

Milestone - 01

Human-Computer Interaction

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1 Problem Statement

After recovering from major surgeries, there are post-operative patients who experience significant levels of depression and anxiety during their hospitalization and recovery period. They often can not get out of this problematic situation easily. They do not get the proper solution and get disturbed in the recovery phase. Their social life gets hampered, and they often feel miserable. In order to reduce depression and anxiety, our solution should offer these patients a thorough and individualized mental health support program within the hospital setting. This program should incorporate therapy, mindfulness exercises, and social interaction.

The specific group for our team is patients who have gone through operations or any kind of surgery.

1.1 Target User

The target user group is Post-operative Patients. This is the main target user group for the particular problem statement of our research topic. Here are some major identified problems that our target user group might face.

- **Emotional Distress:** During their hospital stay and recuperation period, post-operative patients frequently exhibit elevated levels of anxiety and sadness. Emotional anguish is exacerbated by the difficulties related to surgery and the uncertainties surrounding the healing process.
- **Lack of Mental Health Support:** It's possible that hospitals may not emphasize mental health issues or have programs specifically designed to help people recover from surgery. Consequently, it's possible that these people won't get enough support or care to take care of their mental health.
- **Social Isolation:** Prolonged hospital stays and post-surgery physical mobility limits can cause social isolation. Individuals suffering from loneliness and sadness may feel cut off from their regular social networks.
- **Limited Coping Processes:** Throughout their rehabilitation, patients may not have access to healthy coping strategies or instruments for handling stress, anxiety, and depression. They struggle to discover solutions to their emotional problems in the absence of appropriate direction or assistance.
- **Impact on Recovery:** Mental health conditions such as anxiety and depression may make recovery more difficult. High-distress patients could heal more slowly or be less motivated to participate in rehabilitation programs.
- **Need for Personalized Assistance:** Mental health assistance programs specifically designed to meet each person's needs and preferences are required. A universal

strategy might not adequately address the range of emotional requirements that post-operative patients have.

- **Long-term Effect on Social Life:** Patients' social lives may be negatively impacted for some time if they have protracted bouts of anxiety and despair during the healing stage. This might make it more difficult for them to establish positive connections and reintegrate into society when they recover.
- **Holistic strategy:** A multifaceted strategy that includes social contact, mindfulness training, and therapy may be beneficial for patients. Lack of access to such extensive programs may make it more difficult for them to successfully manage emotional difficulties.

In this particular context, addressing these problems which are identified by secondary research skills for post-operative patient's emotional health and overall recuperation.

1.2 Literature Review

Problem Statement and Challenges for Post-operative Patients: Postoperative patients encounter a number of difficulties, including mental anguish, insufficient pain treatment, and the need for specialized postoperative patient education and handover protocols [1][2][3][4][5][6]. Even with painkillers, research shows that a sizable portion of post-operative inpatients endure moderate to severe pain [1]. Patients' level of satisfaction with therapy is influenced by the correlation between their impression of pain alleviation and the severity of their pain [1][6]. Hospitalization is associated with a high prevalence of emotional discomfort, including anxiety and depression, which negatively affects patients' healing [2][3]. Patients' psychological health and sleep habits are influenced by ward design

and environmental conditions [2]. Furthermore, age-related variables have a substantial impact on postoperative pain management, requiring customized drug dosage strategies [4].

Target Audience: Specifically, patients recuperating from surgeries or operations especially those who are experiencing emotional discomfort, insufficient pain treatment, and the need for individualized education and care transitions are the target audience for interventions addressing post-operative problems [1][2][3][4][5][6].

Background and Rationale: Several research studies highlight the importance of customized pain treatment, efficient care transitions, and postoperative patient education in improving patient outcomes and overall health [1][2][3][4][5][6]. These studies recognize the relationship between treatment satisfaction and patient-reported pain levels, underscoring the need for better pain evaluation and management techniques [1][6]. Moreover, age-related variations in pain alleviation emphasize the need for tailored medicine delivery strategies [4]. The psychological well-being of patients is also influenced by ward design and environmental elements, indicating the need to improve physical surroundings to promote recovery [2].

