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Final Paper

Problem/Background

In response to the increasing mental health care crisis, MYND is creating a solution that takes advantage of the rise of digital healthcare solutions, personal mental health sensing, and 'Just-In-Time-Adaptive-Interventions'. The main goal of the initiative is to increase user access to care through estimating a users mental health scores based on behavioral markers and ultimately connecting users to relevant resources in real time. The hopes of this initiative is to help users monitor their own mental health and increase accessibility to much-needed resources.

The Research

As MYND is a start-up and lacks both a client base and concrete target audience, the main importance of the user-experience research portion of this project was to establish a baseline understanding of how people address and manage their mental health. This leads us to the main questions we aimed to answer through our research:

1. Do people have an awareness of their mental health and its effects?

2. How do people cope with their mental health? Are these mechanisms effective? What are some coping mechanisms people *wished* they had?

3. What kind of user is likely to adopt MYND as a tool to help them manage their own mental health?

Once we understood the answers to these questions, we were not only able to identify a target audience for MYND, but we were also able to list common coping mechanisms and common factors for mental health. Additionally, we also analyzed and compared direct and indirect competitors for MYND that are currently within the mental health or adjacent market fields.

This section of our capstone was completed in the UC Berkeley INFO 214: User Experience Research class with Steve Fadden. In addition to all the capstone project members, we were joined by Ken Lin, whose findings and work are also present within this project.

Methods, Sampling, Recruiting

The research methods we used consisted of:

- an online survey

- user interviews

- a competitive analysis

The user survey was a way to gather quantitative research. It was used to validify user interview findings, identify trends and outliers in answers, and gather demographic information about potential target users. We got results from a wider range of people than we otherwise would have through user interviews, and it helped us both confirm trends and account for less conventional answers. The link to the survey was shared by the team and the client through social media, and resulted in 21 answers.

The user interviews consisted of potential users as well as experts in the mental healthcare field. It was important for MYND to discover target users and what their needs, current actions, and pain points are. The user interviews helped us understand what they make of their own stress, how they currently handle it, and how they wish they could handle it. Interviews with professionals in the mental healthcare field revealed to us how experts currently approach care with their patients, what their toughest challenges are, and what their thoughts are regarding the role of digital help apps in healthcare.

Here, the recruiting was limited, since MYND is a start-up and does not have their own client base yet, so we had to find interviewees on our own and were limited to people we were already acquainted with. As such, there is an inherent bias within the interviews, as the people we spoke may have had a vested interest in hiding the less-savory parts of their own mental health from us. This was eventually revealed with the results of the survey, where anonymous survey-takers had fewer qualms about being honest. Meanwhile, the healthcare professionals we were able to reach were also ones with whom we were acquainted (cold-contacting other healthcare professionals didn't work in time for this project) and as such—while the providers all have their goal of helping their patients—the potential for bias is still there. In total, we surveyed 9 potential users and 5 healthcare providers.

Finally, a competitive analysis helped us see what the current market is for mental health apps, what competitors' strengths and weaknesses are, and identify gaps within the market that MYND could potentially fill. For this, we looked for four competitors in similar fields to analyze their usability, features, and market presence. We ended up looking at the Garmin wristwatches (paired with Body Battery feature), Bearable, Daylio, and uMore.

