ReJournal

Team

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Problem and Solution Overview

For a person with depression, the first step to recovery is meeting with a counselor. However, outside of counseling sessions, individuals are often left to find their own between-session support. As a result, we have decided to focus on the communication aspect of recovery, particularly through self-sustainable reflection. Our solution is a device that resembles a tablet in aesthetics but is dedicated solely to journaling. The smart journal allows users to reflect on how they're feeling by providing statistics to help users reflect on their condition as well as provide communication pipelines that users can use during their time of need.

Design Research Goals, Stakeholders, and Participants

Design Research

We used interviews to gather information. Research methods involving observation were avoided due to privacy concerns. Since we were exploring a sensitive condition, we came to the conclusion that members in our target group would not be comfortable with being observed for long periods of time. Narrowing our options down to surveys and interviews, we decided to proceed with interviews because we could ask follow-up questions and adapt questions which would be impossible with a survey.

Goals

From the start, we had two different types of interviews in mind: (1) one with a patient and (2) one with a counselor. For the patients, the goal was to learn more about their routine and struggles, with a focus on how they have or are addressing their struggles. In our research, we were particularly interested in whether they tracked any aspect of their condition and how. And more in line with the problem we've stated above, we were interested in learning about what kind of support system they had, if any, outside of their counselor. With counselors, we were interested in learning more about treatment, how it's handled, and what level of engagement counselors had in their patients' treatments. Namely, we were interested in whether counselors checked in with their

patients between sessions and beyond the end of formal treatment. Additionally, we hoped that counselors could help us better understand depression as a condition.

Stakeholders and Participants

As previously mentioned, our target user group are patients formally diagnosed with depression and our stakeholders are the counselors and supporters who help these patients with their recovery. In our research, we interviewed two patients and a counselor. As mentioned before, we chose to interview patients to provide us insight on the reality of suffering from and coping with depression while counselors, on the other hand, could give us a view of how help is developed and offered to the patient.

Our first interviewee was a second-year undergraduate student at the University of Washington (UW) who had been dealing with depression from a young age. Additionally, depression ran in the participant's family so they were more informed about their condition. This participant had seen a counselor before but was at a point where they were well-enough to self-manage their condition. Our second participant was a recent UW graduate working as a Speech Language Pathology Assistant with autistic children. They had been suffering from depression for the ten years and seeing a therapist for the past four. They describe themselves as high functioning (i.e. able to manage symptoms so they do not interview with daily life). Our last interviewee was a counselor from the UW Counseling Center.

Design Research Results and Themes

Treatment Plans

All of those that we interviewed emphasized the variety of symptoms involved and promoted a "try and see" approach, rather than offering solutions that are guaranteed to work or be correct. This means that the system we develop cannot have a "one size fits all" mindset. Rather, we should focus our efforts in one area to develop an effective system.

Tracking System

The counselor noted that little checking and tracking was done by the counselor outside of sessions, and updates were done solely through patient self-reporting. Patients indicated that not many data points were actually tracked, and it was mostly done as part of therapist-suggested "experiments" to fully understand symptoms. These results would then be reported to the therapist, who would use his/her expertise and experience to suggest coping mechanisms. Patient two conducted experiments to measure sleep activity and mood, recording information on paper. Currently, patient two only tracks medication using a reminder app.

Recognition

Recognition mostly speak to the mindfulness of the recovery journey. Patients emphasized that the counselor advised using purely scientific approaches to diagnose a particular symptom. There was a big focus on "being in tune and understanding" your body. For example, not "I feel angry because I'm angry", instead "I'm angry because I'm getting sweaty and feeling pain in my chest". The counselor also mentioned recognition of the difference between a fact driven thought like "I failed my exam; I need to work harder" and a judgement like "I failed my exam; therefore I am a failure".