2 Data Collection Process

For the data collection process, we maintained three steps:

1. In the initial phase we made sure what age groups to consider and what not.
 - Minor groups or children. The reason is that they often can not give consent for their data and information, we have to make sure we are getting consent from their guardians. Also, the data they are sharing may or may not cover all the possible details so we had to opt this out.
 - People of legal age who can give consent for their provided information. The age group is 18 to above.
2. We took permission from the authority to conduct interviews on our user group as our target audience will be either in the hospitalization phase or will be having surgery soon. To get data from them, the first thing we had to do was to make sure we were not invading their privacy and security.
3. We went to the hospital and arranged 8 sessions for 1 hour for the interview.

2.1 Research Method

For the research purpose, we have conducted interviews with our target audience. For us, this was the most convenient way to understand our user group. The one-to-one conversation helped us to understand the real experience of the user. For the question part, we asked them open-ended questions to avoid any directive answers.

2.2 Process of reaching target users

We approached the hospital authority and asked for their permission. After getting permission, we conducted interviews physically to understand our target user group properly. We shared insights regarding our work, assured them, asked for their consent, and started our interview.

2.3 Demographics of participants

Participants in our study came from a wide age range, ranging from 20 and up to 50 and older. We were able to record a wide range of experiences and viewpoints from post-operative patients because of our purposeful inclusion in age groups. Our study aims to provide deeper and more applicable insights into the effects of mental health support programs across different life phases by including a diverse range of age groups, hence increasing the study's depth and applicability.

2.4 Types of Data

Our data collection process primarily focused on generating rich qualitative data. Through in-depth interviews and observational studies, we sought to gather detailed narratives, emotions, and personal experiences from post-operative patients. This qualitative approach was chosen to foster a deep understanding of the participants' perspectives, allowing us to uncover the intricate aspects of their mental health journeys within the hospital setting. The qualitative data obtained forms the backbone of our analysis, providing a holistic and nuanced portrayal of the participants' experiences and responses to the mental health support program.

2.5 Process of recording collected data

We used a dual method of data gathering to make sure that our research findings were accurately and completely documented. Observational research involved meticulous handwritten notes and annotations that captured the subtleties of patient behavior, interactions, and surrounding conditions. Concurrently, audio recordings of in-depth interviews were made with participants' express consent. In order to protect against any data loss and to offer flexibility in data analysis, a multifaceted technique was implemented. The integration of thorough notes and audio recordings forms a strong basis that facilitates the extraction of subtle insights during the data preparation stage and guarantees the preservation of important material for our research goals.

2.6 Challenges during data collection

Initially, we faced several difficulties since patients would not agree to engage in interviews. However, we were able to win their trust and consent to conduct the interviews by having honest and compassionate conversations in which we described the main points and significance of our interviews. This initial reluctance eventually gave way to a readiness to offer their insightful opinions, which enhanced the breadth of our study.

- **Emotional distress and reluctance of post-operative patients.**

We implemented a comprehensive informed consent process, emphasizing the voluntary nature of participation and the confidentiality of responses while being attentive to participants' emotional well-being.

- **Limited time and energy of post-operative patients.**

Collaborated closely with hospital staff to schedule interviews during periods when patients were most alert, avoiding times of high fatigue, and demonstrating our commitment to their comfort.

- **Maintaining consistency in observational studies.**

Conduct regular training sessions for our team of researchers to ensure uniformity in data collection methods and observations, with periodic calibration checks to maintain reliability.

3 Data Analysis Process

3.1 Final insight of Affinity Diagram

During post-operative patient interviews, important insights about their experiences with mental health are highlighted in the affinity diagram. Here, common themes include the need for continuous mental health assistance both during and after recovery, the variety of coping strategies individuals use, the influence of social contact on mental health, and recommendations for enhancing mental health services. Some individuals voiced their displeasure with the hospital setting and emphasized how crucial staff education is when it comes to handling mental health issues.

3.2 Findings we did not know

We found out that despite the need to share their experiences and create interactions, patients faced difficulties and often got lost in thoughts and could not convey their feelings properly.

3.3 Confirmation of different aspects that we suspected

- Initially, we suspected that post-operative patients might experience social isolation due to their inability but later on after the analysis, it is an actual fact that people spend some extreme alone time in isolation and they feel left out of a healthy social life.

