



Moodicare: A Mobile App for Medication Adherence and Emotional Tracking

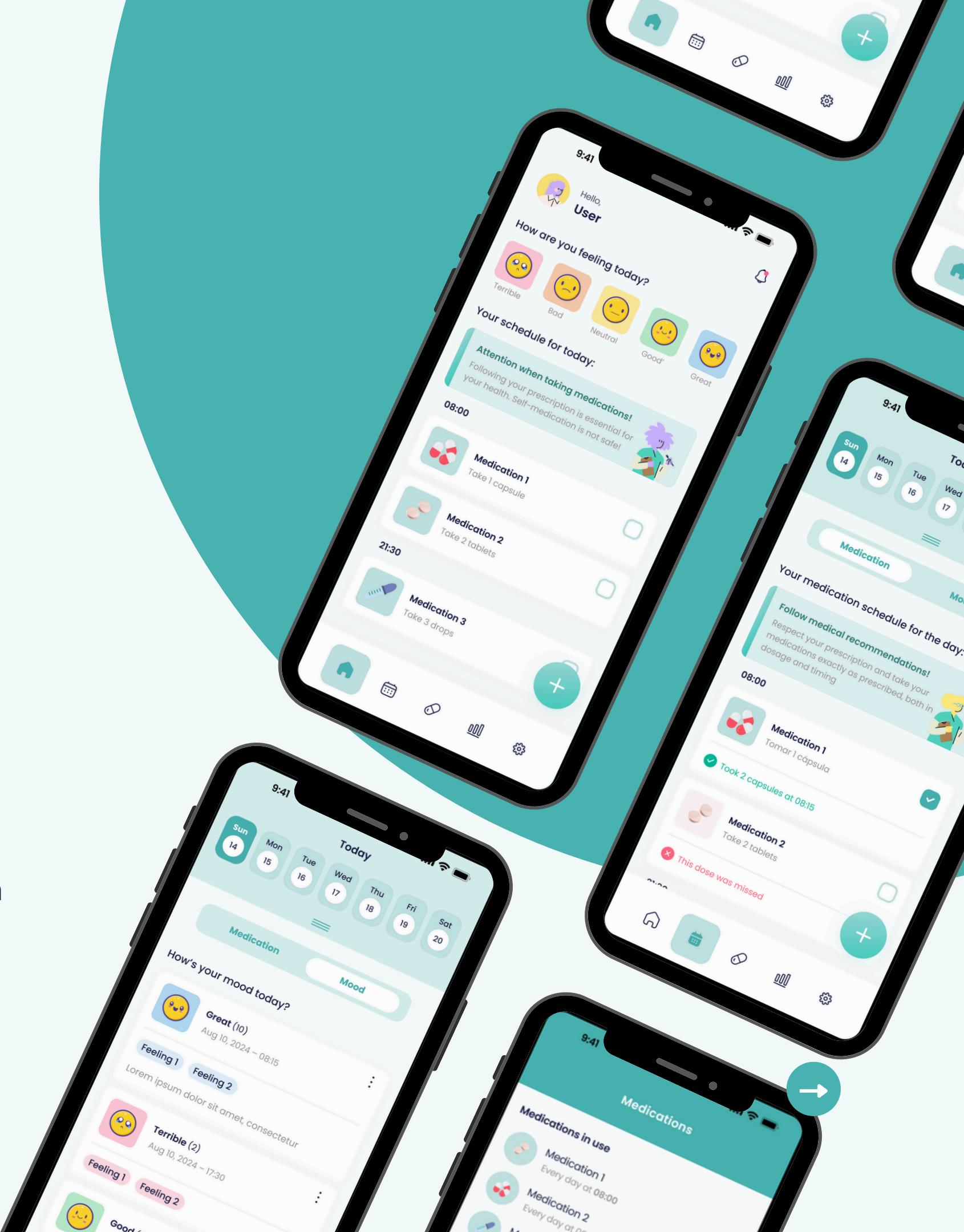
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Introduction

Prevalence

Mental disorders affect approximately **970 million people worldwide**, representing **13% of the global population**.

Adherence

Irregular medication use reduces **treatment effectiveness** and limits clinical progress.

Monitoring

Emotional states are not often tracked daily, restricting insight into **mood variations** over time.

Introduction

Access Barriers

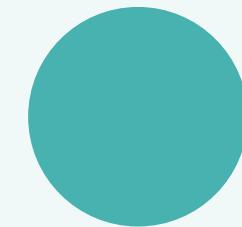
Access to **continuous** and **humanized care** remains **limited**, mainly due to the professional shortages, **social stigma**, and **systemic barriers** in healthcare delivery

Digital Potential

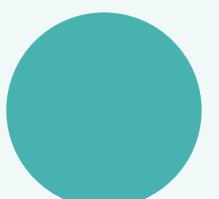
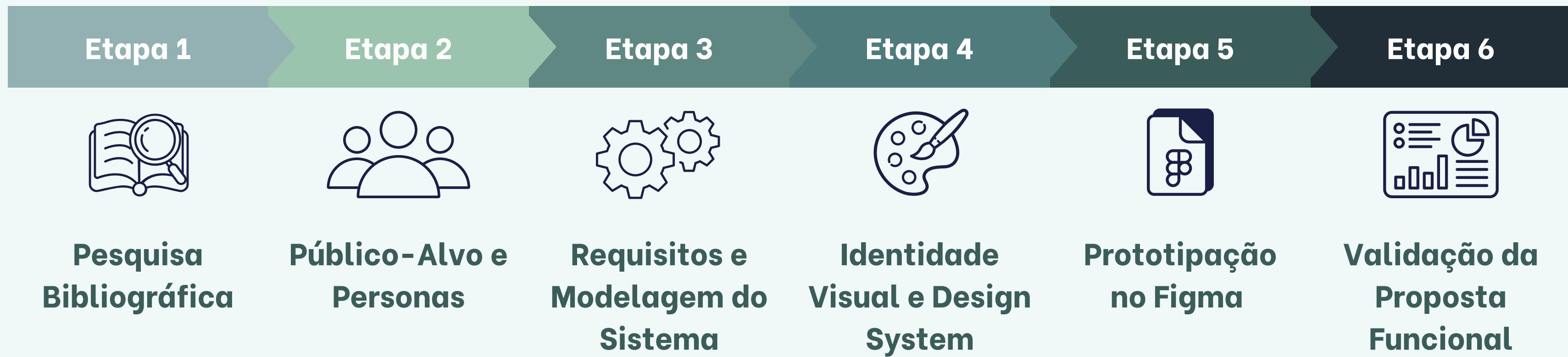
Mobile app have shown potential to **encourage self-care**, enable continuous **monitoring** of **emotional symptoms**, and support **adherence**

Complement

These tools promote **autonomy** and center the therapeutic process on **user experience**, acting as a **complement to traditional** clinical practices.



Metodology



Key Features of the Moodicare Prototype

Moodicare is a high-fidelity mobile app prototype developed to **support mental health** through enhanced **medication adherence** and **mood self-monitoring**. Grounded in **user-centered design principles**, it delivers an **accessible, integrated solution** that complements clinical care.



Manage Medications

Users can register prescribed drugs, receive automated reminders, and track dose adherence, facilitating therapeutic consistency.