Survey

The main purposes of the survey were to back up interview findings with quantitative data and uncover gaps in user answers. The questions we included were the same as the ones we used in the interviews template for potential users. As such, healthcare providers were not among the survey respondents here.
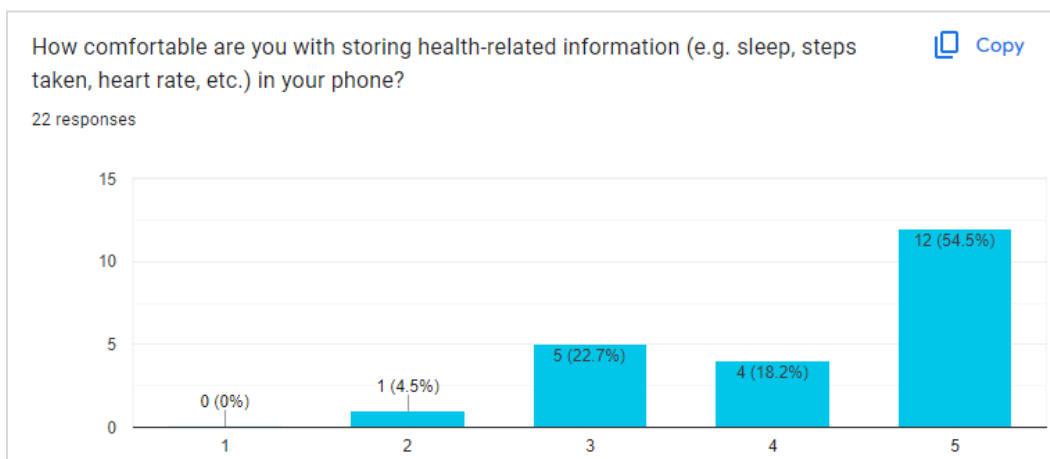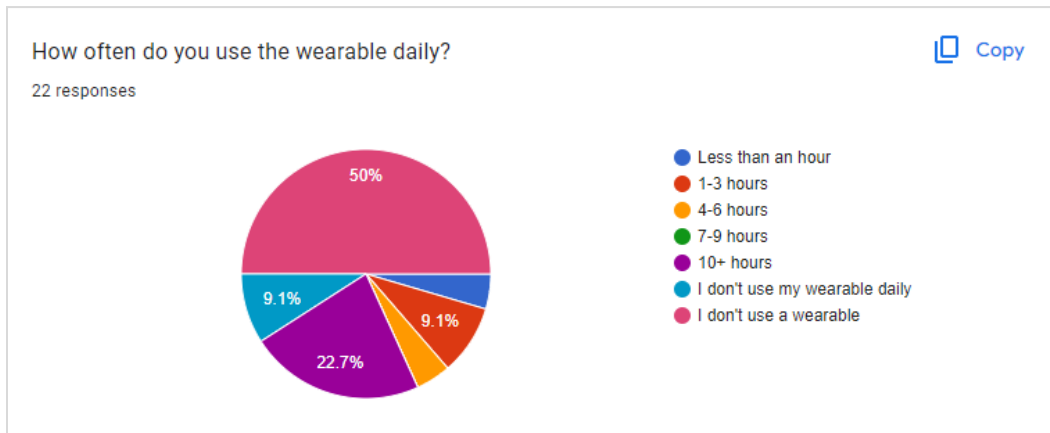
In total, we had 21 responses to the survey. All but one participant were from within the 18-35 age group, and all of them reported having a smartphone. Surprisingly, all but one reported being comfortable with storing health-related information on their phones, with given reasons such as, "I understand the concern of releasing the biometric data to companies but I personally don't think it's a big deal," and "If it's not information that someone can use against me, I don't really care."

Survey Findings

When asked about what factors into their stress, the answers the participants gave matches with our user interview findings: uncertainty about the future, work, school,

relationships, influence from social media and news, sleep, diet, exercise, menstrual cycles for those applicable, and even the weather all could have a factor. Their answers to how they currently manage their stress also includes methods mentioned in our interviews, such as: talking to their support network, journaling, working out, and going through calming exercises.

However, as anticipated, the anonymity afforded by the survey also gave us access to less socially-acceptable answers to coping methods, such as: smoking, drinking, lying in their bed all day, and eating junk food—none of which were present in our interview answers. These are interesting findings, since they reveal potentially damaging and addictive coping mechanisms that MYND will have to keep in mind when building their product.

Overall, our survey results helped validate our user interview findings, and we even received some answers that may not have been disclosed in user interviews.

Interview

The main purposes of the interview were to go in-depth on the reasonings and thought processes behind how participants currently handle their mental health. Unlike the survey, the interview had the benefit of flexibility; as interviewers, we were able to notice and pursue relevant lines of thought when applicable. As such, through the interview, we were able to gain a deep and comprehensive understanding of the people we interviewed.

