey.

2. BACKGROUND

While Anti-Fragility Health has not conducted any previous research into the topic, our preliminary impressions show that patients have gone through many different experiences with their healthcare journey. There seemed to be a lot of influence and pivot throughout and everything was not always clear. However, once they started with Anti-Fragility Health they found it easier to manage their health and condition. The overall impression received was that patients were happy with the AFH approach to lifestyle and naturopathic treatment.

The research project we conducted in the i-School for Anti-Fragility Health was aimed at identifying the patient's feedback on the journey of a customer at AFH and how the experience could be improved upon.

3. OUR RESEARCH STUDY FOCUS

3.1 OUR GOAL
The goal of this project was to gain a deeper understanding of the Anti-Fragility Health patient journey and what can be improved upon. We also wanted to gain an understanding of the average patient's health literacy level.

Research Question:
● **What factors contribute to changes in an individual's healthcare journey?**

3.2 TARGET USERS
The target users for this study were current customers of the Anti-Fragility Health clinic. We also wanted to look at those who had been diagnosed or pre-diagnosed with a condition like Diabetes, to gain a better understanding of the health journey as it relates to a specific condition.

4. STUDY DESIGN

4.1 METHODOLOGY
The research study employed a user-centered research method known as Contextual Inquiry (CI), which involved the researchers immersing themselves in the participants' environments to understand their experiences. This methodology facilitated the collection, interpretation, and analysis of data. The CI approach encompassed various stages, including preliminary research, data gathering, interpretation/analysis, theme organization, modeling, and product concept design. By utilizing Contextual Inquiry, we were able to gain a comprehensive understanding of the participants' emotions, perspectives, behaviors, and experiences regarding financial management and, specifically, investment.

Within the CI method, we utilized the concept of Contextual Interviews, guided by four principles: context, partnership, interpretation, and focus. These interviews aimed to gather meaningful qualitative data by exploring and comprehending users' experiences. To elicit in-depth responses from participants, we employed semi-structured interview techniques. By primarily using open-ended questions, we ensured a continuous flow of conversation. Given the focus of our study on factors influencing the participants' healthcare journey, it was essential to gain a comprehensive understanding of the steps individuals take, their challenges, and their motivations throughout their healthcare experiences.

Following the principles of contextual inquiry, our research team conducted semi-structured interviews in pairs, with an interviewer leading the interview and a recorder capturing notes using the interviewee's own words. The semi-structured format allowed for flexibility in asking follow-up questions as needed while providing sufficient guidance to enable comparisons between interviews.

4.2 PARTICIPANT DETAILS
Recruitment: Anti-Fragility Health provided us with participants who have undergone some chronic illness in their life.
Number of interviewees: 5

Participant Identifier	Gender	Approx Age	Ethnicity
P01	Female	60-70	White

P02	Female	70-90	White
P03	Male	70-90	White
P04	Male	40-50	White
P05	Female	30-40	White

4.3 INTERVIEW STRUCTURE

Prior to conducting the interviews, the team collaborated to develop an interview guide based primarily on the research question. However, the diverse international backgrounds of our team members, coupled with their past experiences and discussions with peers, influenced the selection of specific domains of inquiry. To facilitate Contextual Design, we intentionally formulated open-ended questions to encourage opportunistic inquiry. The identified domains for investigation were as follows:

1. Demographic information
2. Current health literacy
3. Initial reaction to illness
4. Healthcare journey
5. Challenges encountered

Since all participants were geographically dispersed, we conducted the interviews remotely using Zoom. Each of the five interviews was assigned an interviewer and a recorder. The interviewer's role involved following the interview guide, while the recorder ensured the capture of all important observations and responses. Given the emphasis on understanding the participants' healthcare journeys, we actively sought emotionally motivated responses. We also obtained verbal consent from the participants for recording purposes, with the understanding that the recordings would be deleted once we generated all the affinity notes. On average, each interview lasted for approximately 30 minutes.

As the study adhered to the Contextual Design methodology, the interviews followed a semi-structured format, with the interview guide serving as a loose guideline for the inquiry process. The interviewers employed an opportunistic inquiry technique to gather rich qualitative data and gather specific personal narratives related to financial stress and sources of trust. Language barriers and cognitive biases posed challenges during the interviews.