Mood Tracking

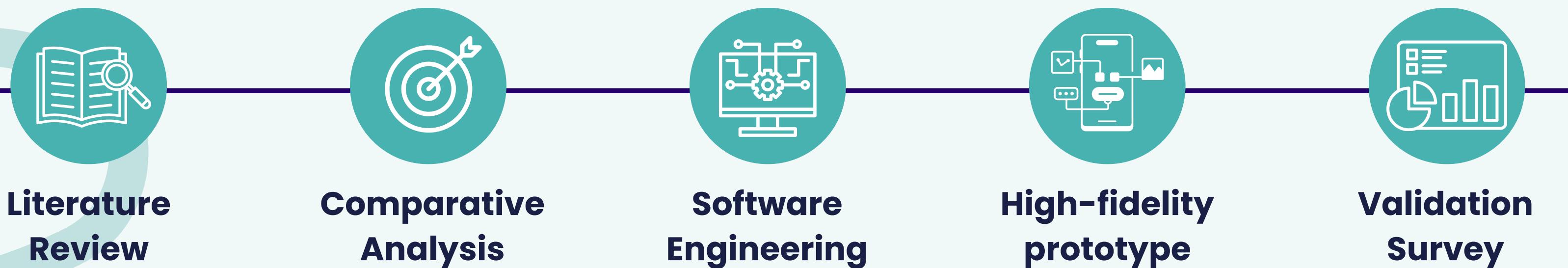
Emotional states can be recorded via numeric scales and personal notes, enabling users to identify patterns and improve self-reflection.



Visual Dashboards

The recorded data is displayed through interactive graphical representations, showing trends in medication usage and mood variations over time.

Methodology



Comparative Analysis

The market analysis included **nine mobile applications** targeting **medication tracking, emotional monitoring, or both**. While some apps offer robust features for one area, most fail to provide an integrated solution. For example, **Medisafe** and **MyTherapy** excel in **medication management**, while **Daylio** and **Breeze** focus on **mood tracking**. However, no single tool fully combines **both functionalities** with clinical export capabilities.

Application Name	Medication Tracking	Medication Reminders	Mood Tracking	Visual Reports	Clinical Data Export
 MyTherapy	✓	✓	✓	✓	✓
 Medisafe	✓	✓	✓	✓	✓
 Dr. Cuco	✓	✓	✓	✓	✓
 Pill Reminder	✓	✓	✓	✓	✓
 Bearable	✓	✓	✓	✓	✓
 Breeze	✓	✓	✓	✓	✓
 Me+	✓	✓	✓	✓	✓
 DailyBean	✓	✓	✓	✓	✓
 Daylio	✓	✓	✓	✓	✓



Comparative Analysis

A review of **eight scientific studies** revealed a similar pattern: most projects address **either medication adherence or emotional self-monitoring**, but rarely both in a unified system. **Usability** is often mentioned but **not consistently applied** through **user-centered design principles**. These findings highlight the need for integrated, accessible, and clinically relevant solutions.

Study Title	Main Objective	Related Features	Methodology	Relevance to the Project
Development and validation of a smartphone application to optimize therapeutic adherence in hypertensive patients (2023) [22]	To develop and validate an application to optimize therapeutic adherence in hypertensive patients	Medication reminders, dose confirmation, and report generation	Development of a functional prototype and usability evaluation	Directly addresses medication adherence, with a focus on notifications
Efficacy of a Smartphone App in Enhancing Medication Adherence and Accuracy in Individuals With Schizophrenia During the COVID-19 Pandemic (2023)[23]	To evaluate the effectiveness of an app with facial recognition for medication adherence in patients with schizophrenia	Facial recognition, dose intake confirmation, automatic reports	Randomized clinical trial measuring adherence and psychiatric symptoms	Scientific validation in a psychiatric population, aligned with the project's focus
Development and usability testing of the BMT4me© mHealth app for medication adherence in pediatric stem cell transplant patients (2024) [24]	To develop and test a medication adherence app for pediatric post-transplant patients	Personalized reminders, visual diary, symptom tracking	User-centered approach involving multiple stakeholders for app development	Provides insights into user-centered design and adaptable features
A Mobile App-Based Intervention for Depression: End-User and Expert Usability Testing Study (2023) [25]	To evaluate user experience and usability of an app for depression intervention	Reminders, personalized goals, motivational reinforcements	Usability study with end users and experts, using standardized scales	Provides evidence on usability and engagement, relevant to the project's development
Development and evaluation of an app for monitoring the mental health of university students (2021) [26]	To develop and evaluate an app for screening and tracking emotional symptoms in students	Emotional scales, reflective journaling, educational content	Applied study with validation through testing with the target audience	Emotional monitoring structure applicable to the project's context
Aconchego: development and validation of an application to support mental health (2023) [27]	To design and validate an app focused on emotional support and care	Mood self-assessment, supportive messages, emotional journaling	App development and validation by mental health and technology experts	Integrates subjective aspects of emotional care, aligned with the project scope
In the Mood: Engaging Teenagers in Psychotherapy Using Mobile Phones (2011) [28]	To engage adolescents in psychotherapy through emotional tracking via mobile application	Mood tracking, reports, integration with therapy	Development of a symptom tracking tool used in clinical settings with adolescents	Demonstrates practical use of emotional tracking in therapeutic contexts
Engagement in mobile phone app for self-monitoring of emotional wellbeing predicts changes in mental health: MoodPrism (2017) [29]	To investigate the impact of engagement with a self-monitoring app on mental health	Daily tracking, visual feedback, gamification	Longitudinal study analyzing the relationship between app usage and changes in psychiatric symptoms	Provides quantitative basis on the emotional impact of mood-tracking apps



