

CHAPTER 10

MINDCARE: AN ELDERLY CENTERED MENTAL HEALTH CARE MOBILE APPLICATION

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ABSTRACT

ICT (Information and communication technology) has blessed us with smart devices and technologies that are now playing a vital role in our existence. Majority of the mobile applications have extensive features and functionalities in the efforts to make our lives better and easier, however, elderly people in the other hand struggle to use these technologies for the exact same reason. The struggles were amplified during the Coronavirus (COVID-19) pandemic, whereby the maintenance of lockdown and Standard Operating Procedure (SOP) pushed almost everything to be transferred into the digital platform. Additionally, increased digital barriers and prolonged period of isolation, along with the fear towards the pandemic itself, there was a substantial increase in the number of people suffering from mental health disorders worldwide. While there are increasing mental health apps available to help the global population with this issue, most of them were designed and developed for the young or adolescents. Meanwhile, elderly people were left behind to find a platform online for counselling or treating their mental health due to increasing digital barrier. In this paper, the authors highlighted challenges and digital gaps between elderly people before proposing a solution with minimalistic design with the elderly perspective in mind to minimize their struggles and maintain their mental health well-being.

Key Words: COVID-19, elderly people, increased number of mental health issues digital obstacles, mental health app.

1. INTRODUCTION

People in this digital era are highly dependent on a variety of smart devices and mobile applications to make our daily tasks easier and more convenient. From banking to health care, more people than ever before are now switching to digital platforms. Simeu (2021) suggested that the COVID-19 pandemic has significantly increased our collective reliance on digital technology for our professional, social, and recreational demands over the last two years. Even though several platforms for medical care and mental health treatment apps already exist, most of these apps' design, user interface, and navigation flows were troublesome for older adults. They required basic features and simple-to-understand apps that can be easily used.

Accordingly, World Health Organization (2020) reported that the pandemic caused an increase in the demand for mental health services related to demise, isolation, loss of income, and fear, which triggered or exacerbated mental health conditions. Many people experienced increased levels of alcohol and drug abuse, insomnia, and anxiety. Meanwhile, the COVID-19 infection itself can cause neurological and mental side effects such as delirium, agitation, and stroke. These facts emphasized the need of mental health care, especially for older people who were most vulnerable against the virus. Consequently, the authors appraised human-computer interaction (HCI) in this paper and briefly discussed various design challenges through the older people's perceptions. As a result, a suitable mental health care application named 'Mind Care' was developed. The design was made based on the concept of simplicity and minimalism to ease the interaction between the elderlies with their counsellors through any smart device.

2. LITERATURE REVIEW

Aligned with the report from World Health Organization (WHO), Czeisler et al. (2020) proposed that COVID-19 was connected to various mental health issues. In fact, the pandemic has raised alarming concerns in elderly adults, who were negatively impacted in terms of their mental health. Gerlach et al. (2021) stated that since March 2020, 1 in 5 adults aged 50–80 have reported poorer sleep during COVID-19 pandemic, including those who rated their physical health fair before the pandemic. Banarjee (2020) suggested in his research paper that mental health is the core component of global health, however, the urgency of finding a "viral cure," had overshadowed the importance of mental health, especially for the high death-risk elderlies. He also added that essential steps should be taken on early detection and appropriate action for the needy elderly population who are having psychological issues.

Doubling the challenge, the elderlies also face difficulty to access mental health service due to increasing digitalization during the pandemic. A research article published on the No Isolation website (2021) stated that seniors were being left behind in communication technologies. As a result, seniors who lose out on these possibilities for conversation may feel alone and lonely. Maintaining regular touch with a close circle of friends or family members can help decrease these feelings, which have been linked to

poor health. However, due to being unfamiliar and uncomfortable with the concept of digital health care platforms, on top of lacking in digital literacy, they struggled to understand and use these advanced applications.

Correspondingly, Bauer et al. (2020) found that, to successfully integrate mental health care into an application, a better understanding towards consumer technology issues was required. He also added that the application for treatment needed to be evaluated using new defined methods. From this view, it was recognized that senior citizens need a new platform for themselves with functions and features suiting their requirements that help them to access mental health services easier.