5. SYNTHESIZED FINDINGS BY MODEL

5.1 INTERPRETATION SESSION

Following the interviews, our team conducted interpretation sessions where pairs of interviewers and recorders discussed the interviews with the larger team. These sessions provided an opportunity for team members who were not present during the interviews to immerse themselves in the perspectives and experiences of the interviewees and seek clarification when needed. This collaborative session allowed team members to comprehensively understand the collected interview data.

During the interpretation sessions, the interview data was analyzed and broken down into smaller affinity notes. Each finding was assigned a unique code name (e.g., P1, P2) and recorded in a Google Numbers file. The file was then shared on Google Drive to ensure accessibility for all team members, enabling them to refer to the notes and findings. This approach facilitated efficient organization and collaboration within the team.

5.2 AFFINITY DIAGRAM

During the creation of the Affinity Diagram, the research team identified three overarching themes that are represented by green labels. These green labels serve as high-level representations of the user stories and provide a navigation framework for the rest of the diagram. The three key themes identified are as follows:

1. Understanding my condition
2. Managing the health journey from diagnosis to treatment
3. Access to health information and care

For the Affinity Mapping process, the team converted the collected notes into yellow sticky notes, totaling 129, on the Miro Board. All team members collaborated and read through the sticky notes to identify commonalities and create corresponding themes. This iterative process involved categorizing the sticky notes under existing themes and creating new ones as necessary. Each category was labeled with a big blue note, serving as a placeholder. Most categories consisted of 10-20 yellow sticky notes. The team then worked on categorizing the blue notes, totaling 26. Subsequently, the team focused on the pink sticky notes, amounting to 8, and categorized them within the main green themes.

To ensure accuracy and completeness, each team member thoroughly reviewed the Miro Board, making any necessary changes or iterations to the mapping. This iterative process continued until a solid categorization was achieved, ensuring that all points were appropriately organized and deliverable.

5.3 USER JOURNEY MAP

A journey map is a visual document that illustrates the sequential steps a user takes to achieve a specific goal within a process. Drawing on the insights gained from the Affinity map, we developed a persona and mapped out the corresponding journey that this individual would undertake.

The journey map encompasses not only the chronological progression of steps but also emphasizes the emotions experienced by the persona throughout the process. In constructing the journey map, we identified four key phases:

1. Observe: The persona recognizes certain anomalies or symptoms.
2. Research: The persona conducts research on the symptoms through conversations with friends, internet searches, or healthcare professionals.
3. Treat: The persona undergoes treatment for the identified health issue.
4. Manage: Following treatment, the persona takes steps to manage their health.

Within the journey map, we also identified opportunities that arise during each key phase. These opportunities are accompanied by an Ownership section, which specifies the teams or individuals who can take responsibility for pursuing these opportunities.

5.4 IDENTITY MODEL

The Identity Model aims to capture the underlying elements of identity within the target users, such as their values and sense of pride. It is essential to acknowledge that individuals may be represented by multiple identities within the Identity Model.

Each identity within the model is associated with corresponding "Give Me's." These "Give Me's" offer specific suggestions to enhance the user experience for each identity cluster. For instance, within the "I am" section, the persona of the "Independent researcher" is depicted as an individual who proactively takes charge of their health and seeks to stay well-informed about any health issues they may encounter. The suggested "Give Me's" for the independent researcher revolve around providing them with reliable resources that facilitate a better understanding of their dietary needs and support in improving their overall lifestyle.

6. CORE FINDINGS

Based on the analysis of the Affinity diagram, journey map, and Identity model, several key findings emerged:

1. **Health literacy significantly impacts individuals' healthcare journeys.**

    a. People with higher health literacy tend to be more cautious and proactive in responding to health anomalies.
    b. Individuals with lower health literacy are more likely to overlook initial symptoms and wait until more severe symptoms arise.
    c. There is variability in people's understanding of their healthcare situations.
    d. Different sources contribute to people's health education, including self-research through books and the internet, seeking advice from friends, family, and individuals with similar experiences, and consulting healthcare clinics and doctors.