Proposed Architecture

System Structure

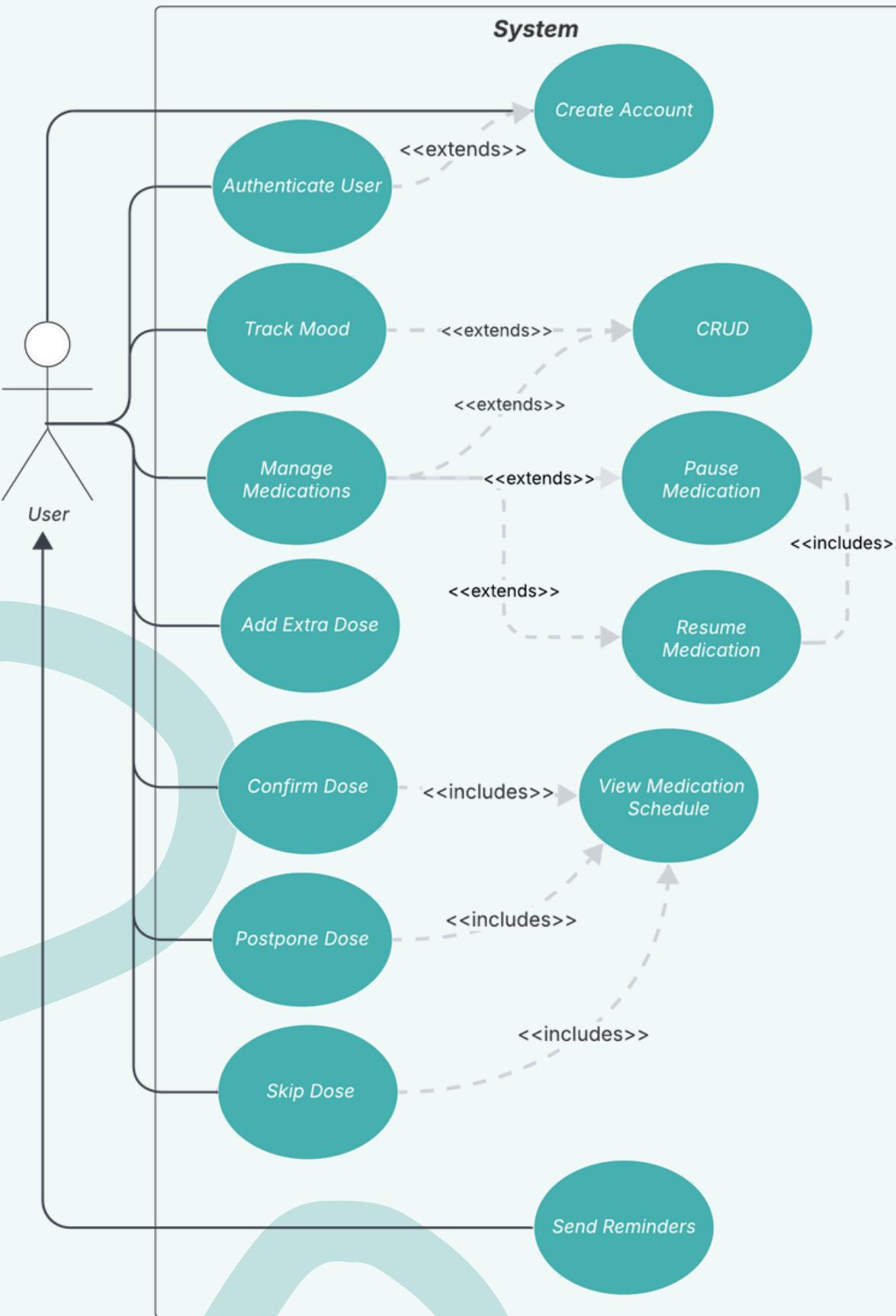
Describes how **user interactions** were modeled through **use cases**, defining the application's **functional scope** and aligning **user flows** with technical requirements

Design System

A cohesive **visual system** was established, including **colors, typography, and reusable components**

Prototyping

Interfaces were created in **Figma** with **high-fidelity prototypes** detailed annotations, visual clarity, and flow simulation



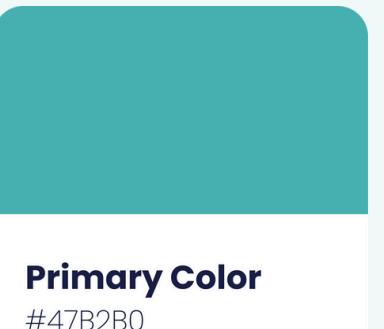
Use Case Diagram

- User-centered interaction flow:** The diagram models the user's core interactions with the system, structured around medication and mood management.
- Modular structure and CRUD operations:** Key actions such as tracking mood, confirming or postponing doses, and managing treatments follow CRUD logic.
- Reminder automation and treatment support:** Based on registered schedules, the system sends automated reminders to reduce forgetfulness and reinforce medication adherence.

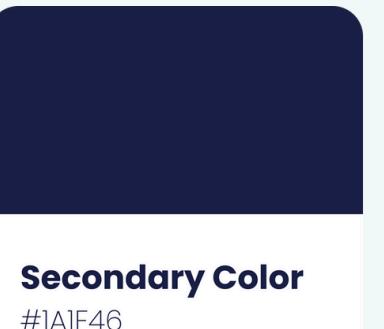


Visual Identity

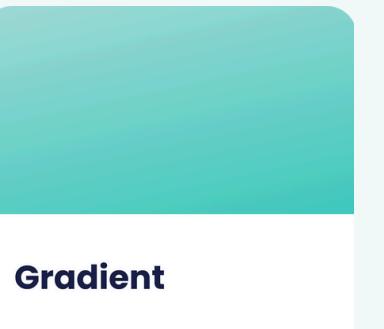
The visual identity was designed to convey **clarity**, **empathy**, and **trust**, aligning with the emotional needs of users in **mental health contexts**.



