

User Research & Personas

HCDE 518, Autumn 2021

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Stakeholders

Primary Stakeholders

Our primary stakeholders are people who want to decrease their stress levels and take better care of their mental wellbeing. In particular, these would be individuals who want to achieve their goals by participating in different activities that are shown to help with decreasing stress levels (e.g., walking, exercising, painting).

Our primary stakeholders are people who already have a baseline awareness of their own mental health and want a more customizable digital mental health tool that connects to existing applications (paid or free) and provides a way for them to track their mental health moments (mindful moments), monthly cycle changes, contraceptive side effects, and help them recover from screen fatigue by offering nearby suggestions for them to go out into the physical world and retreat or relax. Our users are primarily between the ages of 25-34 who work full-time jobs.

Secondary stakeholders

Secondary users are between the ages of 18-24 and are either full-time students or students who also work part-time. All users are at least 18 years of age.

Another group of secondary stakeholders are people over the age of 35 who work full-time and have children. We find that these users may have less time for leisure activities, as they need to take care of their kids in addition to their job duties, and can therefore have quite high stress levels. This is an important group of people to reach, as they are usually more financially independent (could participate in paid activities more easily) and can be less technically savvy (may not be into meditation or other mental health apps). In this larger population is also the subgroup of people in their menopause/perimenopause. These individuals may often experience symptoms such as sleep deprivation, depression, and mood changes. Our app may be especially

beneficial for them in providing tips and recommendations about activities that may alleviate these symptoms.

Tertiary stakeholders

Another great aspect of our app is that it will promote and support local businesses, as users will be getting recommendations for activities near their current location. By doing this, we are also hoping to foster a stronger sense of community.

Another group of people that may be indirectly impacted by our app are therapists. While we will not be recommending individual therapists, the app may recommend going to therapy as an “activity”. From our research, we found that a lot of respondents have benefitted from going to therapy, so we believe that recommending it in the appropriate times and cases may be useful for users.

Finally, the friends and family of those using the app may also be impacted. Those are all the people that are not using the app themselves, but our primary users may wish to do some of the recommended activities with them. It may also improve the relationship that users have with these friends and family.

Methods

Secondary Research

We began our exploration with a somewhat extensive literature review and research of what kind of mental health phone apps are currently available and what their features are. We read fourteen articles and papers and paid special attention to the methods used, the findings, and design implications. Utilizing this method allowed us to have a better understanding of what research has already been done (so as to not “rediscover” already existing knowledge), what works and what does not, and how we might redesign some of the better mental health apps that currently exist. It gave us ideas about how we might combine helpful features that different apps had and improve or remove those that do not work, as well as what methods we might want to use when designing and executing our study. Overall, we found that by starting with this research method, we were able to obtain the necessary background to understand the issue better, know what kind of questions we want to ask in the survey and interviews, and generally feel more comfortable with the next steps we took in our

research. It also helped us scope down our project and slightly pivot, so that we can make a more innovative product.

Surveys

We posted a survey consisting of twenty-two questions in multiple Facebook groups, as well as the UW research recruitment Slack channel. Before we report our major findings, it is important to note that an overwhelming majority of respondents identified as female (86.4%). Our participants were also mostly between the ages of 18 and 34 (90.9% of total responses). The remaining 9.1% were between 35 and 54.

One interesting finding is that 38.1% of respondents believe that their mental health in the past year has been better than before and 38.1% report that it has been worse. This is somewhat surprising, as we expected to see a general decrease in mental wellbeing due to the stress the pandemic has caused. Overall, however, 57.1% of participants reported their mental health being “good” or better than before.

We also gathered some data about where and how people spend most of their time. 50% of people say that they spend 40-60 hours working or studying from their home. In addition, 72.7% say that they spend at least 5-10 hours doing leisure activities at home. We felt that collecting this data was important information that would allow us to tailor the kind of activities the app recommends. It is important to note that the trends we witnessed are likely influenced by the pandemic, with more people spending more time at home. These findings would probably have been different a couple of years ago. Regardless, since we are at the moment unsure about how much longer we will be living in a pandemic, we still find these results to be valid and important to consider in the way we design our app.

