



Clymb Health

UX Research for a symptom-tracking app that helps Lyme patients.

Background

Clymb Health is a digital platform backed by machine learning algorithms to enable chronic lyme patients to get better faster and have a better informed health. I am working with Clymb Health in a team of four to provide guidelines for an app redesign that can help the client achieve its business goals. This research was a part of our INFO 214 Needs and Usability Assessment major project. The following are highlights in our research process. To view our comprehensive report, click here. I was in charge of survey development and analysis and shared responsibility for recruitment, usability testing, and creating the research plan.

What is Lyme Disease?

Lyme disease is the fastest vector borne illness in the US with over 300,000 new cases being reported each year. That is 1.5 times the number of new breast cancer cases and 6 times the number of HIV cases every year. Lyme disease is contracted by a tick bite and it starts with a bull's eye rash on the body followed by flu like symptoms. 50% of the people getting bit by a tick might not get the rash or flu but still get lyme disease. 20% of the people who get lyme disease every year enter into the chronic phase which breaks the immune system of the body, allowing people to contract more diseases easily.

Lyme disease has no known cure as doctors are not able to get rid of the bacteria that infects people. A typical lyme patient might experience varying levels of symptoms on a single day in different parts of the body. Full body pain, headache, blurry visuals, brain fog, stomach ache, anxiety, skin tingling, severe fatigue are some of the symptoms that almost all patients go through on a daily basis, all the while looking perfectly healthy on the outside.

Situation of a Lyme patient

Lyme patients end up confused and helpless trying to get each of their symptoms treated with the help of multiple doctors. A lot of doctors in the US do not believe in chronic lyme disease and end up rejecting claims of patients that things are wrong with them as they look healthy on the outside and regular diagnosis doesn't reveal anything happening internally to them. It is only when these patients go to LLMDs (Lyme Literate Medical Doctors), who know about lyme disease, that they get understood and they undergo a treatment protocol. Every doctor has a different treatment protocol for every patient as not all treatments seem to work in reducing symptom severities for all patients. Hence, there are cases when patients spend years taking a set of medicines only to find that they still have the same symptoms severities as before.

Situation of a Lyme doctor

Lyme Doctors find it increasingly difficult to manage patients as each doctor sees 5-6 patients on a given day and 20-30 different patients in a week. When patients talk about their symptoms, conversations go on for a long time which leaves both the doctor and patient mentally exhausted to think about treatments for all the symptoms. Doctors also find it difficult to understand which treatments are working and which aren't due to the migratory nature of symptoms in various parts of the body. For example, a doctor may prescribe a joint anti-inflammatory medicine to a patient but the patient might start experiencing pains in other parts of the body between visits which leaves the doctor clueless about the time between doctor visits and they have to completely rely on the patient to report their health for the entire duration. This becomes too daunting for a patient who experiences brain fog on a regular basis.

Where does Clymb Health fit in?

Clymb Health wants to help lyme patients get better faster by using patient reported outcomes of treatments through a cloud based machine learning platform. The first step to helping these patients is to help them understand their health and we hence, thought of a symptom tracking app for these patients to record their health information on a daily basis. A lot of these patients have already been recording their health information on excel sheets, journals and notebooks to help during doctor visits. This data is however difficult to collect and manage. Clymb Health wants to collect this data from patients and first help patients figure out their health and progress and then help doctors manage treatments for their patients and see what is working.

Process

1. Developing a research plan

Clymb Health needs a new version of their existing symptom tracking app to be able to meet the needs of the customer segment they are targeting. Thus, we needed to develop a research plan that aids in achieving their goals to: get as many lyme patients as possible on the platform, get lyme patients to enter symptom data regularly, and get lyme patients to pay by showing them their progress and helping them get better faster.

Our research goals were designed around the client's goals:

- Establish a baseline of user performance, establishing and validating user performance measures, and identifying potential design concerns to be addressed in order to improve the efficiency, productivity, and end-user satisfaction of the symptom tracking app.
- Determine why, when and how people enter symptoms and the barriers that keep them from doing so.
- Understand how patients have conversations with their doctors and relatives about their symptoms.