However, there were also drawbacks; since MYND didn't have its own client base for us to choose from, and we had no incentives to offer for interviewing with us, the people we were able to reach out to for an interview were people we already knew. As such, while the project benefited from participants who were comfortable talking with us, the answers we got were not wholly representative of the target market for MYND. As revealed in the survey study, the participants we spoke to may have even unconsciously hid habits that they considered undesirable from us to preserve our perception of them. This is to be taken into consideration when reviewing the material.

In addition to potential users, we also reached out to five healthcare professionals within the mental health field in order to better understand how mental healthcare is currently approached. Again, these healthcare professionals were acquaintances whose connections to us facilitated a willingness to spare the time to speak with us—and thus there is an inherent bias in the participant selection. Nonetheless, it can be reasonably assumed that they were more inclined to honesty, since the subject is not about themselves but about their work and the challenges that come with it. In the end, we were able to understand how these healthcare professionals currently handled mental

healthcare, what they found most difficult about their jobs, what they wished could be improved, and what their thoughts were on the development of accessible mental healthcare in the current to near future.

In the end, we interviewed 9 potential users and 5 healthcare professionals. [Here are the questions](#) we asked the potential users, and [here are the questions](#) we asked the healthcare professionals.

Interview Findings

After the team finished user interviews, we met up and conducted [an affinity mapping](#) with our main findings.
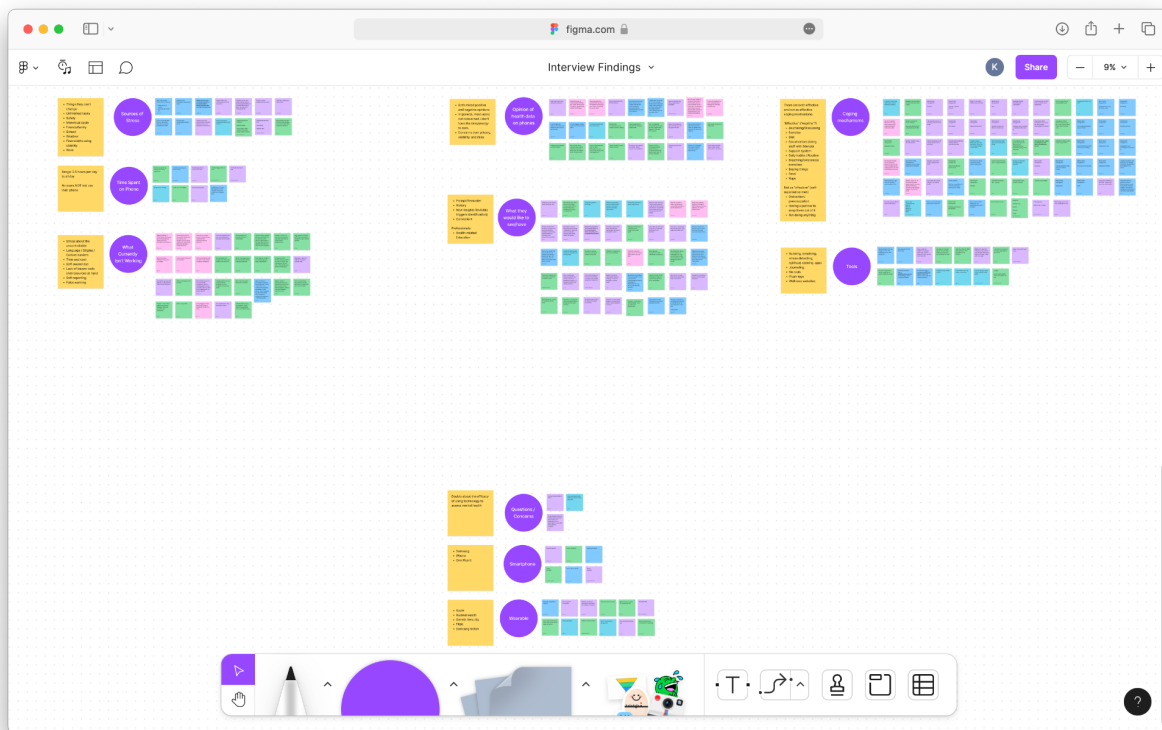
Through this, we uncovered main findings and common themes. They are as follows for the potential target user group:

- Sources of stress

    - Overwhelmingly, a major factor of stress is uncertainty or the unknown. This can manifest as fear of the future, fear of failure, or fear of perceived difficulties.