2. **People encounter various challenges throughout their healthcare journeys.**

    a. Lack of knowledge: Many individuals lack education about their health conditions and potential ways to improve them, relying heavily on healthcare professionals for information.
    b. Cost concerns: The high cost of healthcare presents a significant challenge, driving people to seek affordable alternatives to conventional medicine that are equally effective.
    c. Medical concerns: Some individuals are reluctant to rely on medications and surgeries, fearing a cycle of dependence and seeking alternative approaches.
    d. Healthcare service concerns: Personalized care is highly valued, with individuals desiring healthcare professionals who understand their unique needs, provide comprehensive explanations, and break down medical reports.

3. **People express a desire for alternative medicines and lifestyle changes.**

    a. Many individuals seek alternative solutions alongside or instead of modern medicine.
    b. People strive for better overall health management, emphasizing personalized lifestyle changes.
    c. Long-term, sustainable solutions to manage health are sought after.
    d. Dietary control and nutrition are significant concerns, with individuals wanting to understand food content and avoid problematic ingredients while maintaining a balanced diet.
    e. Lifestyle management strategies that address both physical and psychological health are of interest to individuals.

In summary, the key findings highlight the importance of health literacy, the challenges faced by individuals during their healthcare journeys, and the desire for alternative approaches and personalized lifestyle changes in managing health.

7. ISSUES AND HOT IDEAS

During the Wall Walk, we received valuable feedback on our research and design, enabling us to identify areas of improvement and gain valuable insights. We carefully analyzed these findings and incorporated them into our design concept.

7.1 ISSUES LIST

1. **Lack of communication with healthcare professionals:**
   Customers faced challenges in effectively communicating with their healthcare professionals, leading to a need for better connectivity and interaction.

2. **Absence of personalized healthcare plans:**
   Customers encountered difficulties in receiving healthcare plans that were specifically tailored to their individual requirements, highlighting the need for personalized and customized approaches to healthcare.

3. **Inconvenient access to medical records:**
   Customers experienced inconvenience and obstacles in accessing their medical records easily, indicating the need for improved accessibility and streamlined record management systems.

4. **Lack of lifestyle improvement guidance:**
   Customers lacked sufficient guidance and resources for making lifestyle improvements, highlighting the need for access to reliable and practical tips and recommendations**.**

5. **Limited lifestyle alternatives for treatment:**
   Customers faced a scarcity of alternative lifestyle options in their treatment plans, indicating a desire for more diverse and holistic approaches to healthcare.

6. **Complex and unintuitive reports and records:**
   Customers found it challenging to understand and interpret complex medical reports and records, emphasizing the need for simplified and easily comprehensible formats

7. **Concerns regarding consumption:**
   Customers expressed concerns about the quality and impact of the products, food or medicines they consumed, underscoring a need for increased awareness and transparency in this regard.

8. **Desire for peer support:**

Customers expressed a desire to connect and communicate with individuals who have similar experiences, indicating a need for a support network to share insights and experiences.

7.2 SUMMARIZED INSIGHTS

- Customers wanted to be in touch with their healthcare professionals.
- Customers wanted a personalized healthcare plan.
- Customers wanted easy access to their records.
- Customers wanted better means of lifestyle tracking
- Customers wanted Lifestyle improvement tips.
- Customers wanted lifestyle alternatives for their treatment.
- Customers wanted easily understandable reports and records.
- Customers are concerned about what they are consuming
- Customers want to talk to people experiencing something similar.

7.3 HOT IDEAS

These are the list of ideas, and the specific implementation would depend on various factors such as target audience, technical feasibility, and business objectives.

1.Healthcare Hub:

A centralized platform that allows customers to communicate and stay in touch with their healthcare professionals through secure messaging or video consultations.It could feature a personalized dashboard where customers can access their healthcare plans, appointments, and track progress.

2.Personalized Health Assistant:

An intelligent virtual assistant that generates personalized healthcare plans based on customer inputs, medical history, and lifestyle preferences.Provide real-time reminders for medication, appointments, and lifestyle activities.