Primary Color
#47B2B0



Secondary Color
#1A1F46



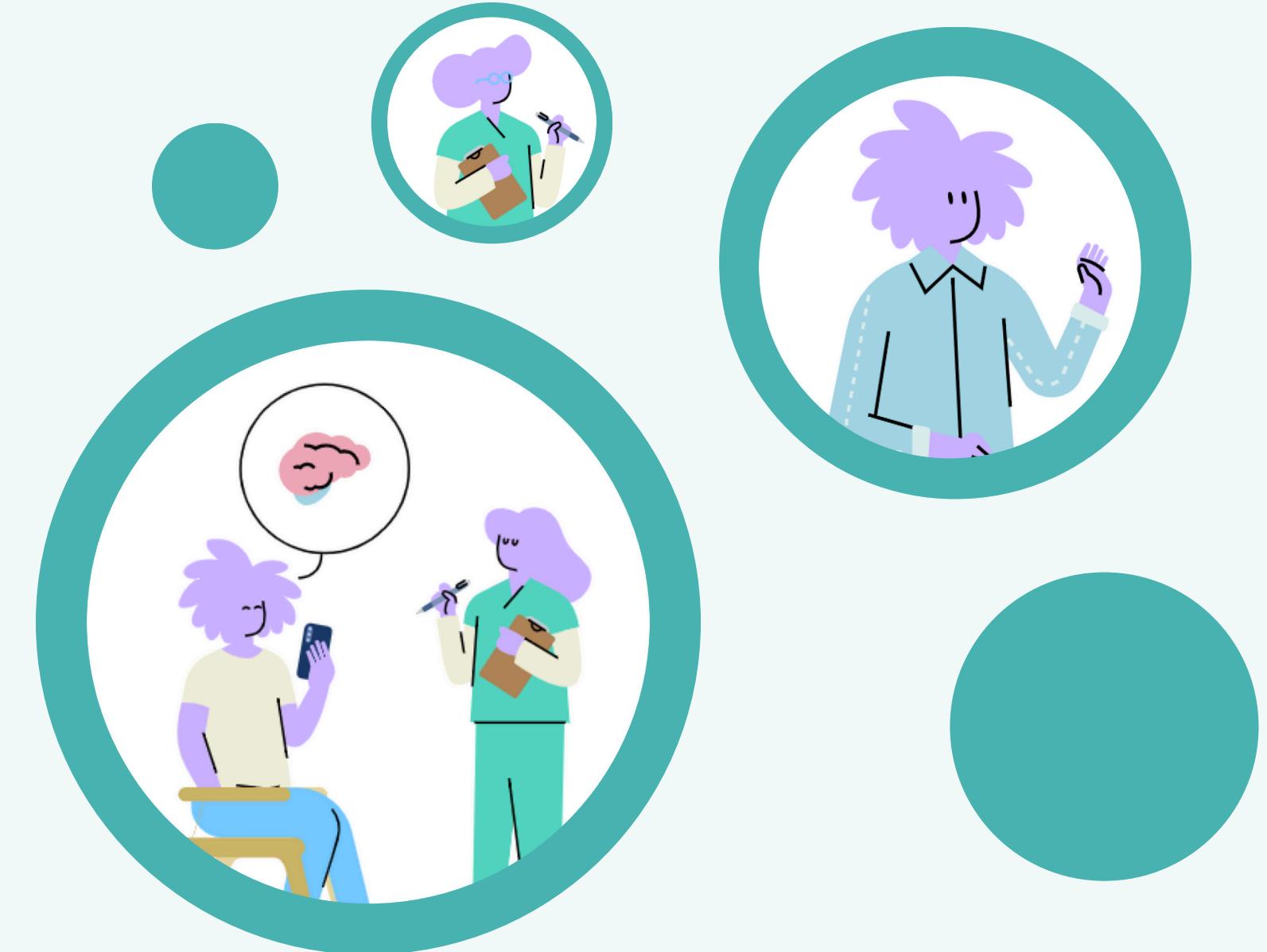
Gradient

Ag
Poppins

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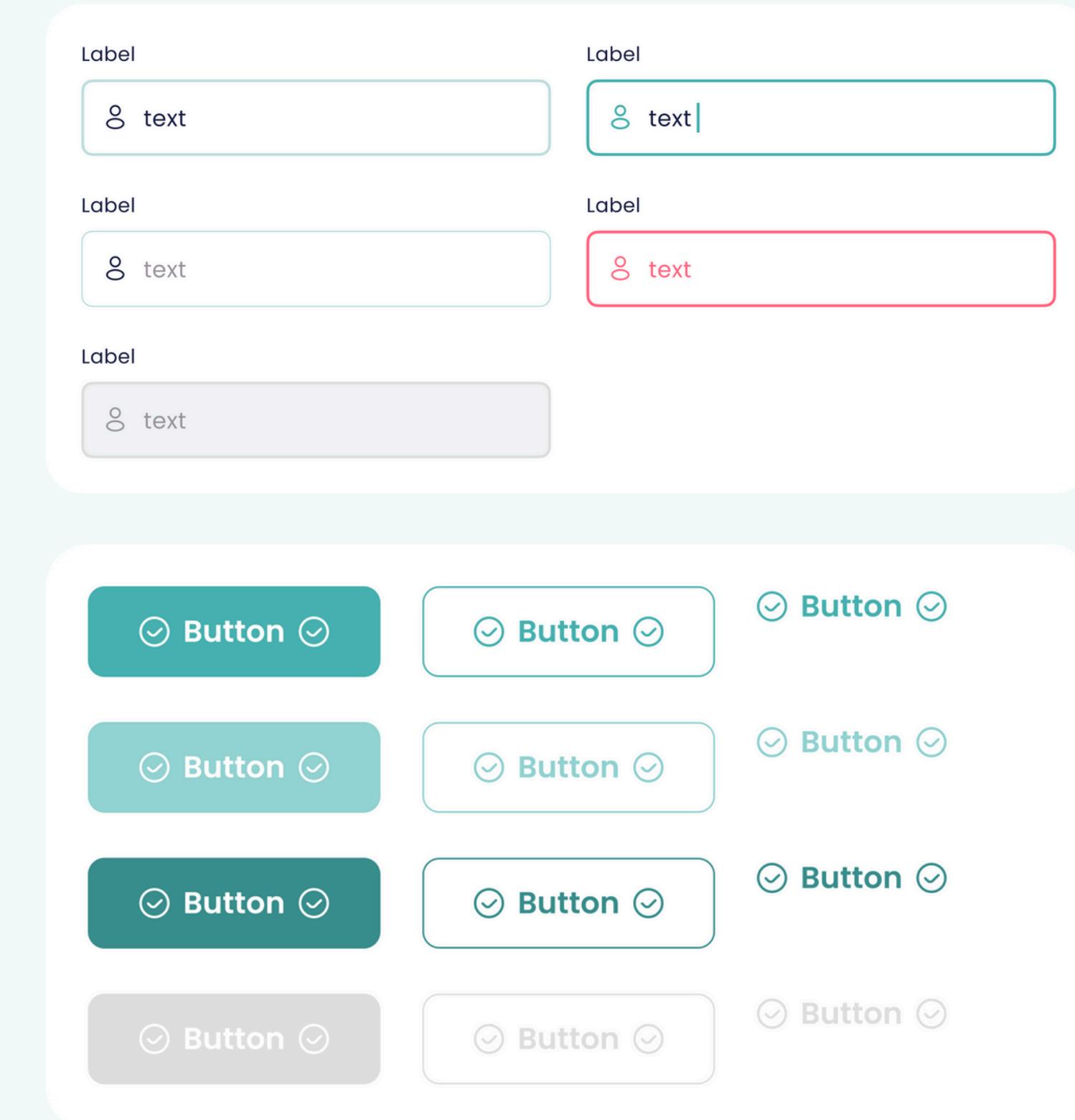
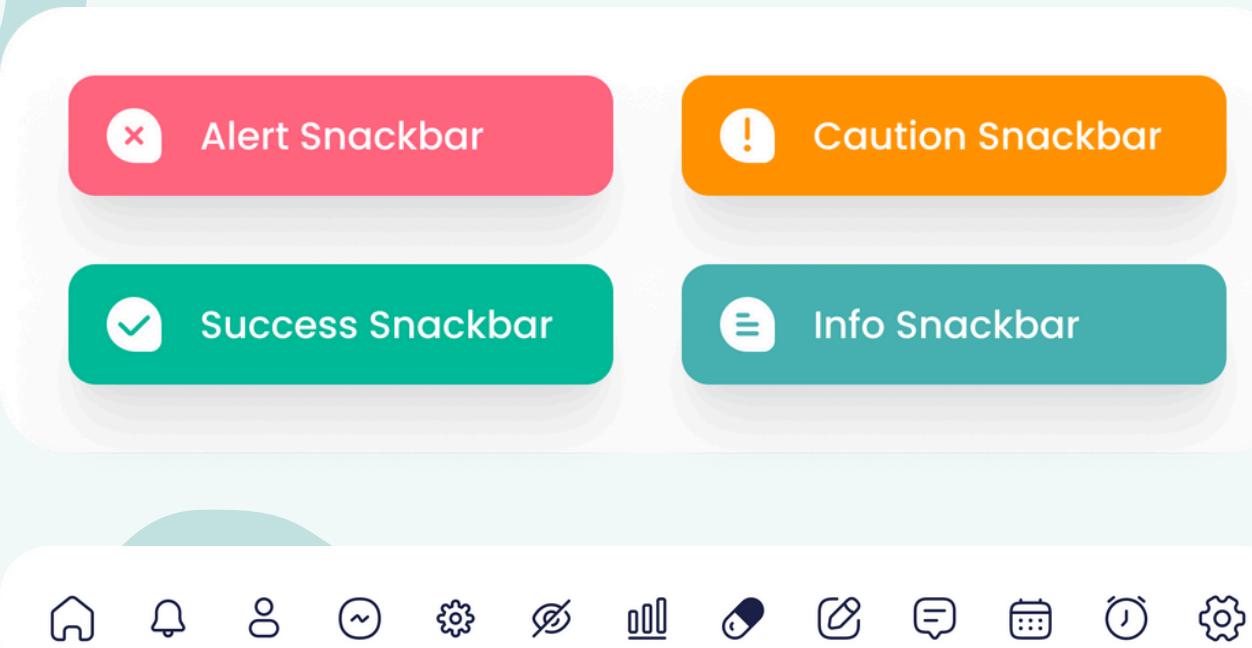


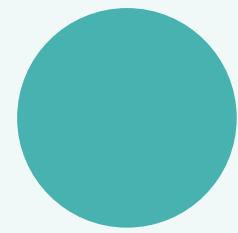
Moodicare



Reusable Components

A modular **design system** was created in **Figma** to ensure **consistency across screens**. This includes buttons, input fields, icons, calendars, and alert messages — all designed to work together as part of a unified visual system.