    - Relationships are tricky; they can be both a source of stress and also a coping mechanism.

    - The weather

- ○ Menstrual cycles for those who have them

- ○ Work

- ○ School

- How interviewees currently handle their mental health

  - ○ Exercise

  - ○ Sleep

  - ○ Eating well

    - ■ Also includes: eating badly—junk food

  - ○ Expression of emotions

    - ■ Socializing

    - ■ Journaling

    - ■ Crying

  - ○ Stifling emotions

    - ■ Staying in bed

  - ○ Breathing exercises

  - ○ Buying things

  - ○ Rely on their friends/family/partners to help them stick to plans

- How interviewees wished they handled their mental health

  - ○ Overwhelmingly, interviewees wished for more resources and more self-awareness.

    - ■ One interviewee reported that they didn't know they were depressed at their old job until they left.

  - ○ Interviewees also wished for better management methods.

    - ■ Reminders, tracking, monitoring, alerts

The findings for healthcare professionals are a bit more scattered since there are different approaches to mental health management for their patients, but common themes that showed up throughout the interviews are:

- Frustration over access to resources

    - There are many barriers blocking access to mental health resources:

        - Culture

        - Language

        - Cost

        - Stigma

        - Time

        - Convenience

- Reluctance/hesitation about digital aid to mental health tracking

    - One professional said a phone app would contradict their general recommendation to their patients to lessen screen time.

    - Another professional worried that solely tracking physical readings of a person could lead to false assumptions and inaccurate self-diagnosis.

Overall, our interviews uncovered crucial insights not only in potential users, but also from professionals within the mental healthcare field. The potential users reported an overall awareness and management of their mental health, while acknowledging common fears—uncertainty being a key one—and a common need—increased self awareness. The mental healthcare professionals revealed a gap within access to mental health resources that may be closed or narrowed with the help of a reliable mental health app, but they warn that a tool that is designed or handled incorrectly could lead to more harm than good.

Competitive Analysis

Our competitive analysis consisted of 4 major steps: narrowing focus, identifying competitors, determining dimensions, and synthesizing results.

Focus

Our research team had honed in on the usability aspect of the mental health product space. Adapting Nielson Norman's 10 Usability Heuristics, we created a template to conduct a heuristic analysis for 4 products that we had learned about from our conversations with industry professionals and users from our interviews.

Competitors

After narrowing the focus, our research team identified the main competitors within the chosen product or service category. The team also considered the user perspective, examining competitors that were most relevant and familiar to the target user group. We had selected: Daylio, Bearable, Garmin, and uMore.
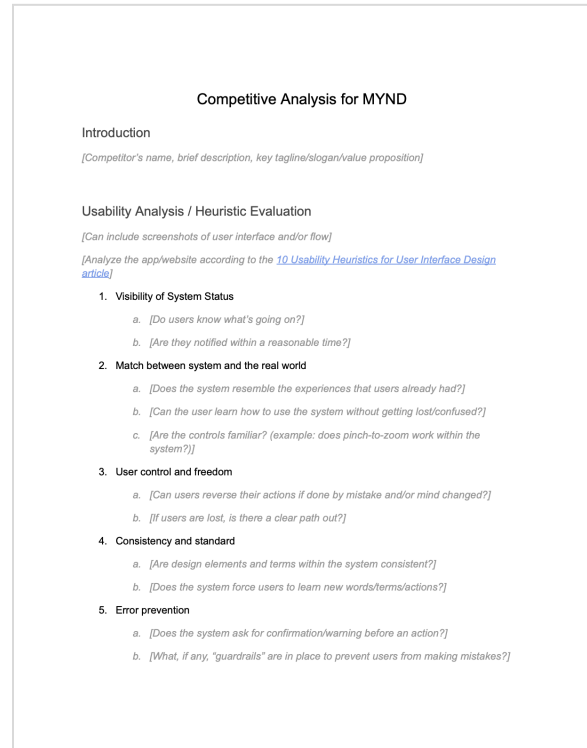
Dimensions