To gauge how helpful it would be to base tips and recommendations on menstrual cycle data, we asked a few questions regarding that as well. 63.6% of participants agreed that their menstrual cycle has an impact on their mood and 50% reported it having an impact on their stress levels (22.7% of responses to this question were “N/A”). 100% of those who said yes say that it increases their stress levels. These findings support our hypothesis that considering such data would be ultimately beneficial for our users.

Another important finding is that 77.3% of respondents say that they have not used a technology-based tool to help them track or take care of their mental health. This

means that there is space for an app that fulfills the needs of these participants that are currently not met by existent technology-based tools.

Finally, we thought it was important to ask the participants a few open-ended questions regarding tools they currently use to manage stress levels and mental wellbeing. The responses gave us a better understanding of what strategies people utilize to manage their mental wellbeing. These findings gave us some great ideas about activities which we may include in the app, as well as what people find helpful in the tools they currently use.

We found it important to utilize this method, as it gave us some more *quantitative data* to work with, which coupled with the qualitative data from the interviews, gave us a basic understanding of what people need or want in a tool that helps them manage their stress and mental health.

Interviews

In addition to the previous two research methods utilized, we conducted 5 interviews with people that we know or are friends with. We chose this method because we felt that it complements nicely the largely quantitative findings of the survey. While this method was admittedly more time-consuming and more difficult to recruit for, we found it important to understand more deeply people's current habits when it comes to taking care of their mental wellbeing and stress levels. The less structured format of interviews allowed us to explore and dig deeper when the participant said or did something interesting.

Participant 1 is a 34 year old Product Manager who works for a healthcare startup in the Seattle area. She works remotely in her home office and experiences screen fatigue from work. Too many unexpected issues from work contribute to her stress and take time away from original tasks she had planned. She takes two short 25 minute breaks each day and spends more of her time indoors. She would like to go outside more and exercise more frequently throughout the week. Her menstrual cycle impacts her stress levels. She does not use any mental health applications or menstrual cycle tracking applications.

Participant 2 is a 34 year old Software Engineer who works at a legal startup in the Seattle area. He works remotely from home and spends most of his time indoors. He would only categorize his day as stressful if he needs to meet client deadlines.

Normally, these days are more stressful because his team has an over budgeted amount of work and they often find it difficult to decide what feature needs to be compromised. During his breaks, he normally plays video games and has a snack. He does not use any mental health applications. His ideal day would alternate equally between work, taking breaks, and eating. However, ideal days don't happen often due to his nature of work and there's always spontaneous meetings and deadlines. When this happens, he works all day without breaks.

Participant 3 is a 23-year-old masters student living in London, UK. Her life is quite busy, so she has a very structured, meticulously planned daily schedule. She finds it important to have specific time slots allotted for de-stressing and recharging. An interesting strategy that she uses to get out of the daily routine and alleviate stress is to try to do things that "shock" her. That is, she occasionally would do unconventional (for her lifestyle) activities as a way to get out of her stressful routine and forget about her troubles. She made an interesting comparison to getting the hiccups: "the more you think about it, the worse it gets; so, you need to find a way to shock your system to snap out of it." She notes that she would benefit from recommendations for such unconventional activities rather than what she already does to destress (e.g., go for a walk, clean her room, etc.) because she doesn't need reminders to do them. Finally, she doesn't currently use any apps or tech-based tools to destress or take care of her mental health; however, she admits to having used some guided meditation apps that were recommended to her by a friend. She found them too long and frustrating, as she didn't have the patience to meditate for that much time. She also finds it important that these apps are based on research.

Design Question

Previous:

How can we help students balance both academics and mental health?

Current:

How might we design a digital tool to help adults manage stress and improve their mental health by participating in different activities? How might we provide customized recommendations based on user data?

Justification for change:

Our initial design question was scoped too broadly. After doing some literature review as part of our secondary research, we established that there is a wide array of mental health apps focused on tracking mental wellbeing or providing tips for different mental health issues. For example, some apps provide users with a guided meditation practice while others connect users to therapists for Cognitive Behavioral Therapy. Most treatment areas in mental health already have existing applications to help users. Given the time constraints, we found it difficult to come up with something completely novel in the personal informatics for mental health field.

Keeping in mind our project theme of Responsible Innovation, we wanted to scope down our project further to provide a design solution that gives users a more personalized mental app platform that delivers customized recommendations based on user data (such as location services, user menstrual cycles, etc.). We were inspired by a paper that used location data to look for correlation between participants' mood and where they tend to spend most of their time. We thought it would be interesting to use this location-based model to provide recommendations based on multiple factors, including the user's menstrual cycle.