System Interfaces

A **high-fidelity prototype** was created in **Figma**, with **documentation** of interface states, **interaction** patterns, and **navigation flows** to ensure **implementation fidelity** and **consistency** with the intended **user experience**.

Clear Navigation Flow

Figma Mapping

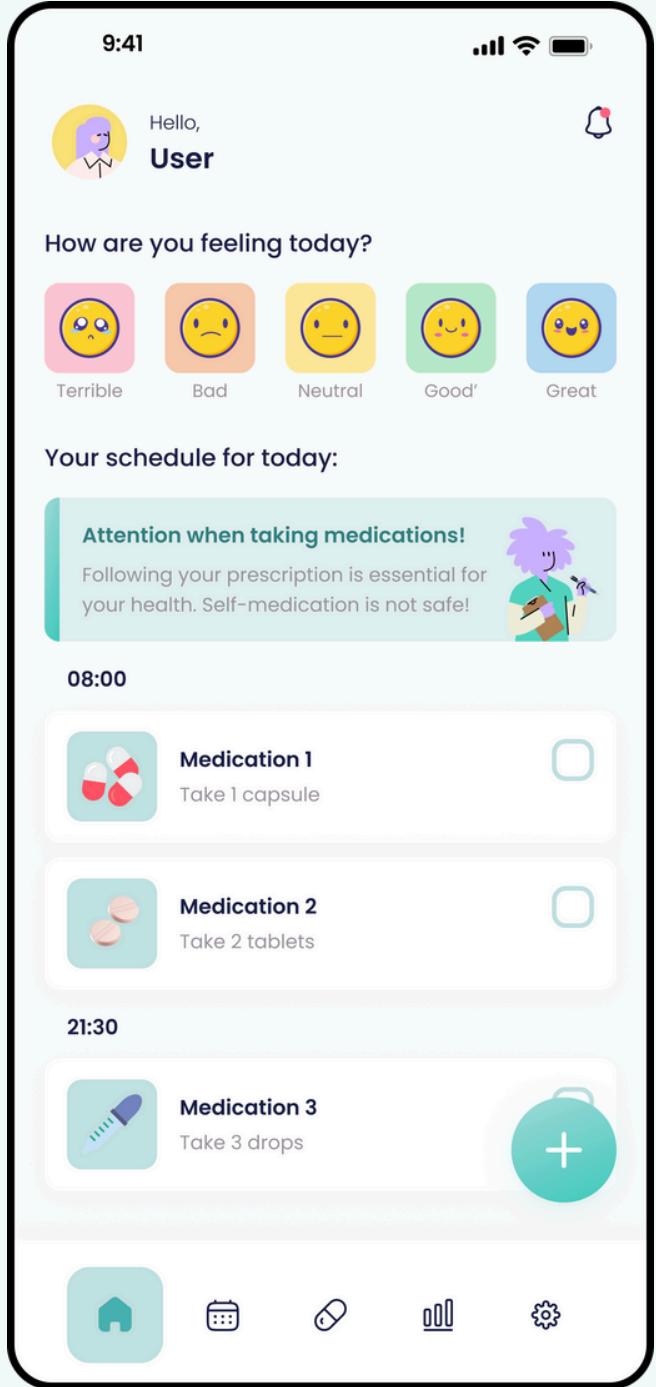
Consistent Design

Educational Messages

Accessible Structure

Implementation Support





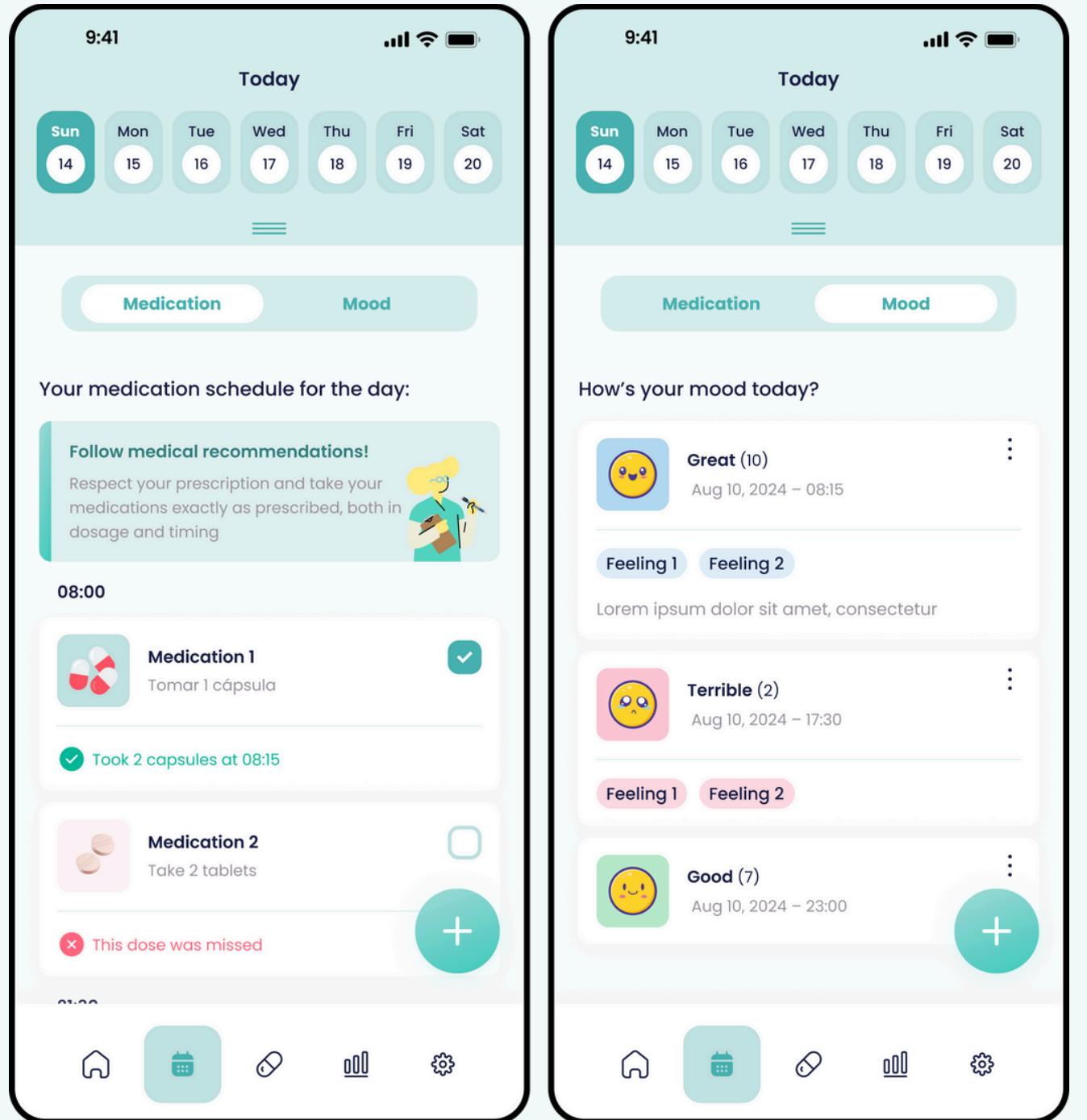
System Interfaces

On the **home screen**, users are invited to record their **current emotional state** using **emoji-style buttons**.