In this step, our research team determined the key dimensions or factors that were most relevant for evaluating the competitors. These dimensions were typically based on the main features and attributes of products and services identified earlier. The critical dimensions in this space were:
- Ease of Use
- Affordability
- Learning Curve
- Design Consistency
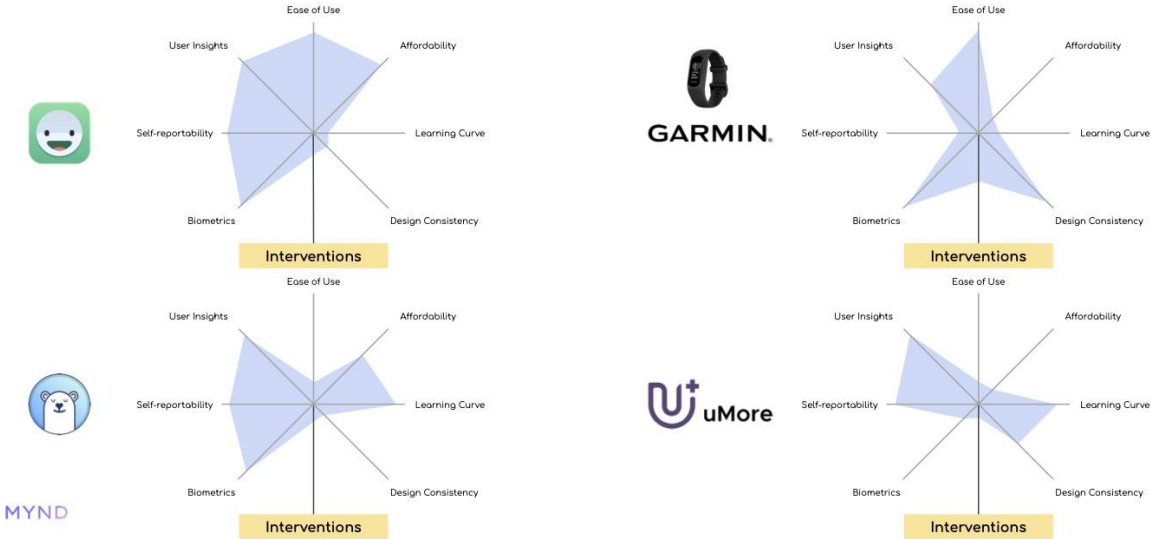- Interventions
- Biometrics
- Self-reportability
- User Insights

	Daylio	Bearable	Garmin	uMore
😀 Ease of Use	High	Low	High	Low
💰 Affordability	High	Medium	Low	Low
📊 Learning Curve	Low	High	Low	High
✏️ Design Consistency	Low	Low	High	Medium
🔁 Interventions	Low	Low	Medium	Low
❤️ Biometrics	High	High	High	Low
📋 Self-reportability	High	High	Low	High
👤 User Insights	High	Low	Medium	High

After determining these dimensions, we plotted each of these dimensions on an excel sheet for the four corresponding products.

Analysis Findings

After graphing each dimension, we plotted each dimension on its own axis to create a visual of the strengths and weaknesses of the products in the mental health space.

Despite the pro's and con's of each, they all lacked 1 dimension: interventions. We define "interventions" as the real-time notifications or nudges to prompt the user to return to their baseline. From this insight, we recommend that MYND focuses on developing in this dimension as there could be a differentiating factor from products in the same space.