Finally, we also decided to widen our target audience to include all adults instead of limiting our users to only UW students. We made this decision because we wanted to be as inclusive as possible and we thought it would make recruitment easier.

Design Requirements

Requirement	Justification
Be affordable or, ideally, free.	Our research indicates that price is a potential barrier for users who actively use mental health apps. Making our solution completely free or, alternatively, following a Freemium model can allow us to serve more stakeholders.
Motivate users to reach their goals.	Tracking user activity over time helps users keep track of streaks and mental health habits. Research indicates that the ability to track frequency motivates users to continue using digital tools.

Be fast, convenient, and reliable.	Research indicates that slow app performance is another factor that prevents users from using digital mental health tools. Further, some participants expressed that they find some of the apps they have been using to be too demanding and burdensome (e.g., one has to remember to track their mood and/or stress levels).
Be customizable to user's needs and goals.	Our solution should deliver in-app recommendations and notifications to users based on their activity preferences and location data, as well as their individual goals and needs.
Mobile Platform	Most people tend to bring their smartphones everywhere they go. Therefore, getting access to mobile location data would allow for higher location accuracy and, as a result, better recommendations.

Personas

Primary Persona

Stressed-out Sally



AGE

27

STATUS

Married

OCCUPATION

Digital Marketing Manager

LOCATION

Seattle, WA

TECH LITERACY

High

“ My productivity is affected when my mood is worse than usual, and it negatively impacts my day

Personality

Extrovert

Athletic

Bio

Sally manages multiple social media campaigns and works closely with the content team at her company. Her days are often long and Sally feels particularly fatigued when her menstrual cycle impacts her energy levels. Sally is proactive and wants to take steps to better manage her stress and mental health.

Goals

- Reduce stress and minimize negative impacts of PMDD
- Track mood swings and set cycle alerts based on monthly patterns
- Discover new boutique fitness studios for drop-in classes

Frustrations

- Existing mental health apps lack customization
- Often forgets to log PMDD symptoms when they occur
- Inconsistent logging prevents her from detecting cycle patterns over time and taking action to reduce these negative symptoms

Apps



Technical Background

Tech-savvy

Platform



Mobile App

Secondary Personas

Analog Andy



AGE 34
STATUS Single
OCCUPATION Technical Writer
LOCATION Portland, OR
TECH LITERACY High

“ Low or no-tech tools provide a good break from the screen

Personality

Adventurous Mindful

Bio

Andy works from home and likes to go on walks during his breaks. He likes to try new things and gets bored of the same routine. Andy prefers analog tools and avoids using too many apps in his workflow. Andy always looks forward to trying new places for lunch and discovering hidden gems in the city.

Goals

- Discover scenic trails and practice forest bathing (shinrin-yoku)
- Build a stronger meditation habit
- Practice digital minimalism to improve focus and reduce screen time

Frustrations

- Feels disconnected working remotely and wants to go out more
- Hates using too many apps to complete a task
- Finds it difficult to meditate consistently without a dedicated space at home, prefers to meditate in nature

Apps



Technical Background

Tech-savvy professional who already uses guided meditation apps

Platform



Mobile App

Shy Sarah



AGE 19
STATUS Single
OCCUPATION Student
LOCATION Seattle, WA
TECH LITERACY High

Bio

Sarah is a student at the University of Washington. She feels stressed most days of the week and watches YouTube, draws, listens to music or plays video games to relax. She utilizes the counseling center's resources and occasionally uses MySSP to access emotional and wellbeing support. Sarah is rather shy, but would love to make more friends in Seattle and discover new places. However, all of her school work has made it difficult to find the time to do that.

Goals

- Wants to take a break from studying by exploring areas near the UW campus
- Hopes to connect with other students and build a sense of community
- Learn more about her neighborhood and find interesting spots to visit in her leisure time to destress

“ When I feel stressed, I talk to my therapist or my friends and family

Personality

Introvert Gamer

Frustrations

- Price is high for mental health apps
- Counseling center does not provide unlimited counseling for students and it's inconvenient to visit off-campus therapists
- Unfamiliar with the city and doesn't have enough time to research different places to explore

Apps



Technical Background

Very tech-savvy, majors in Computer Science. Has experience with a wide array of platforms.