An **educational message** reinforces the importance of following **prescriptions** and **avoiding self-medication**.

Just below, the **medication schedule** for the day is displayed in a clear and organized list, where users can also **indicate whether a dose was taken or not**.





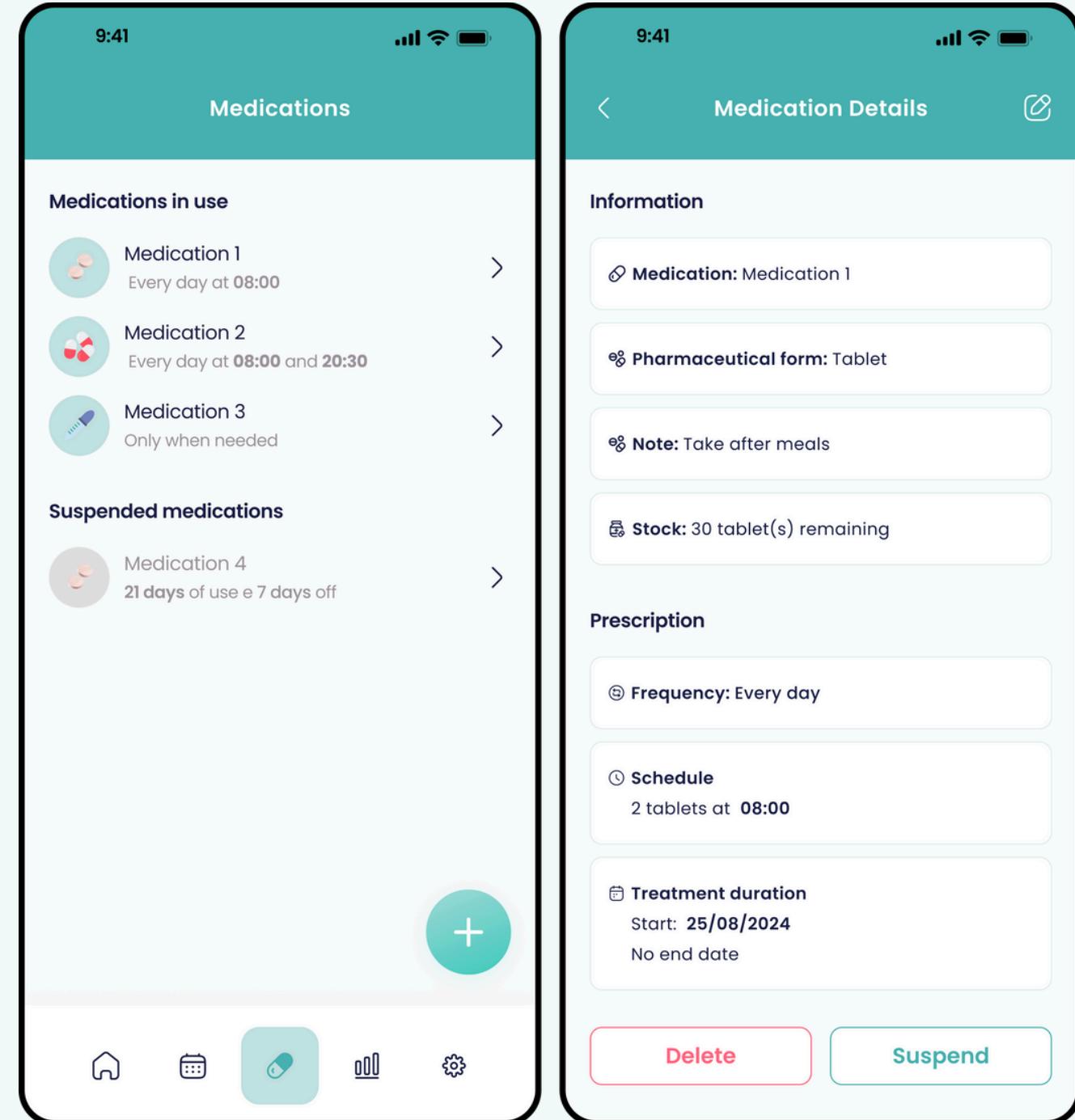
System Interfaces

The **calendar screen** allows users to navigate by date and view **two distinct tabs**:

Medication tab: users can check whether **doses** were taken, postponed, or skipped. An **educational message** reinforces safe medication use.

Mood tab: users can **access previous emotional records**, including selected feelings and notes.





System Interfaces

The **medication screen** displays the **list of medications**, clearly separated into **active** and **suspended treatments**.

By accessing a **medication's details**, users can review prescription info, edit data, suspend usage, or delete item.

These features provide **autonomy** and **precise control** over **therapeutic routines**.



Results and Discussion

Participants

A total of **65 people** took part in the validation survey, including **healthcare professionals** and Information Systems **students from the IFC – Camboriú Campus.**

Survey Structure

- 1 – Sociodemographic and health profile**
- 2 – Well-being and routine indicators**
- 3 – Interest in digital mental health tools**

Objective

The survey aimed to assess **user receptiveness**, understand **therapeutic needs**, and explore the level of **interest in digital health solutions**

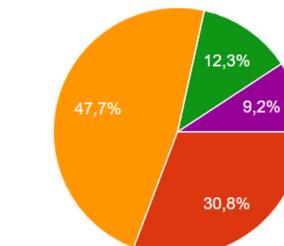
Results and Discussion

The survey included questions about **sociodemographic data, mental health history**, and current or past **medication use**.

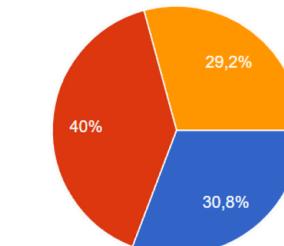
Participants were asked about their **employment, health conditions**, and whether they or their relatives had received **psychological care or a diagnosis**.

This information helped **characterize the target audience** and contextualize the app's relevance — with over 80% reporting a close relative diagnosed with a mental disorder.

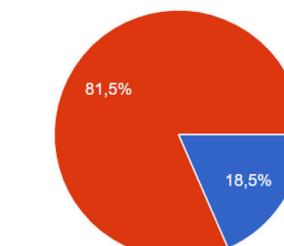
What is your age range?



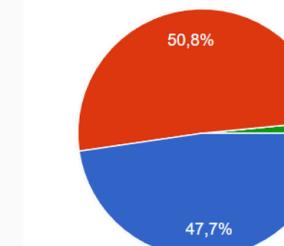
Are you currently or have you previously received psychological or psychiatric care?



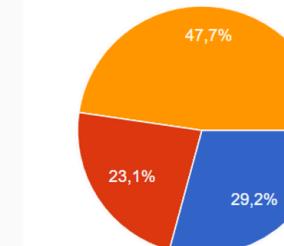
Do you have any chronic illness (e.g., diabetes, hypertension, asthma)?