3.Easy Record Access:

An app feature that integrates with electronic health records (EHR) systems to provide customers with seamless and convenient access to their medical records, test results, and treatment history.Enables customers to securely share their records with healthcare professionals or family members when needed.

4.Lifestyle Tracker:

Allows customers to track various aspects of their lifestyle, such as physical activity, sleep patterns, nutrition, and stress levels.Provides visualizations and insights to help customers monitor their progress and make informed decisions for lifestyle improvements.

5.Lifestyle Improvement Tips:

Offers a curated library of articles, videos, and tips on healthy living, diet, exercise, stress management, and other relevant topics.Personalized recommendations based on customer preferences, goals, and medical conditions.

6.Alternative Treatment Options:

Features a directory of alternative treatment methods, including complementary therapies, holistic approaches, and natural remedies.Provides information, user reviews, and ratings to help customers explore alternative options for their healthcare.

7.Simplified Reports and Records:

Converts complex medical reports and records into user-friendly formats, utilizing clear language and visualizations.Allows customers to highlight important sections, add notes, and easily share or discuss the reports with their healthcare professionals.

8.Health Consciousness:

Provides a barcode scanner or ingredient analysis feature to help customers understand the contents and nutritional values of the products they consume. Offers insights, recommendations, and alternatives for healthier choices based on customer preferences and dietary requirements. Give a list of pharmacy locations that provide affordable medication as well as alternate medication.

9.Community Support:

Includes a dedicated community forum or chat feature where customers can connect and share experiences with others who have similar health conditions or lifestyle goals.Facilitates peer-to-peer support, advice sharing, and a sense of belonging.
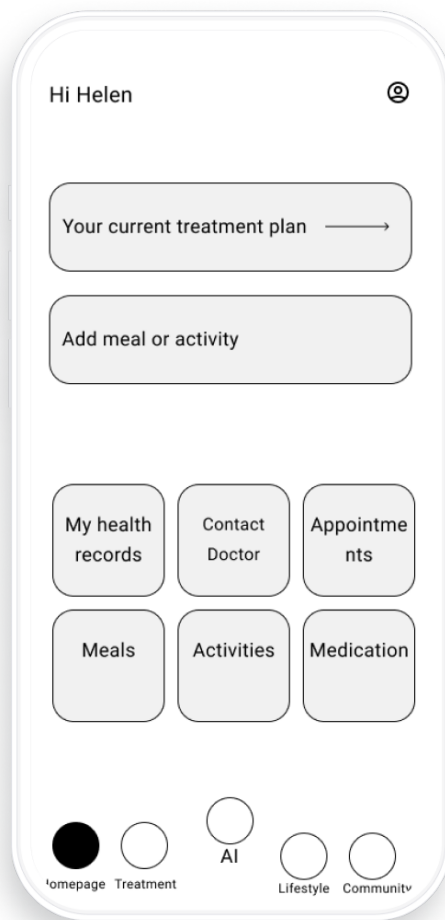
8. PRODUCT CONCEPT

Based on the Insights, issues discovered above as well as the hot ideas generated, we came up with low fidelity sketches to envision how these features could come together to form a mobile application.

We chose to work on mobile screens as something important like health tracking and management, customers should be able to access from anywhere and the portability of a mobile phone would allow that.