We decided to use surveys, cognitive walkthroughs, and usability testing methods for this research. Surveys can provide extensive quantitative data about user behavior surrounding symptom data entry and allows us to reach Lyme patients across the country. Expert reviews from cognitive walkthroughs can provide rich analysis on usability and are particularly helpful while app version two is being developed. Usability tests will help us identify usability flaws in the new designs of the symptom tracking app and also compare time taken to record symptoms as compared to the existing app.

2. Recruitment for Usability Testing

We initially conducted a usability test on the first version of the app with students and nonpatients. But, we realized that the mental model of these people didn't represent a typical lyme patient who would go through a multitude of symptoms on a daily basis. Hence, for our second round of usability tests, we decided to recruit people who have chronic symptoms only.

Screening questions

- Have you ever experienced serious lyme symptoms?
- Have you had recurring lyme symptoms for over a month?

We reached out to people on facebook groups, meetup groups and found a lot of people interested in trying out our app, but not everyone was in a condition to meet for a usability test. We did find three people who we personally visited and conducted the usability tests with. After trying to recruit on UserTesting.com without success, we concluded that given the time frame of the project and the limited available patient population, we'd restrict our usability test to 3 people.

3. Surveys

With our survey study, we wanted to re-validate the need for a symptom tracking app and to understand the behavior around symptom tracking.

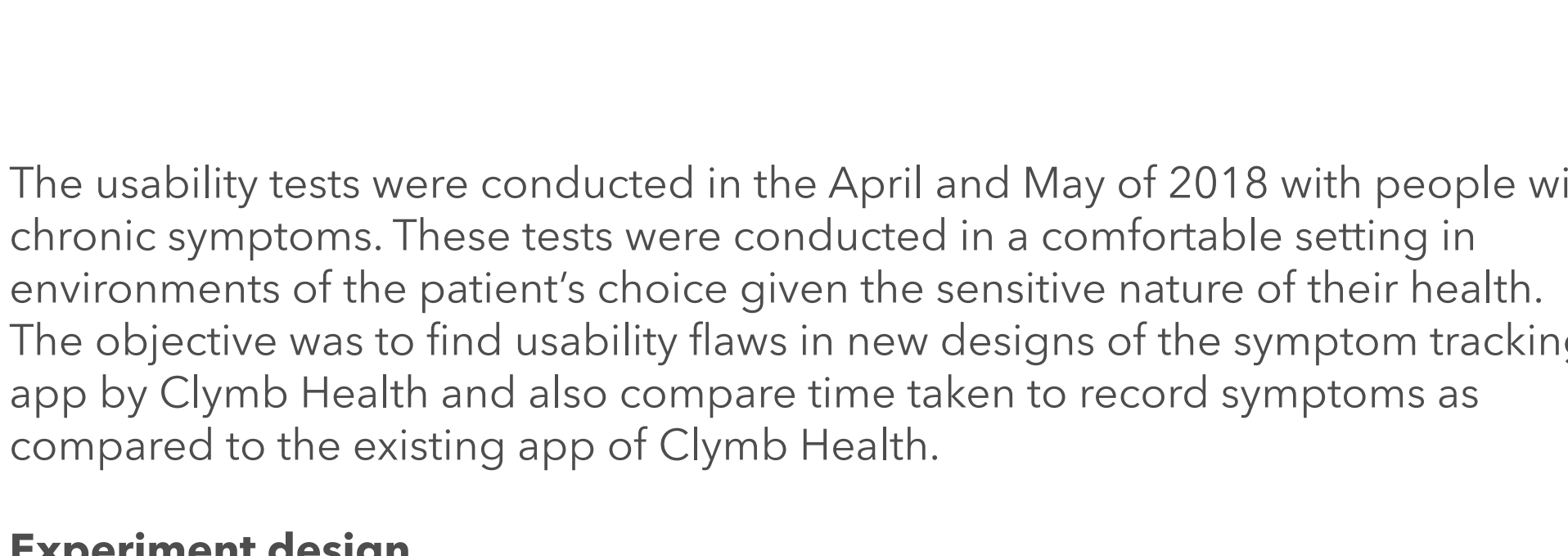
Sample Questions

- When you notice an abnormality with your health, at which point do you decide to seek a doctor's assistance?
- How long is your doctor's visit?
- Roughly, how many minutes of your doctor's visit is spent discussing the progression (improvement or worsening) of your symptoms?
- How do you currently track your health data (symptoms, treatments, etc.)?