UX/UI Design

Initial Designs

Upon joining MYND, it was evident that the startup had an existing mid-fidelity prototype in place, but it lacked a cohesive look and feel, as well as user testing. Recognizing this as an opportunity, the design process was initiated with a thorough analysis of the prototype's strengths and weaknesses, as well as its level of user engagement and satisfaction.

To address the shortcomings of the existing prototype, a brand style guide and design system were developed, providing a consistent visual language, typography, and color palette that would make the platform more user-friendly and intuitive. Throughout the design process, extensive user testing was conducted to ensure that the prototype was effective in meeting the needs of its users.

In addition to conducting user testing, feedback was sought from stakeholders to ensure that the new prototype met their expectations and addressed their concerns. The end result was a new prototype that not only looked better but also provided a more engaging and user-friendly experience for MYND's users. By taking the opportunity to revamp the design process, MYND was able to improve the effectiveness and usability of its platform, providing a better experience for its users.

Final Designs

Following our initial design phase, our design team synthesized our insights from user research and usability tests to improve upon our initial prototype design.

Alyssa's Modifications

- Focused more on overview and navigability of the app

- Home Page
  - "Overall score" now takes up more screen space and has a color ring to help users quickly understand.
    - Main biometric measurements are also available at a glance
  - Added 'favorite friend' feature for home screen for easy access to trusted friends
  - Added frequently-used and saved coping mechanisms to home page for easy access
  - Dashboard for biometrics now accessible through the 'overall score' button
    - Added date selection ability
    - Added timelines and points to biometric graphs
    - Combined 'Screen time' and 'Social Media' to display the top 4 used media apps

- - Added 'hangouts' widget to allow users to track their social interactions

  - Added profile overview with list of settings.

    - 'My health info' allows users to view and tinker with personal health information that the app has gathered on them.

    - 'Display' allows users to modify the appearance of the app—especially the kind of emojis that appear during the check-in screen

    - 'Friends' allows users in-depth access to their friends' list; they may modify what information each friend has access to and add/remove friends in the favorites list.

    - 'Calibration' allows users to give their input on what their wearable senses and add upcoming events or links to calendars so that the app knows to ignore or learn from patterns.

      - Example: app detects symptoms of panic attack in the user and offers intervention. User can access the 'calibration' setting to tell the app that they were watching a horror movie. User can link a personal calendar to the app or add horror movie night event to app. App now knows to stay quiet during movie night.

      - Can also reset calibrations here if the app goes haywire.

    - 'Notifications'

      - Modify types of notifications given by the app

        - Example: users may want more privacy. Interventions are modified to be more subtle. Or: users tend to ignore interventions. Interventions now come with a loud alarm if ignored too many times.

      - Allows users to modify how often they are prompted to check in with the app.

    - 'Past Interventions'

- View types of past interventions and tell the app what does or doesn't work.

    ■ 'Help Center'

    - A help center. Has customer service and links to MYND website explaining how the app works.

- Friends tab

    ○ Concerns over font size addressed

    ○ Now clicking on a friend's picture puts them in a spotlight with buttons expanding on the subjects they're willing to chat about

    ○ Friends now filterable by issue

- Coping Mechanisms Tab

    ○ Not much change

    ○ For individual coping mechanisms:

        ■ Removed 'completed' box

        ■ Added 'share' feature to recommend coping mechanisms to friends

        ■ Added 'ratings' to let the app know and learn what kinds of coping mechanisms are best suited for the user

- Resources Tab

    ○ Modified resources map to include more relevant information on each professional that can be read at a glance.

    ○ Added different transportation options for users who may not have a car.

    ○ Modified professional names to include their degree

- Help Tab:

    ○ Quick links to different kinds of help

    ○ Emergency button is here in red

- First-Time User

- ○ Updated user flow to be immersive, eye-catching, and smooth

  - ○ Added unique check-in screen for first-time user

- Unique Case: Check-in time

  - ○ If users are in the MYND app when their check-in time arrives, a multi-colored 'plus' button pops up at the bottom of the screen and jiggles until the user clicks on it—in which case they're brought to the daily check-in screen.