Communication

Patient/Therapist: The therapist and both patients indicated that communication only occurred during therapy sessions. The counselor mentioned that it was important for the patient to be accountable, and self-report progress and challenges. However, patient one was not constantly seeing the same therapist and was at a point in her treatment where she had no therapist at all. Therefore, the concept of self-reporting and accountability has to be present in any system we develop but might not be something we want to make mandatory or completely integral to an eventual solution.

Patient/Support: Patients also indicated the need of inclusion, whether to have more conversation with people with similar mental conditions, or to have more consistent communication with personal support groups. Timely feedback is a key in reducing risks.

Task Analysis Questions

1. ***Who is going to use the design?***

   Our design is meant to help patient who are just starting out in the depression recovery journey, and has not yet established a mature and sustainable coping mechanism. Patients who not yet fully understand the condition would benefit the most from our design to understand more about their condition, and to develop communication and reflection patterns. Our secondary users would be supporters the main users selected for communication and feedback.

2. ***What tasks do they now perform?***

   Our chosen target group normally go through the journey of need recognition, counseling sessions, and post-counseling long term care. Some patients do a mix of the three. "Try and see experiments" are a practice patients and counselors go through in order to figure out the most beneficial long term care methods for the patient. Recording/logging some aspect of their condition and reflecting on it was a common treatment mechanism both recommended by counselors and widely performed by patients. Some patients also record

their physical symptoms. Another commonality was taking medication and using a reminder to avoid missing a dose. Patients depending on their habits of developing and tracking routines might also incorporate other activities into their calendar.

3. *What tasks are desired?*

While not explicitly stated as desired tasks, one of the tasks we inferred patients may want is to receive immediate feedback on thoughts that go through their mind. Because counselors don't check in with patients between sessions, it may be helpful to get the kind of feedback counselors would give without having to wait for the next session to address the thought, particularly if it's a negative thought. Patients also tend to want to be checked in on, but families and friends who are the main support group outside of counseling don't do that as often as desired or as consistently, leaving the patient mostly alone to manage. Being able to separate fact-based thoughts and judgement-based feelings is a common challenge in recognition. Patients tend to believe in their feelings without considering facts.

4. *How are the tasks learned?*

Tasks are generally learned through a feedback loop by trial and error to see what's more effective for the patient. Most of the tasks are intuitive but require consistent and proactive practice. For recording reflections, it may require some instruction from a counselor in order to better understand when to record something and what to record. Aside from that, recording some sort of reflection does not require learning any additional or technical skill unless the medium the patient uses requires it.

5. *Where are the tasks performed?*

We did not ask this directly, but based on the nature of recording a reflection, we assume that the task could be performed anywhere though perhaps more often at home or in a personal space where it's comfortable. However, we imagine that users could jot down notes during the day as they experience mood changes and various thoughts in real time. As for receiving feedback, because this is given by a counselor, this would occur during a counseling session. Medication, we assume, could be taken anywhere and if it requires multiple doses during the day, then it could occur at work or at school. If the dosage is once a day, then the patient would likely take it at home.

6. *What is the relationship between the person and data?*

With recording reflections, this data is likely kept strictly to the patient and is only shared with a counselor if the patient chose to disclose the information. And while we did not ask this specifically, we assume that the reflections are kept together in one place rather than in multiple places (e.g. one journal instead of multiple journals). The use of medication is information that will, at the very least, be known to the patient, counselor

and pharmacy. Aside from that, the patient may or may not decide to disclose this to others around them, depending on their situation.

7. **What other tools does the person have?**

    From our interviews, two of the popular mediums for recording reflections are paper and pencil, and apps. The patient's counselor is also a tool for them to engage with during their treatment. As for taking medication, typically an app can be used to avoid missing a dose. In terms of communication, social media, texting, and phone calls are the most common platforms; some patients also attend meeting groups.