Participants

We sent out the survey to adults in the US who may or may not have Lyme disease. The reason we included adults who may not have Lyme disease is because many people are unaware that they may have Lyme therefore we wanted to focus on the general population's behaviors around symptom tracking.

4. Usability Testing



The usability tests were conducted in the April and May of 2018 with people with chronic symptoms. These tests were conducted in a comfortable setting in environments of the patient's choice given the sensitive nature of their health. The objective was to find usability flaws in new designs of the symptom tracking app by Clymb Health and also compare time taken to record symptoms as compared to the existing app of Clymb Health.

Experiment design

The usability tests were conducted to find out whether patients could map symptom severity scale (0 - 4) to the concept of symptom severity in their minds. Then we had to find out what they understood about progress from mockups of charts that represent an average lyme person's health related to symptoms. We then had to ask them to move between dates in order to find what they might have recorded on a previous day.

Participants

The participants for this usability study were people who have and manage multiple symptoms on a daily basis due to some condition that is difficult to treat. There were 3 (2 male and 1 female) participants for this test who belonged to the 25 - 35 age group. They have been taking treatments for their conditions regularly and visit multiple doctors for treatment protocols.

Test Environment

The tests were conducted on an iPhone 6S on the Marvel App with prototypes of new designs of the multi-platform web-app.(See Appendix C for designs used). The functionalities were limited as we used images instead of a live web-app. The environment was of the participant's choice as we wanted to ensure they are comfortable and at ease while giving the test. We met at public places and cafes to record video sessions of participants interacting with the app according to the tasks listed by the moderator.

Moderator Script	
Introductory Line	
Imagine that you want to track your health for a visit to the doctor. You have been falling ill frequently and you thought it would be useful to track what all is happening with you in order to have better conversations with you doctor during the next visit.	
Task 1	
Imagine that you are having a bad day today. You have a severe headache, a not so severe back pain, a few moments of brain fog, occasional stomach ache and no knee pain. How would you record this information on this app?	
Task 2	
Imagine you have been recording your symptom severity for quite some time now. If there was a way to see how you have been since you started recording information, where on the app would you go?	
Task 3	
Imagine that you are on a doctor visit, and you remember that the 5th of March wasn't a great day, but you don't remember exactly what happened on that day. You however remember that you might have recorded that information on this app. If there was a way to quickly go to 5th March and see what happened on that day, what would you do?	

Our Tasks

We checked for task completion times, noting critical errors for tasks 1, 2 and 3. We then performed a qualitative unstructured interview of what the person understands of their progress. Our aim was to determine if the people using this app understand and learn the way information is organized in our app through Task 3.

Surveys

We found that symptom tracking typically occurs about 1-3 months before people choose to see a doctor. Although females tend to visit the doctors more often than males of the same age group, with increasing age, both genders are visiting the doctor more often. Since doctor's visits are increasing with age, we can expect doctor's visit to be even more stretched out in the future. A major chunk of doctor's visits are currently spent on discussing symptoms. We see this to be an opportunity for a symptom tracking app since an app would allow for the doctor to monitor a patient's symptoms before the visit and therefore use the time during the actual visit on something more beneficial to the patient. Our final finding was that although people indicated that they were tracking their symptoms, not a lot of people were using a mobile app for symptom tracking.

Usability Testing

Top three findings:

- Task 1 completion rates are low.** People were supposed to press the "Save to Timeline" button in order to save the symptom severity data on the app. Two out of three people failed to press the button when asked if they thought the task was complete.
- We understood that **people really like the way information about their health is represented.** It gives them great insight into their health and especially liked the score that represented their symptom severities.
- Everyone was able to reach the calendar view** to jump to a much earlier date.