1. **Home Page:**

   The home page would provide customers easy access to their health records. It would also provide them easy access to their doctor and a 3 click appointment booking option.Customers can view their current treatment plans and track their lifestyle activities (meals, activities) from the home page.They can also view all their previously logged data from the home page.The medication section would show the current medication the customer is taking and also the previous medicines that the customer has taken throughout their journey. The app would also provide reminders for the current medication.
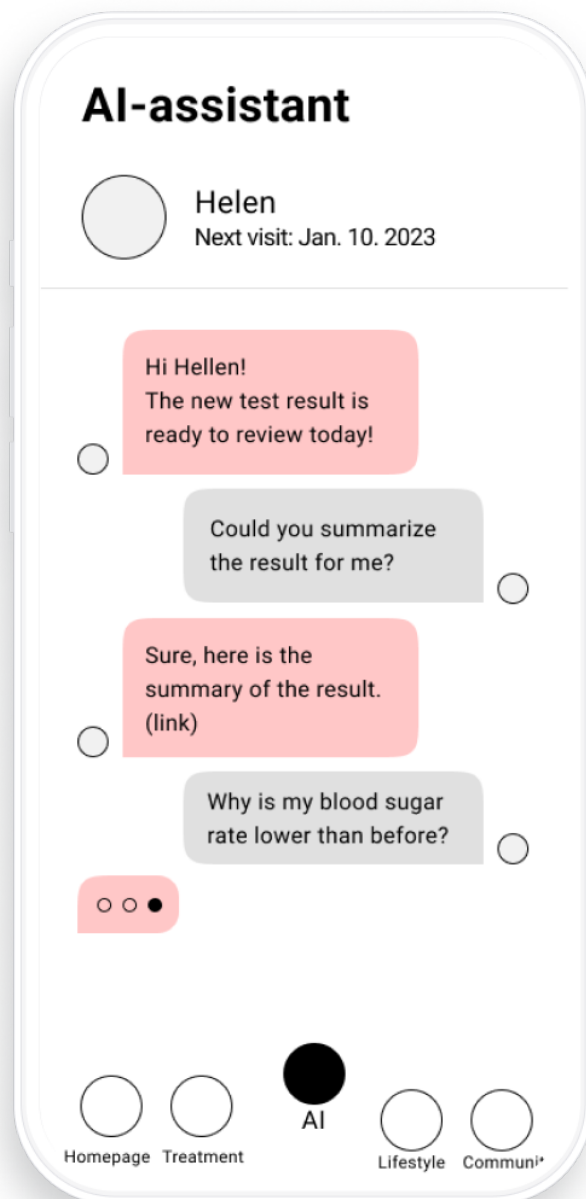
Hi Helen

Your current treatment plan ⟶

Add meal or activity

My health records | Contact Doctor | Appointments

Meals | Activities | Medication

AI

Homepage Treatment   Lifestyle Community

2. **Treatment Plan Page:**

The treatment page would provide customers clear and simple information about their treatment plan. It would provide details about their scheduled follow up visits and the medication that they are taking. This page would provide a detailed description of the medicines content as well.

Helen
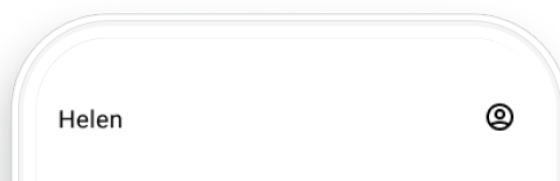
3. AI Chatbot

An AI assistant would help customers answer quick questions and concerns. It would help customers understand their symptoms better before they visit the doctor. It will also help in simplifying the reports of the tests and provide a simplified summary to the customers. Apart from this the AI chatbot will also help the customers understand their lifestyle better by giving them the description of their food. AI will be used in suggesting changes in the lifestyle as well.

AI-assistant

Helen
Next visit: Jan. 10. 2023

Hi Hellen!
The new test result is
ready to review today!

Could you summarize
the result for me?

Sure, here is the
summary of the result.
(link)

Why is my blood sugar
rate lower than before?