8. **How do people communicate with each other?**

    Communication typically occurs between a counselor and a patient during a session to determine what has been or has not been working for the patient. They may also speak about the thoughts the patient have been having in order to counter the negative ones to stop it from significantly affecting the patient. Communication about the patient's condition with others aside from the counselor may or may not happen; while some feel comfortable confiding in family, others do not.

9. **How often are the tasks performed?**

    This varies greatly depending on the task and patient. For recording reflections, based on a interviews, we got the impression that this happened once a day. However, we assume this could vary depending on the specific aspect the individual is monitoring (e.g. sleep patterns are more likely to be recorded daily vs. mood changes which may be recorded multiple times a day). For medication, the frequency will depend on the prescription and counselor's instruction which could be a few times a day or once a day.

10. **What are the time constraints on the tasks?**

    In the experimenting phase, the time constraints usually involve consistency between sessions - keeping up with the experimenting task is necessary to understand whether it helps the patient or not. In communication the time constraints are tighter, as we assume patients would prefer immediate response, especially towards a "sos" call. As noted by our participants, missing a dose of medication can disrupt their balance so they need to take medication on time and consistently as prescribed by their counselor.

11. **What happens when things go wrong?**

    Typically, patients will try different activities as a suggestion from the counselor. If the activity fails to help the patient, then the counselor suggests a new activity or plan for the patient to experiment with. The process continues until the patient finds something that works for them.

Design Sketches

AI Companion
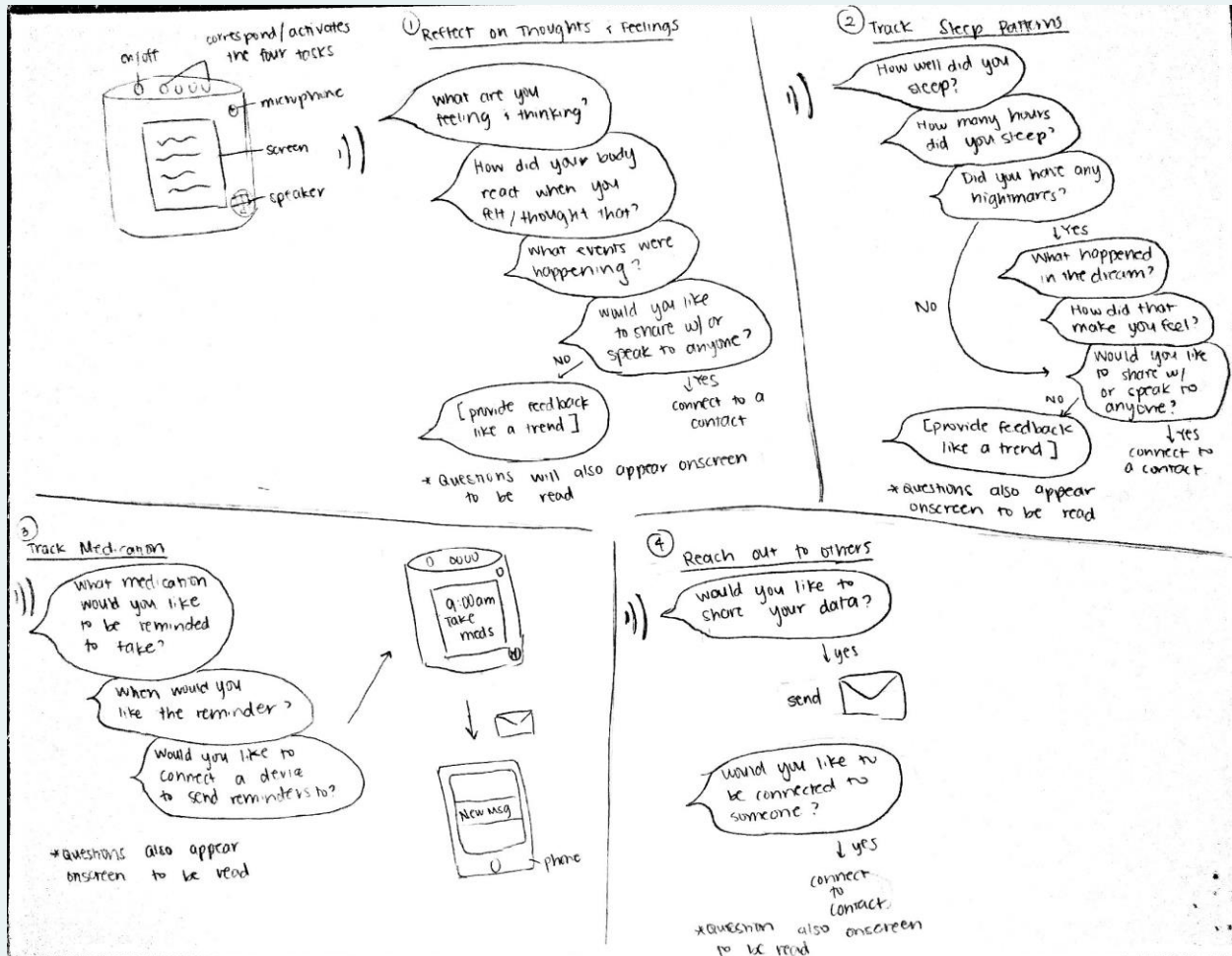
Modelled after Amazon Alexa, AI Companion acts as personal assistant for patients coping with depression. AI Companion features a screen, microphone, and speaker for interacting with the user. AI Companion will ask questions about the patient's condition, as well as receive reports and answer questions. It helps patients track their thoughts and feelings, sleep patterns and medication. Additionally, it can connect patients with others and share the data it has collected (Task 2). The device will ask questions to help users reflect on their thoughts/feeling (Task 4), sleeping patterns (Task 3), medications (Task 5), and use algorithms to analyze responses and trends, and provide feedback. Once sorted and cataloged, this information will be summarized and displayed on the built-in screen and can be exported. For people who do not understand technology very well, we will have built in buttons for critical activities, such as medications and thoughts/feelings.