Platform



Mobile App

Mature Mary



AGE

50

STATUS

Divorced

OCCUPATION

Sales manager

LOCATION

Redmond, WA

TECH LITERACY

Medium

Bio

Mary is married with children and mostly works from home, occasionally having to go to the office. She has struggled to separate home and work spaces and having moody teenagers attending school online has made that even more challenging. Mary loves spending time with her family, but also needs time alone to recharge and would love to spend more time with her girlfriends. She has also recently started experiencing hot flashes, sleep problems, and mood swings due to menopause.

Goals

- Spend some more quality time with her daughters, doing fun activities
- Get some more quiet alone time, but also time with her girlfriends
- Find ways to relieve menopause symptoms

“ I'm constantly exhausted and feeling down

Personality

Extroverted

Dedicated

Outgoing

Hard-working

Frustrations

- Has been going to therapy regularly, but it has become too expensive and her therapist is a long drive from her home
- Stopped using mental health apps because they didn't fit her personal needs and goals and she found it difficult to stick to using them
- It is difficult to find activities to do in her free time, as it usually consists of scattered short timespans

Apps

Technical Background

Has intermediate tech knowledge and skills.

Platform



Mobile App

Appendix

Secondary Research

Literature Review List:

1. A systematic review of the effectiveness of mobile apps for monitoring and management of mental health symptoms or disorders ([link](#))
2. Development of a Mobile Phone App to Support Self-Monitoring of Emotional Well-Being: A Mental Health Digital Innovation ([link](#))
3. Engagement in mobile phone app for self-monitoring of emotional wellbeing predicts changes in mental health: MoodPrism ([link](#))
4. Youth Codesign of a Mobile Phone App to Facilitate Self-Monitoring and Management of Mood Symptoms in Young People With Major Depression, Suicidal Ideation, and Self-Harm ([link](#))
5. Designing for Emotional Well-being: Integrating Persuasion and Customization into Mental Health Technologies ([link](#))
6. DemonicSalmon: Monitoring mental health and social interactions of college students using smartphones ([link](#))
7. Do mental health mobile apps work: evidence and recommendations for designing high-efficacy mental health mobile apps ([link](#))
8. Three questions to consider before developing a mental health app ([link](#))
9. Feasibility of "CopeSmart": A Telemental Health App for Adolescents ([link](#))
10. A Mixed-Method Assessment of a 10-Day Mobile Mindfulness Intervention ([link](#))
11. Feasibility and Acceptability of a Mobile Mindfulness Meditation Intervention among Women: Intervention Study ([link1](#))
12. Julie Kientz Talk with Novo Nordisk: When technology becomes a burden: considerations for designing solutions that fit into peoples' lives ([link](#))
13. Mental Health Apps by Category ([link1](#)) / ([link2](#))
14. Hints: an app that cares about your mental health — UI/UX case study ([link](#))
15. Developer of Popular Women's Fertility-Tracking App Settles FTC Allegations that It Misled Consumers About the Disclosure of their Health Data ([link](#))
16. The Best Meditation Apps ([link](#))
17. Verywell Mind ([link](#))

Literature Review Notes:

Google

1. A systematic review of the effectiveness of mobile app for monitoring and management of mental health symptoms or disorders ([link](#))
2. Development of a Mobile Phone App to Support Self-Monitoring of Emotional Well-Being: A Mental Health Digital Innovation ([link](#))
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16. The Best Meditation Apps ([link](#))
17. Verywell Mind ([link](#))

DemonicSalmon: Monitoring mental health and social interactions of college students using smartphones ([link](#))

Related work

Depression and anxiety are perhaps the most prevalent, with roughly 40-60% of college students endorsing significant difficulties in these areas at least once over the past year (p. 102).