○ ○ ●

AI

Homepage Treatment   Lifestyle Communi⁺

4. Lifestyle Management Page:

This page will help customers keep track of their current lifestyle by logging in all the activities they do and the food they consume. With the help of AI it will also provide them with suggestions for improving their lifestyle.
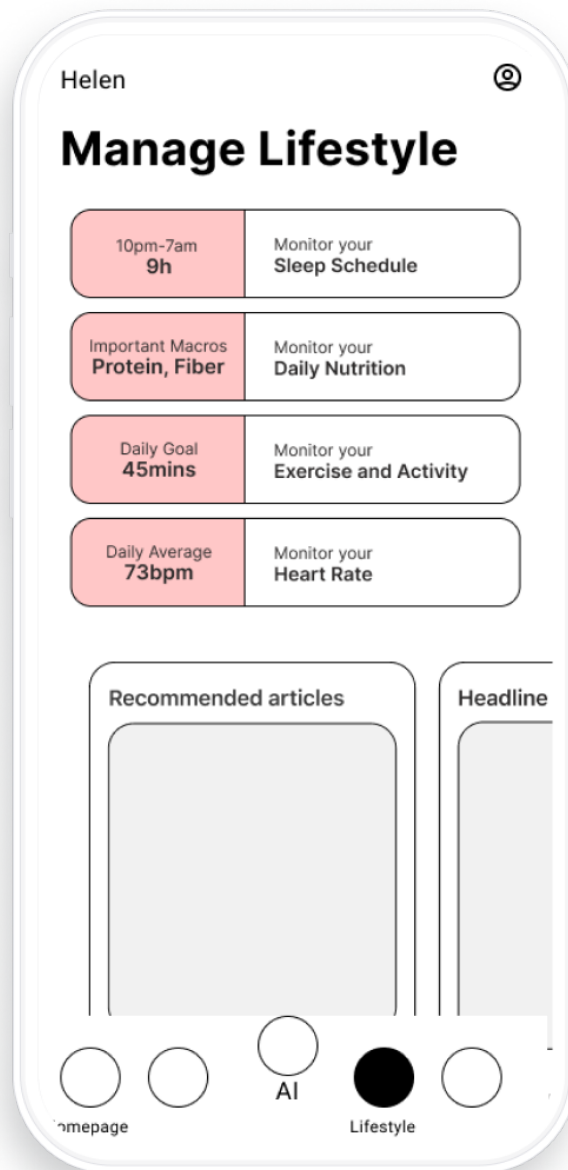
5. Community Page:

A simple forum where customers can ask general questions or post about their treatment journey. The questions can be answered by other people who have gone through a similar situation or the AFH staff members as well.
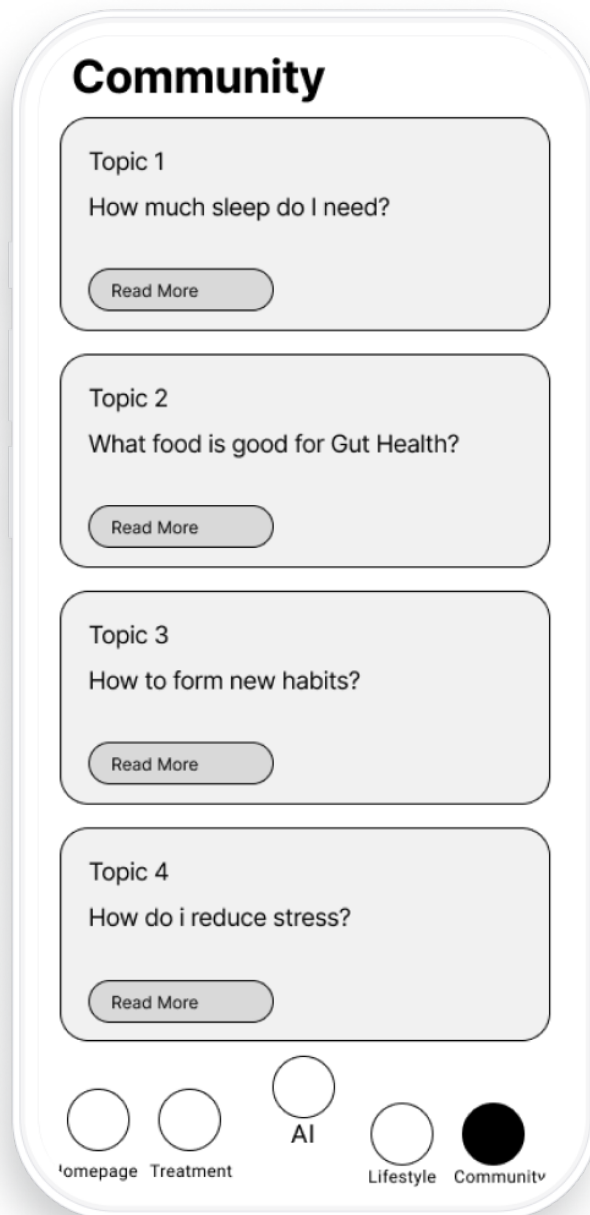
9. LEARNINGS / LIMITATIONS

1. The Need for More Varied Participants to Obtain Quality Data

   The clinic we worked with was responsible for selecting and providing interview participants, many of whom were their employees. This selection process did not aid us in obtaining meaningful results. For instance, their responses were generally skewed towards positive views of the clinic. Participants P1 and P2 rated their experience as a 5 in the final questions: Q21 and Q22, which asked about their satisfaction with the clinic's services and staff respectively. These biased outcomes were not conducive to creating reliable designs.