Smart Board Journaling
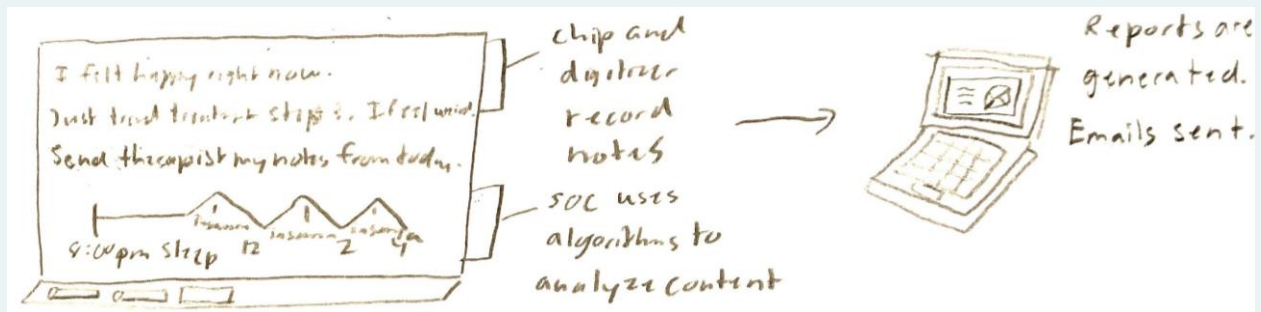
Smart Board is a large, interactive whiteboard where patients can record and share information. It will be extremely simple, and is designed to be easier to use than the current paper and pencil methods most widely used today, namely that the user does not need to concern themselves with organizing their notes as this will be done by the device. Smart Board will retain these attributes, which adding value with it's analytical capabilities. The patient can write whatever he or she wants on the board, NLP and ML technologies will recognize what was written, information useful to depression will be flagged, and the notes will be stored and organized digitally. Smart Board will recognize critical information written such as notes regarding sleeping patterns (Task 3), feels and thoughts (Task 4), and current treatment reflection (Task 6). For each of these things, Smart Board will remember when this was written, identify key words, and sort them in a database. This database can then be used to build graphs or summaries. By writing commands like "Tell X I felt terrible today" or "Send this insomnia information to my therapist", the smart board will generate and send necessary emails (Task 2).

