Stress and Anxiety Management Among Working-Class Indian Women

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***Abstract*—This extended abstract presents work in progress on the topic of managing stress and anxiety among Indian working women. There are many applications focused on managing stress and anxiety, but very few applications are there that follow the "user-centric design approach" that aims solely at the mental health of women. The research aims to apply the user-centric design (UCD) approach to design and develop personalized stress and anxiety applications for our target population. The study involves interviewing working-class Indian women and providing the most evidence-based interventions in the application.**

***Index Terms*—Stress, Anxiety, User-centric design approach**

I. Introduction

In 2011 the American Psychological Association warned that stress is becoming a public health crisis [1]. Stress is a growing concern, and everybody requires a different treatment for stress as every individual is unique. Attending clinical sessions is not feasible for every middle-class person or even when some people who can afford it, they are not comfortable sharing their thoughts with any other individual, making it even more challenging to reach the root cause of stress. In countries like India, it becomes even more difficult as topics such as mental health are considered taboo and people going through mental distress will ignore sharing it with their family members or life partners so as not to become the cause of their stress [2]. In a women's life there is never an "off" day; in fact, the second shift phenomenon [3] [4] is more evident among women and this becomes a major cause of stress and anxiety. Although men in society have started taking household responsibilities, majority of the burden is still on the shoulders of women. The sleep cycle is majorly distorted when you are working with a busy schedule. Women are seen to lose a large number of sleeping hours [5], which feeds the stress monster and they can channel it onto their family or friends. That tends to affect the relationship and becomes another reason for stress. If not addressed at an early stage, stress can lead to depression [6], which maybe hard to treat. Getting help at an early stage can be very fruitful, along with the security of anonymity which is a big concern for everyone. So far in the history of mobile applications, there are very few user-centric design approaches used [7] that aim solely at the mental health of women. The aim of this study is to apply the user-centric design approach in the design and development of an application that will help a working-class Indian women manage their stress and anxiety.

A. Research questions:

1. Can a tailored persuasive mental health application motivate a positive change in the attitude of the working woman against stress and anxiety?
2. Can a tailored persuasive mental health application motivate a positive change in the intention of the working-class Indian women towards changing their attitude against stress and anxiety?
3. What is the impact of a tailored persuasive mental health applications in motivating a positive change in the Self-Efficacy of the working-class Indian woman against stress and anxiety?
4. How persuasive is the application with respect to its ability to motivate change in the management of stress and anxiety?
5. Can a tailored persuasive mental health app increase relevance and capture the user's attention, while promoting confidence and a feeling of satisfaction?

To answer the first three research questions, we will see the influence of tailored persuasive mental health applications on attitude, intention, and self-efficacy using few scales adapted from [11]. To answer the fourth research question, we will examine the perceived persuasiveness of the mental health app using a scale adapted from [12] at the end of the study. To answer the fifth research question, we will examine the motivation appeal of the app using the Attention, Relevance, Confidence, and Satisfaction scale (ARCS) adapted from [13] at the end of the study.

We will answer all 5 questions in the fully developed study (main study). The pilot study will be run before the main study to assess the overall usability of the app and identify and eliminate any errors in the user study design.

II. Motivation

Women and men handle stress differently, so we cannot apply the ideology of "one size fits all" to design an application for managing stress and anxiety. The motivation for this research came from Almeida et al. [7]. There are few to zero applications that follow user-centric design approach that aim

solely at the mental health of women. It's about a real-life problem in the Indian society that has barely been addressed in the literature. Hence, I propose a technology (an app) that can address the mental health issues (stress and anxiety) faced by working-class women in India on an individual basis.

III. Methodology

This study is going to allow working-class Indian women to be a part of app development for their own benefit. For the focus group study, we will recruit Indian female participants of age 20 years and older who belong to working-class and currently experiencing (or have experienced) mental health issues based on self-diagnosis. Prior research using a focus group [8] [9] [10] to explore users' needs from mental health mobile apps have recruited 34,30 and 30 participants respectively. For the focus group study, we are looking to recruit 30 participants. We will have 5 focus groups and each group has 5 to 7 participants. For the survey, we are looking to recruit 350-400 participants. We believe 30 participants in the focus group and 350-400 participants in the survey will be enough to validate the perceived effectiveness of our mental health mobile app design. In addition, this will be an adequate sample size to perform statistical analysis. At the end of the study, we will invite 20 participants from evaluation group for an online interview to get in-depth feedback regarding using the app. There will be a question in the post-survey asking participants if they would like to be interviewed.