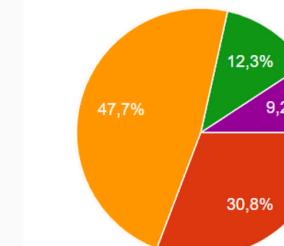
Which gender do you identify with?



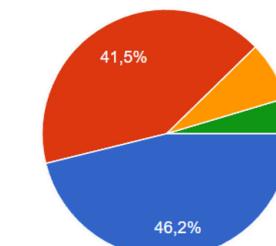
Have you ever used or do you currently use medication for mental health?



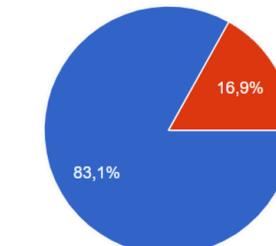
Have you ever used or do you currently use long-term medication for any condition other than mental health?



Are you currently employed?



Has any close relative ever been diagnosed with a mental disorder?



Results and Discussion

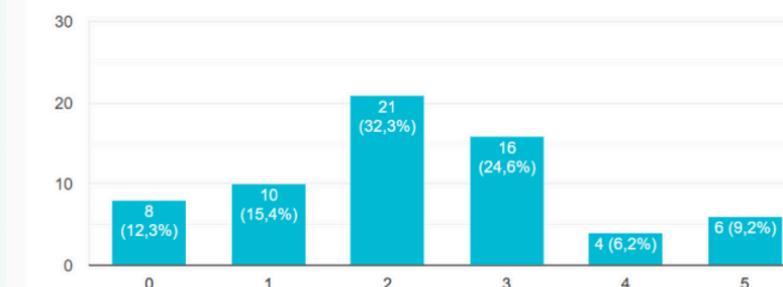
Participants reported on their **habits** and **challenges** related to **self-care, emotional stability, and medication adherence**.

More than **55% reported frequent forgetfulness** regarding their medication, and over **70% indicated high stress levels**.

These patterns reinforce the **importance** of tools that support daily monitoring and help structure therapeutic routines effectively.

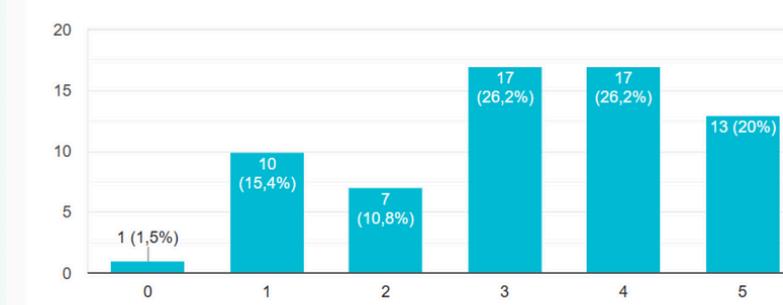
How often do you forget to take your medication?

0 = I never forget / 5 = I forget very often



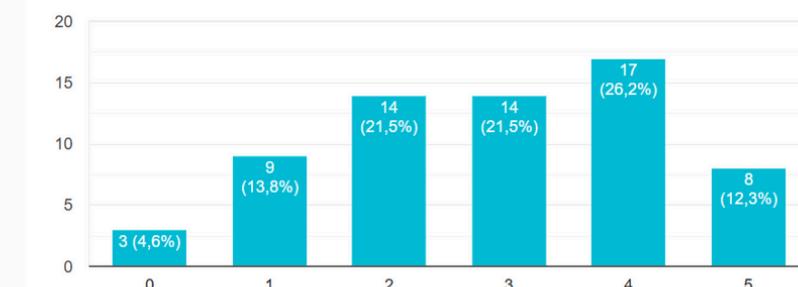
In the past few days, how would you rate your stress level?

0 = I never forget / 5 = I forget very often



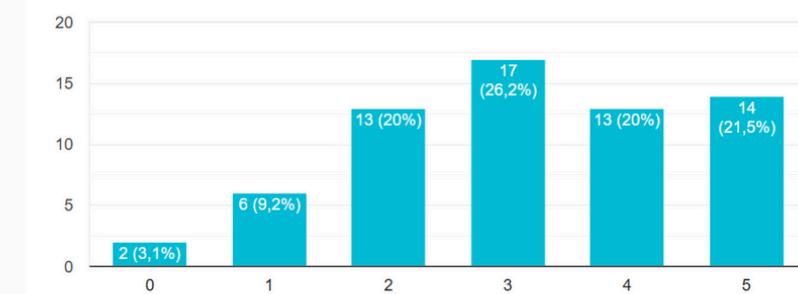
Do you experience mood swings throughout the week?

0 = I never notice changes / 5 = I experience mood swings almost every day



In the past few days, have you done things that help you relax or feel good? (such as resting, going out, talking to someone, having time for yourself, etc.)

0 = I haven't done any of these / 5 = I've done this frequently



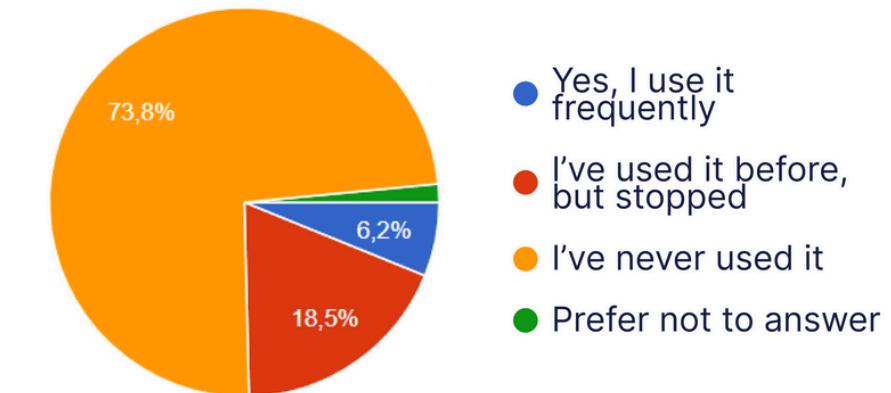
Results and Discussion

The last part of the survey explored participants' **previous experiences with health-related apps**, and their willingness to **use solutions like Moodicare**.

Although over **76% had never used this type of app**, most expressed **strong interest** in features like reminders, mood tracking, and personalized reports.

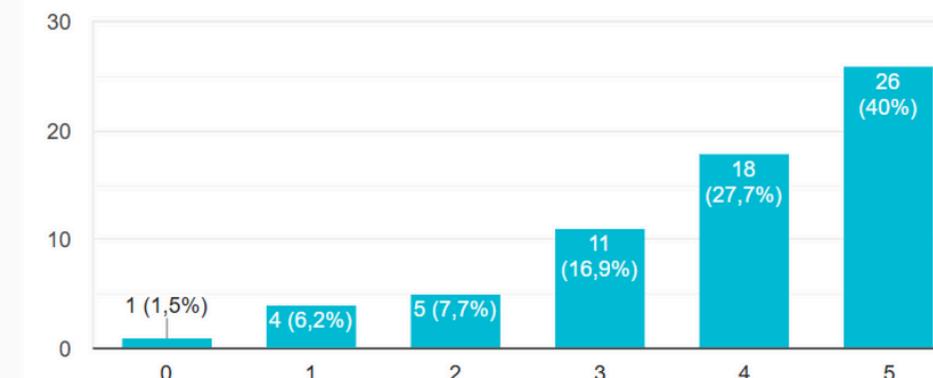
This contrast reveals a **gap between existing tools and user needs** — and confirms Moodicare's potential for real-world adoption.