Product Management

Upon joining forces with MYND, we identified the need to break down the product journey into various phases with the goal of mirroring the product life cycle of any startup idea. On the product management side, we sought to first identify and understand the exact problem that MYND aimed to solve. This exercise involves undertaking research studies: surveys and interviews to identify potential users, understand the needs of those potential users and their pain points—along with analysis to understand the gaps within the existing market and current technologies.

The process of identifying our target audience was nuanced and required a lot of consideration and collaborative effort to ensure that we were focusing on the right demographic that would not only be the most responsive to the MYND product but would also obtain the most utility from the app. During this research, our goal was to understand the various demographics, psychographics, and behaviors of potential users.

The next and current phase of the roadmap was to develop our product roadmap. Based on the identified problem, MVP solution, and targeted audience, we agreed on an outline of the key features and functionalities that the MYND app will offer. These features are listed below. Next steps include creating a timeline for development and identifying the resources required.

MVP Features

- Mood Monitoring: Mental Health Score

  - ○ Tracking of the following physical parameters. Output is input into MH Algorithm to provide synthesized Mental Health Score

    - ■ Sleep Tracking

    - ■ Heart Rate

- - - Heart Rate Variability

    - - Physical Steps

  - - GPS

    - - Activity Space and changes in Location

  - - Phone Usage

    - - Rate of incoming and outgoing texts

    - - Screen Time

  - - Self-Reporting

    - - Self-reported mood, feelings, triggers, thoughts.

- Mood Check In (If Mental Health Score Is Low)

  - Mood Validation of Mental Health Score

    - Evidence Based Suicide Screening based on suicide screening prompt

- Coping Mechanisms

  Recommended based on:

  - MentaL Health Score
  - User Validation
  - ML Algorithm

- Risk based interventions

  - Low Risk Interventions: Coping Mechanism Recommendations

  - High Risk Interventions: Strongly Recommend calling 911, 988, 288 (Emergency Services)

- Resource Recommendation

  - Customized resource recommendation based on demographic identifies such as:

    - User Location

- ■ Age

- ■ Insurance

- ■ Income

Learnings in The Field

Alyssa's Findings

- People in relationships influence each other's mental health; interviewed participants who were in a relationship reported relying on their partner to 'snap them out of it' when it came to undesirable behaviors.

- I found that I had to take the side of the research team when it came to presenting the findings. I discovered, very quickly, that MYND's founder's belief in our findings only runs as deep as my own belief in our findings, and as such, I had to ensure our findings had to be backed up with enough evidence to convince the founder.

- Astoundingly, I discovered that there are more types of professionals within the mental healthcare field than I originally thought. I was aware of 'psychiatrist' and 'psychologist', but I wasn't aware of 'psychotherapist', 'nurse', 'behavior analyst', 'therapist', and other specialists. I was also surprised to discover that there is no set degrees or certifications that define who is or isn't a mental healthcare worker—which makes the field all that more complex, with different approaches and opinions on

- I learned how to navigate research on complicated subjects and the importance of identifying bias within oneself. Mental health is a sensitive topic for both the people who deal with them and the people who help others work through them. I personally had concerns that interviewees may be reluctant to discuss certain topics—in particular, I had reservations about questions that may have answers that may veer too close to personal struggles, such as thoughts of self-harm. I also worried about putting healthcare professionals on the spot; I'm aware of certain law such as HIPAA that prevent healthcare professionals from revealing too much about the patients, and I didn't want to put any of them in a difficult situation where they felt like they had to choose between helping me or protecting their patients. As such, the team and I went through multiple iterations of the interview and survey questions to ensure that they are open-ended enough to allow interviewees to answer as they are comfortable and let healthcare professionals

know that they may refuse to answer. We were also careful to include definitions to more ambiguous words such as 'interventions' and what constitutes as a wearable. As a result, we still got the answers that we needed and there was minimal confusion surrounding the terminology used within the research project.

Calvin's Findings

- Mental health is a multifaceted concept that encompasses biological, psychological, and social dimensions. It is not just about being free of mental illnesses, but rather involves an individual's ability to cope with the challenges of daily life and contribute positively to their community. Thus, it requires a comprehensive approach that takes into account all of these aspects and considers the unique needs and circumstances of each individual.