2. Communication Issues with the Client

   Communication challenges are a common occurrence in the industry. However, due to the restrictive time frame of the class and the need for high-quality designs, these communication delays were particularly impactful. Given our tight schedule, it's crucial that we manage this issue more effectively in the future to avoid wasting valuable time.

10. APPENDIX

10.1 References
Holtzblatt, Karen, and Hugh Beyer. (2017). Contextual Design: Design for Life (2nd ed.). Morgan Kaufmann.

Lazar, Jonathan, Jinjuan Heidi Feng, and Harry Hochheiser. (2017). Research Methods in Human-Computer Interaction (2nd ed.). Morgan Kaufmann.

Platt, David. (2016). The Joy of UX: User Experience and Interactive Design for Developers. Addison-Wesley Professional.

Anti-fragility health website - https://www.anti-fragilityhealth.com/

10.2 Participant Screener
Participants were provided by the clinic

10.3 Interview Guide
Demographic and background information
- Do you have a job?
- What is your job (position/title)?
- What is the range of age?
- What is your gender?

Question samples
1. **Daily**
   Q6. How has your daily life been affected by your condition since your diagnosis?
   Q9. How do you manage your symptoms on a daily basis?
   Q10. Have you made any lifestyle changes to help manage your disease?

2. **Diagnosis and a prescription (condition)**
   Q17. What goals or aspirations have you set for yourself since your diagnosis, and how do you work towards them?
   Q1. Can you describe your initial symptoms and how you first noticed them?
   Q2. How did you feel when you first experienced these symptoms?
   Q3. What steps did you take to seek medical help, and how long did it take before you were diagnosed?
   Q4. Can you share your experience with the diagnostic process, including any tests or appointments you had?

3. **Communication**
   Q5. How was your condition and test results explained to you by your healthcare provider, and how did you feel about their communication?
   Q15. Can you share any positive experiences you've had with your healthcare providers or treatments?
   Q18. If you could change one thing about your experience with your current healthcare provider, what would it be?

4. **medication/treatment**
   Q7. What medications or treatments have you tried, and what has been your experience with them?
   Q8. Have you experienced any side effects from your medications or treatments? If so, how have you managed them?

5. **Emotion**
   Q11. What kind of emotional or psychological challenges have you faced due to your condition?
   Q12. How have your relationships with family, friends, and coworkers been impacted by your illness?
   Q16. How do you cope with the uncertainty or unpredictability of your condition?

6. **Accessibility/resources**
   Q13. Have you encountered any barriers in accessing healthcare or treatment options?
   Q14. What resources or support groups have you found helpful in managing your disease?

7. **Future**
   Q19. What advice would you give to someone who has recently been diagnosed with your condition?
   Q20. Looking back on your journey so far, what do you wish you had known at the beginning?

8. **Closing**

    Q21. Kindly rate your experience at 1-5, 5 being very satisfied, at Anti-FragilityHealth clinic - services [diagnostics, consultations, interventions/treatments (IV therapy, supplementation), lifestyle coaching?

    Q22. Kindly rate your experience with the roles each individual staff plays at Anti-Fragility Health - Clinic Director, MD, NP, nurses and admin.

10.4 Interview Informed Consent

I appreciate your willingness to participate in our interview today. Please note that it will last around 30 minutes. We have prepared over 20 questions for you, but should any of them make you uncomfortable, you're welcome to abstain from answering or ask to move on to the next one. We would like to record this interview for the purposes of our study, provided you give us your verbal consent. Are you in agreement with this? Before we proceed with the main questions, could you please inform us if you have a diagnosis and a prescription? This information will help us tailor our questions accordingly.