2.1. App's Design Challenges Faced by Older Adults

In today's faced-pace technological era, older people struggle more to adapt to newer innovations. Andersson and Perrin (2017) showed statistics from the United States, indicating 23% of older individuals who report that they have a physical or physiological issue that makes reading complex or challenging. Besides, Jefferson (2019) claimed that a lack of understanding of modern technologies and digital platforms was a barrier that kept them from using new technology and became dependent on others to operate the apps – even on basic features. These findings clearly expressed that the digital distance in the field of design still have a lot of improvement to be made. Otherwise, our elderly people may not be participating in this digital innovation era which may later lead them to suffer more from mental health issues. Moreover, seniors often have a smaller frame of reference, making it more difficult for them to retain new information. The current digital gap must be addressed since Pywell et al. (2020) mentioned that to cut delivery costs, healthcare providers are turning to mobile applications as the demand for mental healthcare treatments among the elderly grow. From the situation, it was hypothesised that a more user-friendly platform may help people become more engaged in ICT.

2.2. The Need for an Elderly-Centred Mental Health App

As people age, they get vulnerable physically and mentally. Some of them may live alone without their children and family. Besides, it is not advisable for them to go to a medical centre to get a counselling session in this pandemic situation. Thus, an online platform can be an immense help for them as well as convenient. Seifert et al. (2019) highlighted that even though the elderlies utilize the internet and mobile devices such as smartphones at a lower rate than the general population, there is a growing interest among older persons in incorporating new technology into their healthcare. Thus, it is now a matter of time that developers and designers should focus more on elderly-centred designed applications. Besides technological knowledge, physical conditions are also a crucial barrier for elderly people, such as vision problems and finger stiffness.

3. METHODOLOGY

To produce this paper, the authors applied a user centric approach which includes online and direct interviews with fifteen voluntary senior citizens with similar digital

backgrounds from Dhaka, Bangladesh. Their information and experiences on health care apps were collected and analysed. The authors also observed and analysed from the interviews of the elderly users about their preference on usage, benefits, basic requirements, and opinion on unnecessary features. The authors then designed a possible solution which is a high-fidelity mobile application prototype, named Mind Care. In the process, the prototype was tested by the users to gather their feedback and assess whether it suited their requirements.

4. RESULTS & DISCUSSION

4.1. Concerns and Difficulties Faced by Target User

Majority of the participants indicated their needs from their experiences with other digital medical health platforms. The authors gathered that the participants often have trouble in terms of colour, small fonts, non-essential features, and complicated navigation procedure.

4.2. Mind Care Application’s Physical Design

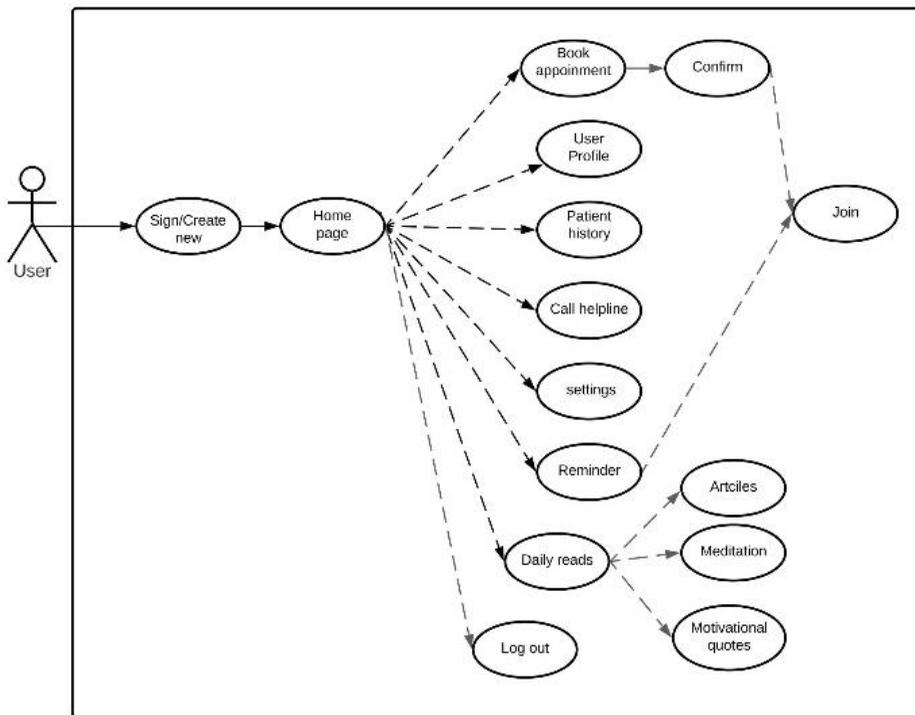


Figure 1: Use Case Diagram of the Mind Care Application

Revolved around the concerns of the participants, the authors proposed the design of an application named ‘Mind Care’. Figure 1 displays the use case diagram of the proposed application. Mind Care users can easily sign in or create a new account with a

touch id. This will give users access to the homepage. The homepage will provide all the feature including booking appointments, user profile, records, and helpline number. As the app is constructed specially for elderly people, the navigation process from one page to another is straightforward and easy to understand.