- Despite the growing awareness and advocacy efforts around mental health, stigma remains a significant barrier to seeking treatment. This is largely due to the fear of social judgment, discrimination, or a lack of understanding about mental health issues. To overcome this challenge, it is crucial to promote a culture of openness and support around mental health, which includes educating people about mental health, creating inclusive and supportive environments, and ensuring access to affordable and high-quality mental health services. By doing so, individuals can feel empowered to seek the help they need without fear of shame or stigma.

Wadzanai's Findings

- As people become more aware of the importance of mental health, there seems to be a significant increase in the understanding that individuals need to be more proactive regarding their mental health state. However, findings from our research showed that stigmatization of mental health related occurrences or situations is very much an active deterrent in individuals seeking the help they need. This, we believe, is supported by the fact that our anonymized survey yielded incredibly honest and raw responses regarding the mental health state, struggles and triggers of respondents, unlike our face to face interviews.

- It was also interesting to observe that most of our respondents were not particularly concerned with the privacy and data confidentiality concerns in relation to their mental health data storage and technology. I found this to mean that it is highly likely that the market is ready to embrace disruptive solutions to the mental health crisis situation in and around the world.

Reflection and Future Work

Looking back on our user experience research for the MYND mental health app, it's clear that the juncture of technology and mental wellness offers an expansive, yet intricate field of possibilities. The research revealed that MYND has the potential to serve as an essential tool for individuals striving to manage their mental health.

Our study highlighted the criticality of usability and accessibility of MYND. Users applauded the app's intuitive design and the ease with which they could navigate through various features. The unique aspect of MYND, which offers personalized insights and recommendations based on user responses, struck a chord with many.

However, it's important to note that our findings also shed light on areas requiring enhancement. Some users expressed the desire for a wider range of therapeutic resources and more engaging interactive components. Such feedback offers us a path towards refinement and improvement.

As we consider future areas of work, addressing these areas for improvement is of utmost importance. Increasing the diversity of therapeutic techniques and resources, and introducing more interactive elements to keep users engaged would be our primary focus.

In addition, we should also contemplate engaging more potential users and health professionals in the process. Their perspectives and insights could provide invaluable contributions to the app's development. Incorporating more extensive interviewing processes and conducting additional usability tests would offer a more robust understanding of user needs and preferences.

One exciting avenue for future work could involve the development of an AI-based system capable of offering more personalized and dynamic user responses. Predictive modeling could help identify potential stressors for users and proactively provide tailored resources and strategies.

Future initiatives should also investigate the long-term efficacy of MYND. While our current research has illuminated the immediate user experience and short-term benefits, a comprehensive longitudinal study would offer insights into the app's sustained impact on users' mental health over extended periods.

Furthermore, a more detailed understanding of MYND's effectiveness across a wider demographic range would be beneficial. While our research included a diverse user base,

a more focused study on specific demographic groups' experiences could offer nuanced insights.

In conclusion, our research has underscored the pivotal role user experience plays in the development and enhancement of mental health apps like MYND. Our challenge moving forward will be to continually refine and adapt MYND to meet the evolving needs and expectations of our users, while steadfastly working towards our ultimate goal of promoting and improving mental health.

Special Thanks

To advisors John Chuang and Elliott Adams, thank you for your support throughout our last semester in the MIMS program. It has been a journey.

Appendix + Deliverables

[FINAL UI/UX PROTOTYPE](#)
[Visual Design + Preliminary UX flow](#)
[MYND Product Documentation](#)

[User Research Survey](#)

[Interview Questions: Healthcare Professionals](#)
[Interview Questions: Potential User](#)
[Interview Findings](#)

[Competitive Analysis: Template](#)
[Competitive Analysis: uMore](#)
[Competitive Analysis: Bearable](#)
[Competitive Analysis: Daylio](#)
[Competitive Analysis: Garmin Vivosmart 5](#)