	Task 1	Task 2	Task 3
Impact on the User Experience 0 = small 1 = large	1	1	1
Predicted Frequency of Occurrence 0 = few 1 = many	1	0	0
Totals (0-2 Scale)	2	1	0

User Experience is key when it comes to recording symptoms as people need to do this regularly in order to see the benefits of it, hence Task 1 of recording symptoms is a high severity for us.

The primary two ways to see their own data is through the timeline view and the progress view so this also has a high impact on the UX as this would drive people to come back to record their symptom severities regularly. Hence, task 2 is also a high impact for us but not that frequent.

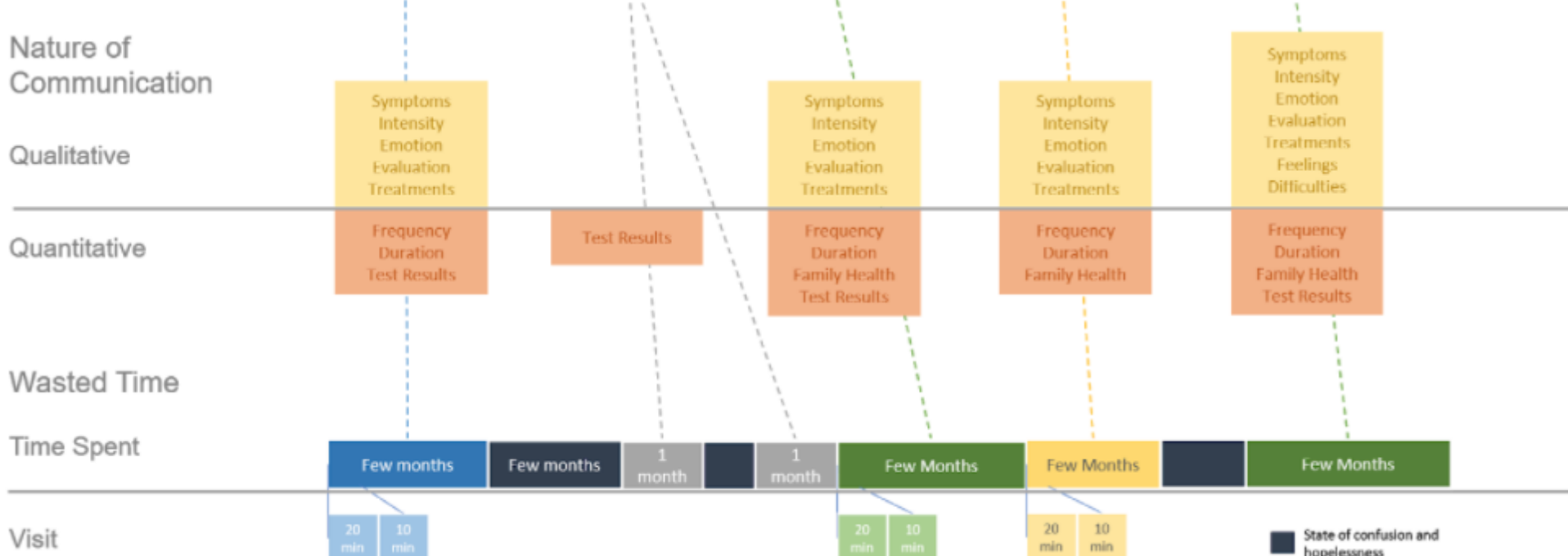
Jumping to dates is something that people would do on doctor visits or when they need to refer to information on a previous date which needs to be easy in order to reduce the anxiety caused on forgetting things.

	Task 1	Task 2	Task 3
0 = Complete 1 = Incomplete			
Participant 1	1	0	0
Participant 2	1	0	0
Participant 3	0	0	0
Total (0-3 scale)	2	0	0

	Old App Version	New App version
Time taken to record symptoms (Average)	42s (5 symptoms, 4 participants)	28s (5 symptoms, 3 participants)

Based on this data, our top recommendations include:

- Make the "Save to timeline" button floating on the screen to make it always visible to the person to remember to add the information to the timeline
- Work on an autosave feature to save information as it is tapped
- Change the wording of the button to make it more intuitive to save information.



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