4.3. Mind Care Application's Interface Design



Figure 2: The User Interface of Mind Care Application

Figure 2 illustrates the user interface of Mind Care application. All the buttons are big and have enough space so that elderly people do not face complexities in the navigation process. Besides, the authors use contrastive and bright colours to ease aging people suffering from vision problems. If the users face complexities while using the app, they can directly contact the helpline and get support.

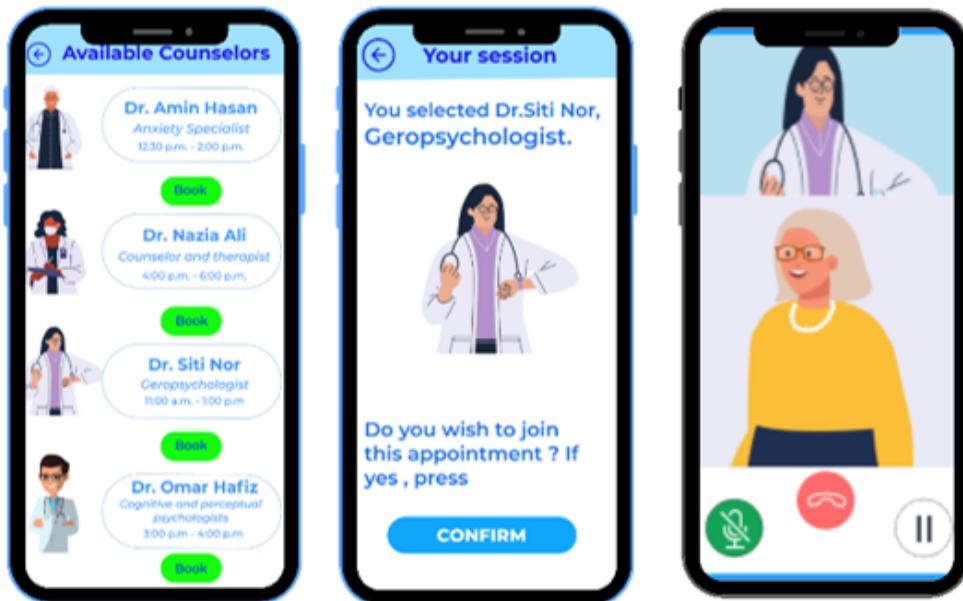


Figure 3: Navigation Flow Diagram of the Mind Care Application

Figure 3 illustrates how a user can see the available counsellors for them. The whole interface is designed with an elderly centred approach: simplistic and minimalistic, making the navigation process more accessible and simpler.

4.4. Feedback from Mind Care Application's User Acceptance Test

To satisfy user needs, authors designed the app user interface with larger fonts, more space, and a visual comfort colour. The methodology helped to gather user engagement which has a direct impact on the decision-making process, and consequently, most users provided favourable comments and recommendations after providing the high-fidelity prototype. Concisely, the user-centred design approach aided the authors in correctly conducting the study and making it more engaging for the target users.

5. CONCLUSION & RECOMMENDATION

This paper focuses on a minimalistic designed digital platform for mental health treatments for elderly people. During this pandemic, mental health issues are increasing in higher rates for elderly people. Besides, due to social distancing and lockdown elderly people might not be able to go for a face-to-face counselling. Thus, this 'Mind Care' app can be a significant solution for them to treat their mental health from home. Mind Care application was hoped to be that easy-to-use solution for the elderlies.

However, even though the authors successfully received positive feedback towards the prototype, it only comprised a small number of participants due to the COVID-19

pandemic. In addition, due to the region's crisis, there was a shortage of information accessible, limiting the number of volunteers who could be participate. However, authors plan to perform larger research in the future to focus this issue further and build the system. Thus, having more data on how elderly users prefer to use their apps would help developers to create better apps that match the demands and satisfaction of users.

In conclusion, even though we now live in a digital world, it is evident that our elder generation is still trying to keep up with all the newest technology. There is a lot of apps mental health nowadays. However, due to a lack of digital expertise and practice, our elder age frequently struggles to get a chance of treatment. They need support from younger people in becoming acquainted with and learning a new app. The main goal of this 'Mind Care' initiative was to open a new door for them.

Finally, the main goal is to build a more engaging and helpful application that makes it easy for the target user to get counselling, boost their mental strength and never get lonely because of the current isolation period. Most significantly, this design will make them capable of comprehending while using the app without the assistance of others. This software provides an innovative and one-of-a-kind platform for the elderly to participate in the digital era.

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