For the app evaluation we will recruit 156 participants based on G* power (The level of power is 0.5 and effect size that was anticipated is 0.8.). The participants will use the app daily to manage their stress and anxiety for 5 weeks.

The Inclusion criteria are as follows:

1. Working-class Indian women of age 20 years and older.

2. Those who are experiencing, or have experienced mental health issues such as stress, anxiety, low mood, negative feelings or thoughts, worry, fear, panic attack, anxiety, or depression based on self-diagnosis.

To pilot the app prototype, we will recruit 10 participants who have experienced now or in the past mental health issues such as stress, anxiety, low mood, based on self-diagnosis, and are 20 years or older. In addition, they should be working-class Indian women. Participants will use the app daily for one week.

The study has three phases: The pre-test phase, the using the app phase, and the post-test phase.

In the pre-test phase, the lead researcher will advertise the study and collect the email addresses of interested participants. Then, the lead researcher will send links to the pre-test online survey to participants, furnishing the participants with the details of the study and asking them to fill out the survey. The pre-test contains questions that will assess participants' intention, attitude, and self-efficacy towards managing their stress and anxiety. Their responses will be stored on the DalOpinio server.

After filling out this pre-survey, the participant will move to the second phase: using the app phase. Participants will get a link to download the mental health app on their phones. They will be encouraged to use the app daily for five weeks. The app design will be user-centric, where the user will be encouraged to write about their day and rate their mood. They will get reminders on daily basis to perform small walks or activities that make them happy based on their personalization. They will also have the option to enter the focus mode where they perform meditation or other mood lifting activities. They will also be part of a social community.

After five weeks, they will move on to the final phase of the study, which is the post-test phase. At this phase, all participants will receive another link to fill out an identical online survey which will test if a change has occurred in their intention, attitude, and self-efficacy towards managing their stress and anxiety. The major difference between the post-test and the pre-test survey is the using app experience, motivation questions and persuasiveness questions will be added to the post-test survey. The interview will be optional. There will be a question in the survey that asks participants if they want to be interviewed and by selecting "yes", the researcher will communicate with participants for an online interview (via teams or Zoom based on participants' preferences) which takes 15 minutes. The interview will be audio recorded using a voice recorder. The lead researcher will be responsible for transcription.

To answer the first three research questions, we will see the influence of tailored persuasive mental health applications on attitude, intention, and self-efficacy using few scales. To answer the fourth research question, we will examine the perceived persuasiveness of the mental health app using a scale at the end of the study. To answer the fifth research question, we will examine the motivation appeal of the app using the Attention, Relevance, Confidence, and Satisfaction scale (ARCS) at the end of the study.

IV. Potential App Design

After the study is completed, a tailored application will be developed that will be used by working-class Indian women to manage their stress and anxiety and to cope with life challenges. The design of the application will be user-centric and will focus more on the participants being able to connect with the app. We have created a prototype of the application which will undergo changes after we execute the focus group study.Here we are going to show few screens of the prototype. The first screen is going to be the Login Screen (Fig.1), the second screen is going to be the home screen(Fig.2) from where the user can access all functionalities of the app. The third screen is going to be a mood-tracker screen(Fig.2), where you will be able to see the mood pattern after entering it all week.

V. Conclusion

This paper is about an application to manage stress and anxiety among working-class Indian women. In many ways, we are just left to our own devices. Constraints in any clinical care lead to new resourcefulness in using our mobile

phones as they are always with us and are well suited to our daily health choices. Disconnects between long-term intentions and moment-to-moment decisions must be resolved in such applications. An emotion monitor can help people become more conscious of their emotions and change their actions. Therefore, in this research, we aim creating the application with the working-class Indian community so they can find their own touch in the application. They can find ways to manage their stress and anxiety by channelling it out through meditation, knowing that they are not alone in the process can make them become more strong.

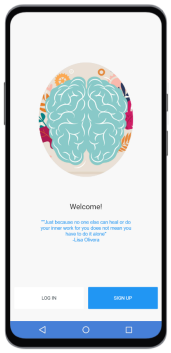

Fig.1 Login Screen

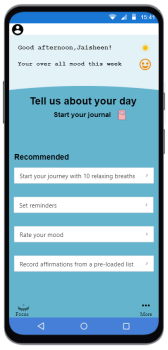

Fig.2 Home Screen

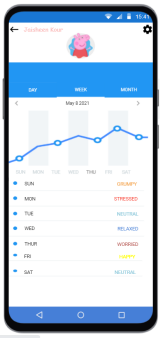

Fig.3 Mood-tracker Screen

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