- From the analysis, we found that the patients did not get enough mental support the way they were supposed to.

4 Affinity Diagram

You have already created an affinity diagram on Miro, please share the link again with this report.

<https://miro.com/app/board/uXjVNfrrTzk=/>

5 Personas

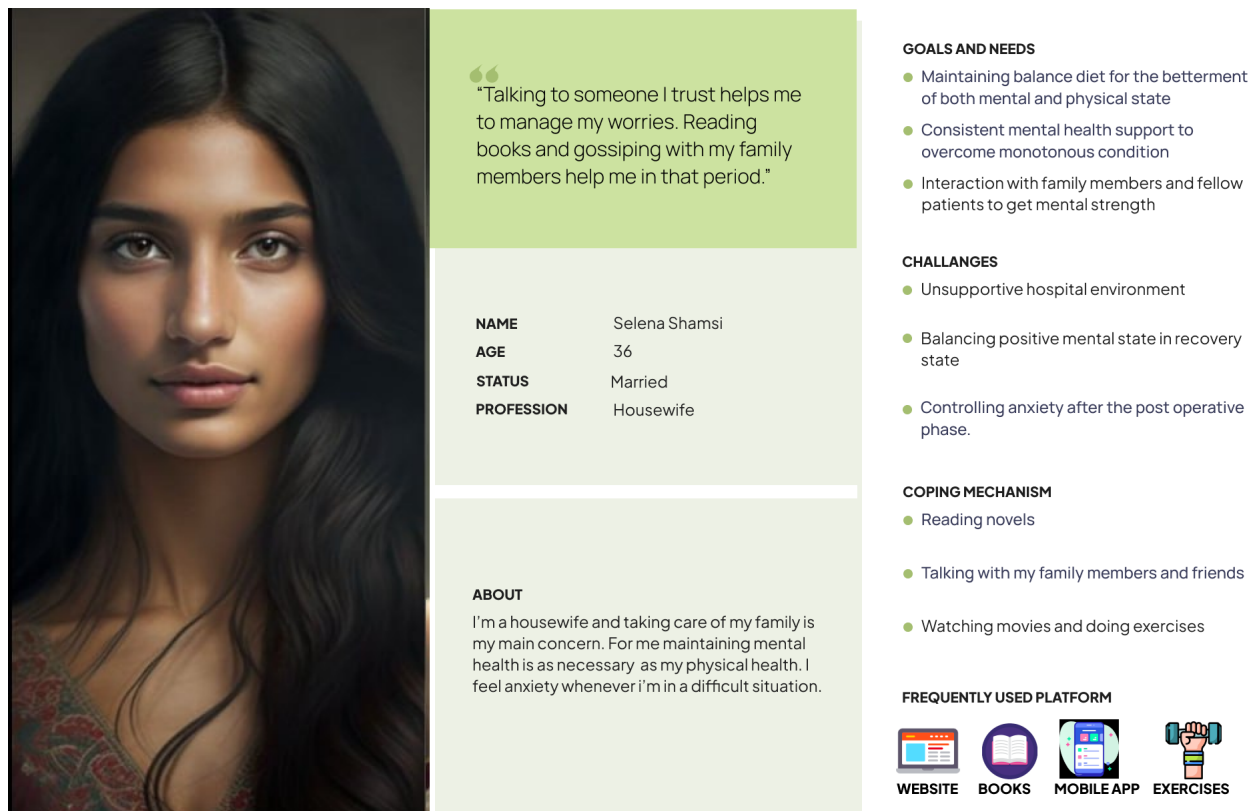


Figure 1: Persona-1

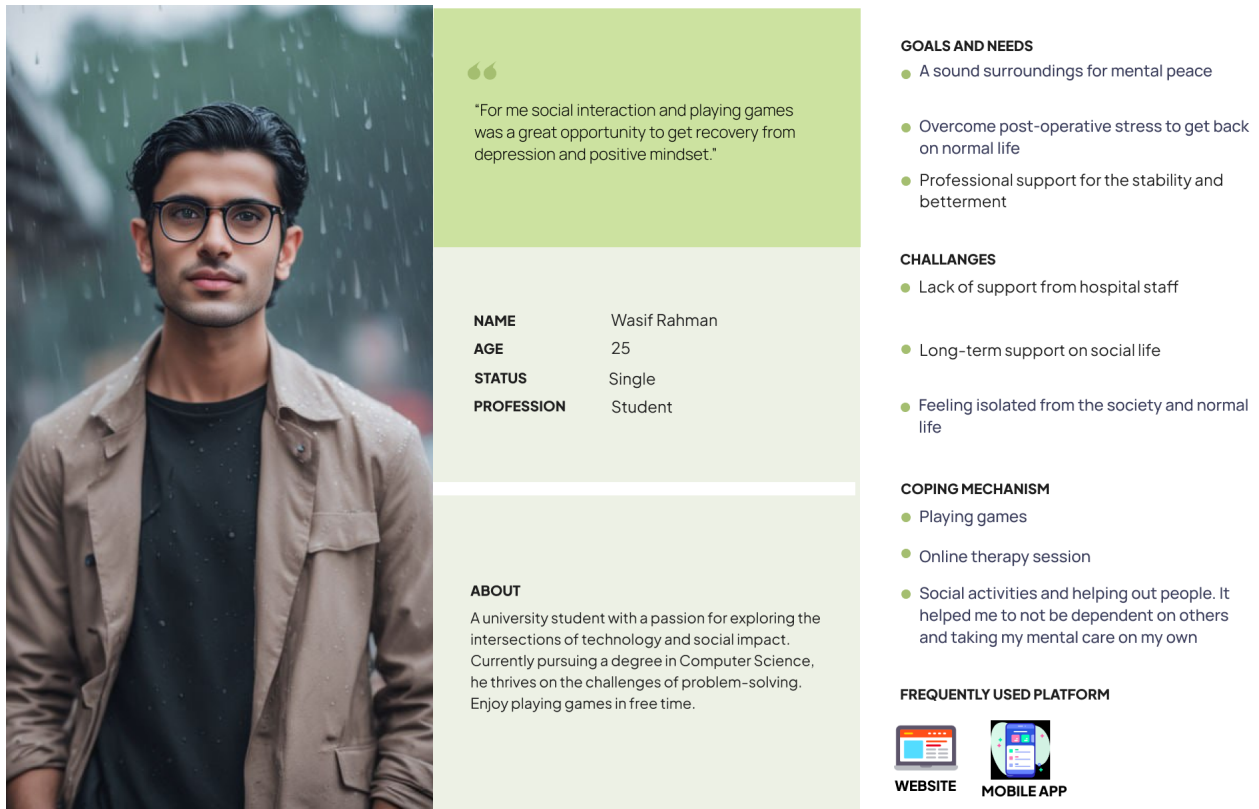


Figure 2: Persona-2

6 Scenario And Storyboard

Wasif, a 25-year-old man, lies in his hospital bed, the sterile surroundings a stark contrast to the vibrant energy of his youth. He has just undergone surgery, the culmination of weeks of anxiety and anticipation. The physical pain is constant, a reminder of the intrusion into his body. But it is the emotional turmoil that weighs him down more heavily. Wasif feels a sense of vulnerability, stripped of his independence and vitality. The hospital routine, dictated by nurses and doctors, makes him feel like a passive participant in his own recovery. The loneliness of his room, punctuated only by the occasional visit from family or friends, amplifies his sense of isolation. Yet, amidst the discomfort and uncertainty, there are glimmers of hope. The reassuring words of a doctor, the comforting presence of a loved one – these small gestures offer a lifeline of support and compassion. Wasif's needs extend beyond physical care. He craves emotional reassurance, a sense of normalcy amidst the chaos of his hospital stay. The hospital environment, with its focus on medical procedures and interventions, can overlook the psychological well-being of its patients. To soothe Wasif's mind and bring him mental peace, the hospital staff can adopt a holistic approach to his care. They can encourage open communication, actively listening to his concerns, and providing emotional support. They can create opportunities for social interaction, organizing group activities, or facilitating virtual connections with family and friends. The path back to normal life is a gradual one, filled with challenges and setbacks. But with patience, perseverance, and the unwavering support of his loved ones and healthcare providers, Wasif can reclaim his independence and rediscover the zest for life that defines him.



Figure 3: storyboard

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