Interactive Role Play Game
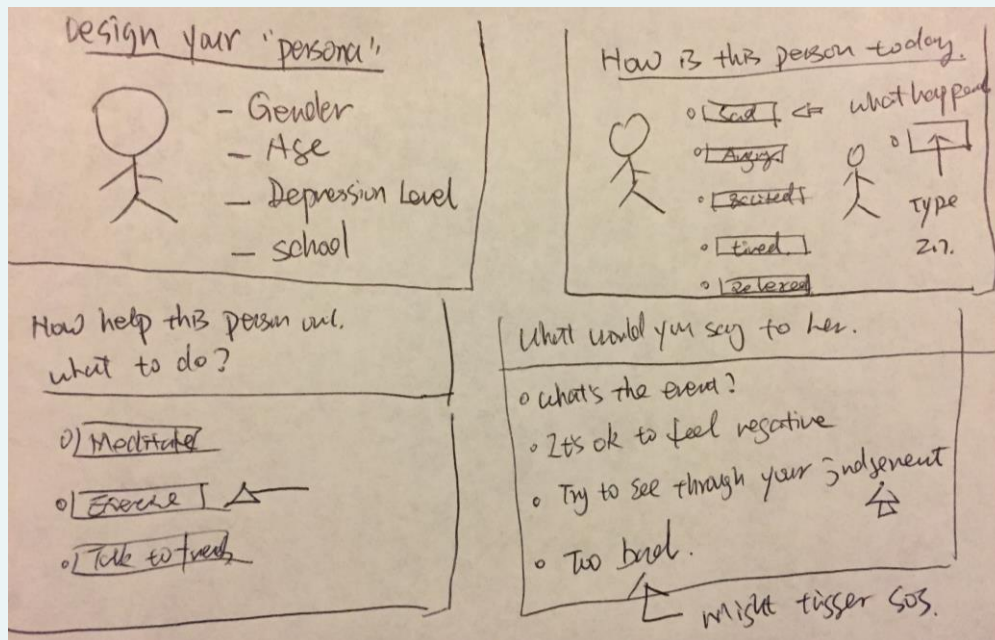
Interactive Role Playing Game (RPG) is a game designed to help the patients reflect on their condition. The game is designed to help the patient envision his or her condition from a third point of view, allowing the patient to step back and reflect. In RPG, the patient will design a character, similar to creating a character in a sim game. However, instead of an imaginary character, this character will reflect the state of the patient, acting as a "mirror". The user will be able to indicate the character's feelings (Task 4), track medication (Task 5), and create events and responses, and indicate problems (Task 1), and simulate treatment (Task 6). By helping the "persona" created, the patient will think about ways to proactively cope with depression. Between these tasks, the RPG focuses most critically on Task 4 by guiding the user to reflect on their events and feelings using the persona as a mirror; and Task 6 by introducing the methods learned in counseling to the character reflecting how that would help.

Choice of Design and Tasks to Further Pursue

At this time, we have decided to focus on our smart board journaling design but rather than using a large-sized whiteboard, we have decided to scale it down to a smaller size (tablet size) for portability. The two tasks we will be focusing on are: (1) reflecting on thoughts and feelings and (2) reaching out to others. We chose this design because out of all our designs, this was the one that could serve users in similar ways their current tools (e.g. paper and pencil) do on a more advanced level (i.e. provide analytics and communication channels) without requiring users to completely change their way of performing the tasks that they do.