Have you ever used a health-related app, such as for emotional well-being or medication reminders?



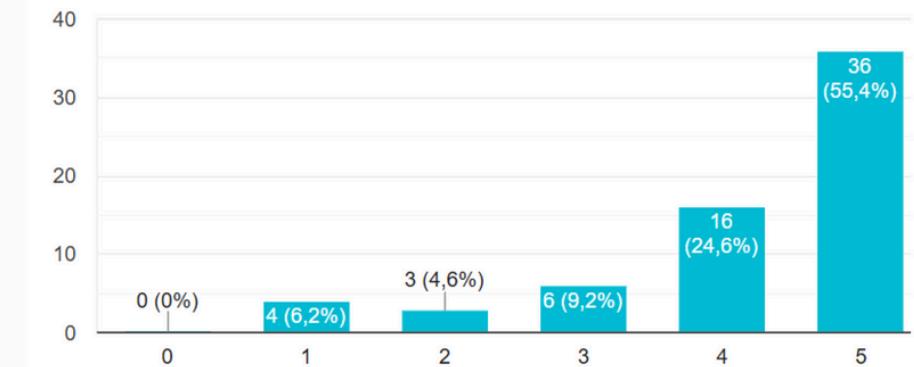
Would you use an app to record how you're feeling throughout the days?

0 = I would never use it / 5 = I would definitely use it

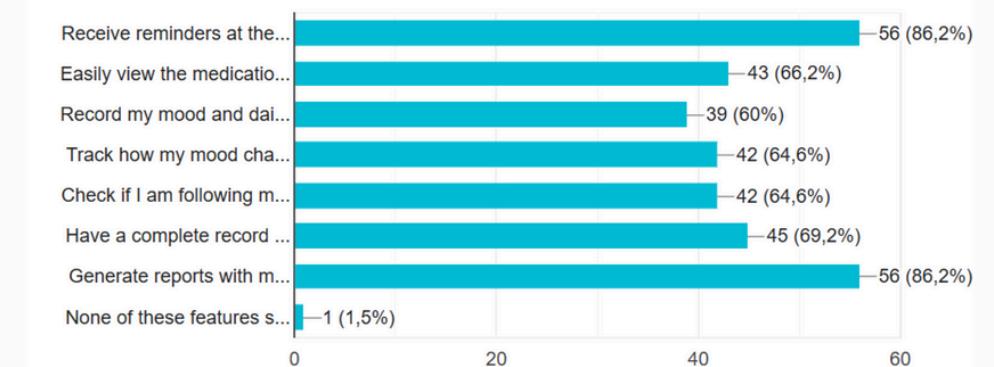


Would you use an app to help you remember your medication times?

0 = I would never use it / 5 = I would definitely use it



Which of the following features would you find most useful in an app like this? (You can select more than one option)

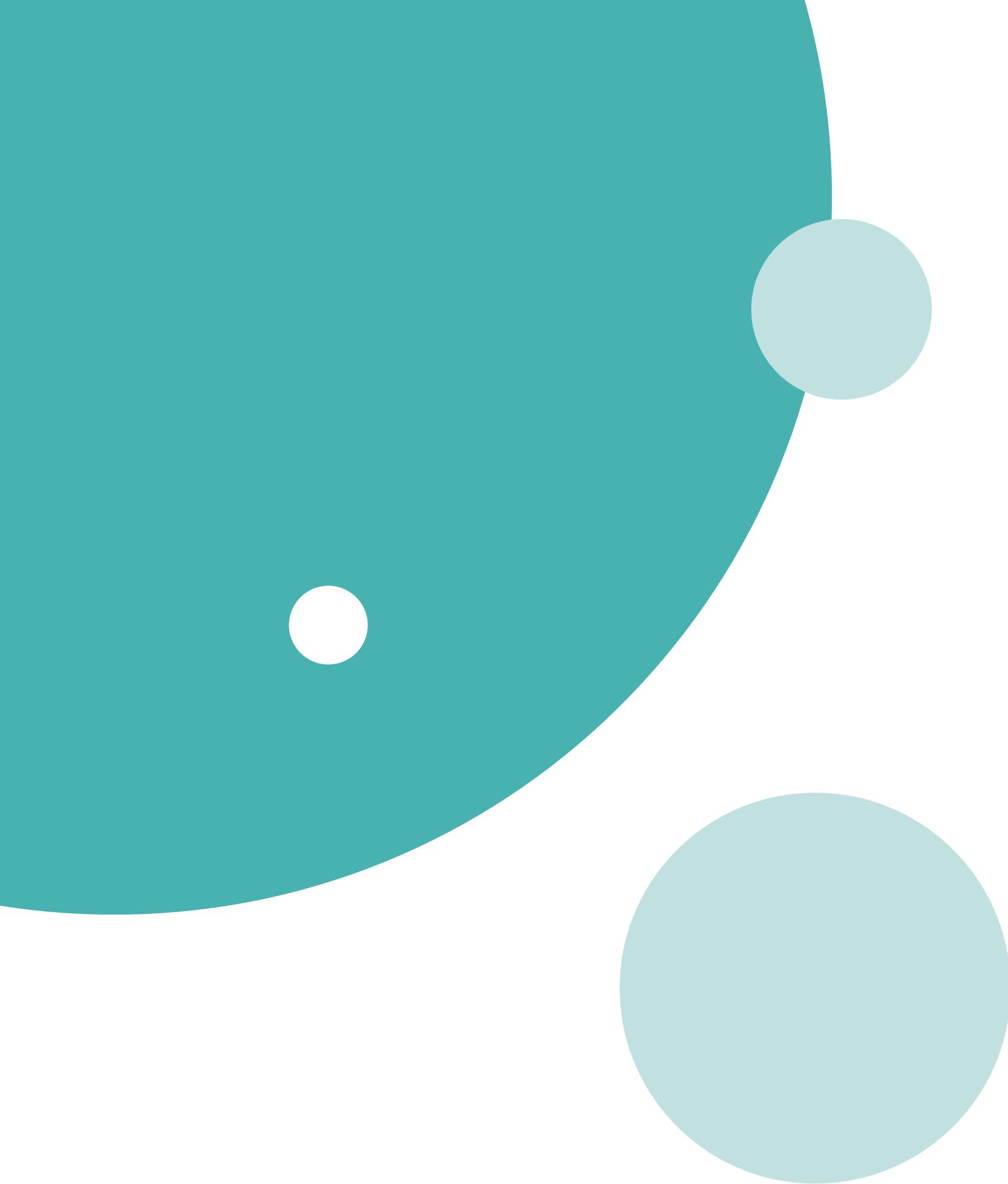


Conclusion



- 🔍 Based on **literature review** and **analysis** of existing apps and scientific studies
- 🔧 Structured using **software engineering** and **user-centered design** principles
- 🎯 **Prototype developed** to support medication adherence and mood tracking in a **single platform**, using high-fidelity prototypes
- 📊 **Validation survey** confirmed user interest, especially in features like reminders, mood logs, and clinical reports
- 🚀 **Next steps:** system **implementation**, real-world **usability testing**, and future improvements based on user feedback, including gamification and AI-assisted insights





**Thank You
for Watching**