- less than a quarter of college students with a diagnosed mental disorder sought mental health problems may lead to lower academic achievement, higher dropout rates, and learning difficulties (p. 102)
- GPS and accelerometer readings can provide valuable information about a socially anxious individual that would otherwise be difficult to obtain

Analyzing GPS data from college students and the types of places they frequent will provide crucial information about key mobility features associated with social anxiety (p. 102)

Goal: 'Investigate if students' mental states can be monitored from their personal smartphone'

Interviews

Interview Notes:

Participant 1 / Female / Age: 34

1. Do you work remotely? Yes
What do you do? SIRUM (Supporting Initiatives to Redistribute Unused Medicine)

2. Do you experience screen fatigue? Yes

3. How many devices do you use when you work/in? 2
a. Do you have a favorite or least favorite device? Why? Least fav - tablet - can't type as fast

4. What makes your work day stressful or not stressful? Too many unexpected issues that need immediate attention taking away from planned things that must also be accomplished

5. Do you take breaks during your workday? Yes

6. Can you estimate how often you take breaks each day? 2x

7. Do you like to go outside during your breaks? Empty

8. What do you like to do on your breaks? Clean & call a friend

9. How long or short are your breaks? 25 minutes

10. Do changes in your menstrual cycle affect your levels of stress? Stress impacts my cycle
a. Is there anything you do differently during your day if you have PMS or menstrual cramps? Take it easy, wear comfy clothes, hot shower

11. Do you meditate? No
a. How do you meditate? N/A
b. How long do you meditate? N/A

12. Do you use any apps for mental health
a. What kind of apps do you use? N/A
b. How did you find out about this app? N/A
c. What do you like or dislike about this application? N/A
d. Will you continue to use these apps? N/A

Survey

Survey Form Link

Survey Responses

In our survey we stated that the responses will not be shared with anyone outside of our team, so we are uncomfortable sharing this information here. However, if needed we could provide this data.

Survey Flow



Mental Health Survey

Hello! We're a group of graduate students from the University of Washington's Human-Centered Design and Engineering program. We are developing an app to make caring for your mental health easier, more customizable, and more actionable. Through this survey we'd like to understand how you currently take care of your mental well-being.

The survey should take less than 5 min to complete. Thank you for your time!

If you have any questions, please reach out to us: gak98@uw.edu

All responses are anonymous and will be shared only between members of our research team.

How has your mental health been in the last year? *

- Bad
- Good
- Better than before
- Worse than before

How often do you feel stressed on a weekly basis? *

- Never
- 1-2 days a week
- 3-4 days a week
- 5-6 days a week
- All the time

Gender *

- Female
- Male
- Non-Binary
- Prefer not to say

Age *

- less than 18
- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65+

What do you do to alleviate or manage stress? *

- Grab a snack
- Go for a walk
- Exercise
- Meditate
- Watch TV
- Read
- Retail therapy
- Other: _____

How much time do you spend working/at school/doing homework/etc.? *

- Less than 20 hrs/week
- 20-40 hrs/week
- 40-60 hrs/week
- 60+ hrs/week

How much of this time is spent at home? *

- Less than 10 hrs/week
- 10-20 hrs/week
- 20-40 hrs/week
- 40-60 hrs/week
- 60+ hrs/week

How much time do you spend doing leisure activities? *

- 0 hrs/week
- 0 - 5 hrs/week
- 5-10 hrs/week
- 10-20 hrs/week
- 20-30 hrs/week
- 30+ hrs/week
- Other: _____

How much of this time is spent at home? *

- 0 hrs/week
- 0 - 5hrs/week
- 5-10 hrs/week
- 10-20 hrs/week
- 20-30 hrs/week
- 30+ hrs/week

Does your menstrual cycle have an impact on your mood? *

- Yes
- No
- N/A

If you answered yes, how does your menstrual cycle impact your mood?

- Change in appetite
- Mood swings
- Insomnia
- Fatigue
- Other: _____

Does your menstrual cycle impact your stress levels? *

- Yes
- No
- N/A

If you answered yes, how does your menstrual cycle impact your stress levels?

- Stress increases
- Stress decreases
- Other: _____

Do you use or have you used any technology-based tools to track or take care of your mental health? *

- Yes
- No

If you answered yes, please list some technology-based tools that you've used

Your answer

What do you like about these technology-based tools?

Your answer

What do you dislike about these technology-based tools?

Your answer

Have you used any other tools to support your mental health? *

- Yes
- No

If you answered yes, please list some other tools that you've used

Your answer

What do you like about these other tools?

Your answer

What do you dislike about these other tools?

Your answer

Are you affected by or have been diagnosed with any mental health conditions?

- Anxiety
- Depression
- ADHD
- Eating Disorders
- Bipolar Disorder
- PTSD
- N/A
- Other: _____