As for the tasks, we decided to focus on reflecting on thoughts and feelings because the emotional aspect is such a fundamental part of depression and learning to understand one's emotions felt like a common and important part of recovery. Some of our other tasks included tracking sleep patterns and medication and, while they are relevant, they are not necessarily done by all; some patients may take medication while others do not.

Finally, we chose reaching out to others as our second task because we noted during our research that outside of counseling sessions, patients may not have a stable support group so we wanted to address this in our design. This task also felt more compelling than others because we felt most, if not all, users could benefit from it whereas the other tasks may not necessarily be relevant to every user, as noted before.

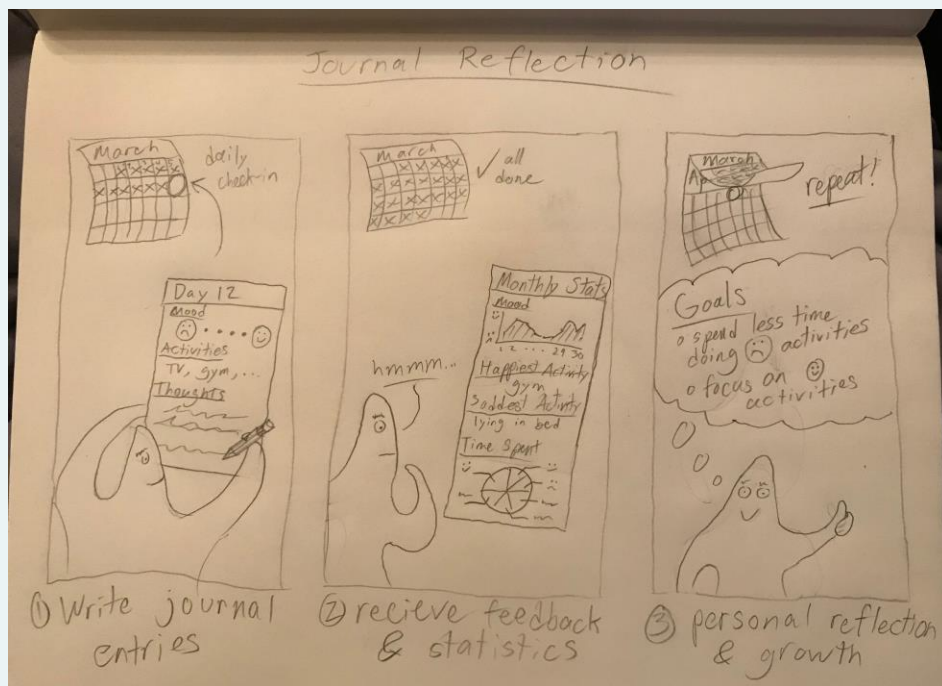## Written Scenarios

Task 1: Reflecting on thoughts and feelings

a) Ned is going about his day when he notices that he's suddenly feeling down. He opens us turns on his smart journal and records how he's feeling. Remembering that he has been journaling with the device for a while now, he opens up his analytics page, reviewing his mood for the past few days. He reviews his mood for the past few days and makes a goal to go to the gym more often.

Task 2: Reaching out to others

a) Ned decides to make an entry in his journal. He decides to share a portion of his entry with one of his supporters which he does by highlighting the relevant text and specifying he wants to share with Bob. A text is sent to Bob.

b) A few days later, while Ned makes a new entry, the smart journal notices that Ned has been feeling down lately, often mentioning self-hatred. The journal prompts Ned to reach out to one of his predetermined SOS contacts. He can call or text his contact(s). If he dismisses the prompt and has done so multiple times before, the journal automatically sends a text to his contacts asking them to check in with him.

Storyboards of Selected Design

Task 1: Reflecting on thoughts and feelings

Task 2: Reaching out to others

① "A" wrote an entry and shares snippet of entry w/ B.

② "A" has been making entries indicating "A" might need help. Journal prompts "A" to reachout.