MOBILE MENTAL HEALTH SUPPORT FOR CHINESE UNIVERSITY STUDENTS

Ke Wan, Paul Craig
[1]Xi'an Jiaotong-Liverpool University, Suzhou, China
e-mail: Ke.Wan16@student.xjtlu.edu.cn, p.craig@xjtlu.edu.cn

ABSTRACT

World Health Organization statistics show that 29 percent of people worldwide suffer from mental health or psychological problems at some point in their life. The problem can be particularly acute for Chinese university students due to high expectations from family and the pressures of the academic environment. This paper analyses the need for different mental health support app functionality to facilitate self-help or encourage students to make use of traditional mental health support services. Results allow us to characterize student preferences in the design of our own prototype app and should support the design of more effective mental health support apps in the future.

1 INTRODUCTION

Around 29 percent of us will suffer from mental or psychological problems at some stage in our lives [1]. However, many victims of mental health problems are often unwilling or incapable of finding the support and guidance they need to most effectively overcome their difficulties. For many individuals there is still a stigma attached to mental-health issues and private mental-health treatment can be expensive. This can be particularly problematic for university students who tend to have limited financial resources and pressure to obtain high levels of academic achievement [2]. While most universities have psychological consultation centers, resources tend to be limited and there is a need to make the best use of resources to support students and encourage them to utilize the services available.

The leverage of new technology is one way in which universities can make better use of available resources for psychological counseling and intervention. Research in this area as focused on online remote treatment, the use of virtual reality technology, intelligent hardware, wearable devices and different types of application to support traditional counselling services [3]. This paper looks at developing a methodology for designing mobile mental-health support apps for Chinese university students.

2 STATE OF THE ART

There have been a number of applications developed for mental health support in the past two decades. As early as 2001 Helen Christensen, at the Australian National University, developed mobile app called MoodGYM which was specifically designed to help adolescents cope with depression [4]. This development was initially a cause of considerable controversy among mental health specialists and attracted a great deal of criticism from detractors who felt that the automation of mental care support might be detrimental to users from a vulnerable group who could benefit from a more human-touch. These doubts were eventually overcome as initial results proved positive and the app has since been adopted by the Australian National Health Service. Now MoodGym has more than a hundred-thousand active users in Australia and is also used in over two-hundred other countries around the globe.

In another significant development, in 2007, the British National Health Service developed *FearFighter*, an online environment to support patients dealing with fear and anxiety. This included an APP called 'Beating The Blues for Depression' which dealt specifically with mental health support [5].

Other mental-health care apps of note include Biteback, Mycompass [6], Optimism and BellyBio [7]. The functionality of these apps can be roughly classified into categories such as; guidance, mental health tests, treatment follow-up, psychological consultation, and social assistance. And while a significant number of practitioners still express doubt over the overall effectiveness mental-health apps, it is increasingly more widely accepted that these apps will form an integral part of any larger mental health care solution that also includes more traditional methods such as one-on-one counselling and support groups. Indeed, a number of developed countries with progressive social care programs, such as Australia, Holland and the United Kingdom, have already incorporated online mental-health support into their national systems of health-care provision.

3 METHODOLOGY

In this paper we present the results of a requirements analysis exercise aimed at determining what functionality is needing in an app for mental-health support. The app is designed for Chinese university students and our study focuses on the needs of this particular group of users as well as different types of user within this group as determined by gender, age, area of study, and type of degree. Results of a survey of our users allow us to develop a prototype mobile application that is further tested to gauge the users' overall impression of this type of app.

4 INITIAL SURVEY

The 60 subjects of our initial survey are Chinese university students from Xian Jiaotong-Liverpool University. 65 percent of the responders are male and 35 percent female. The subjects are aged between 18 to 26 and divided into two groups; age range 18-21 (70 percent) and age range 22-26 (30 percent). The art and business major

students form 55 percent of our sample while science and technology major students form 45 percent. There are 47 undergraduate students (78.33 percent) and 13 postgraduate students (17.17 percent).

The main part of the questionnaire asks subjects to gauge the importance of the six mental-health care app functions we found to be the most common features of existing software. These are:

1) **Mental health self-evaluation tests.** Users can use this function to test aspects of their mental health. This can give users an indication of their mental health status and tell them which forms of additional support might be most appropriate.

2) **On-line consultation.** This allows users to talk to consultants online before having a face-to-face consultation or in lieu of an online consultation if another course of treatment is thought more appropriate. This form of consultation can be more convenient and cost-effective than a traditional one-to-one consultation performed in person.

3) **Communication and discussion.** This can include chat-rooms, forums and other media for facilitating communication between app users. Social interaction can help users benefit from shared knowledge, reduce feelings of isolation and help build a sense of community among users.

4) **Entertainment.** This aims stimulate the user and elevate their mood with music, positive videos, humor and puzzles.

5) **Events and activity postings.** This highlights *real-world* events and activities such as workshops or lectures on mental health.

6) **Professional tips.** Links to mental-health advice and resources.

5 RESULTS

The results of our survey indicated that the three most important functions for mental-health support apps are on-line consultation, professional tips and self-evaluation tests. Communication and event posting are also thought to be important but these where thought of as secondary features that shouldn't detract from the principle functions of the app. User preferences didn't change in any significant way for different types of user which suggests that the same general design can be used for different groups in different universities.

Figure 1 shows the online consultation page of our prototype app. Figure 2 shows self-evaluation, figure 3 shows the mental health tips and figure 4 shows events and activities.

Evaluation of the prototype app gave us further insight into how the tool might be used. For example, while features like event postings and communication where not considered as core functions of the app, the students thought they might be useful in encouraging first time users who may otherwise be inhibited by using the app. This type of discovery encourages us to consider the complete user experience in our design and think more about the process of a user progressing through different functions of the app as their requirements evolve.

6 CONCLUSION

Looking at student preferences for mental-health support apps has allowed us to make informed decisions in
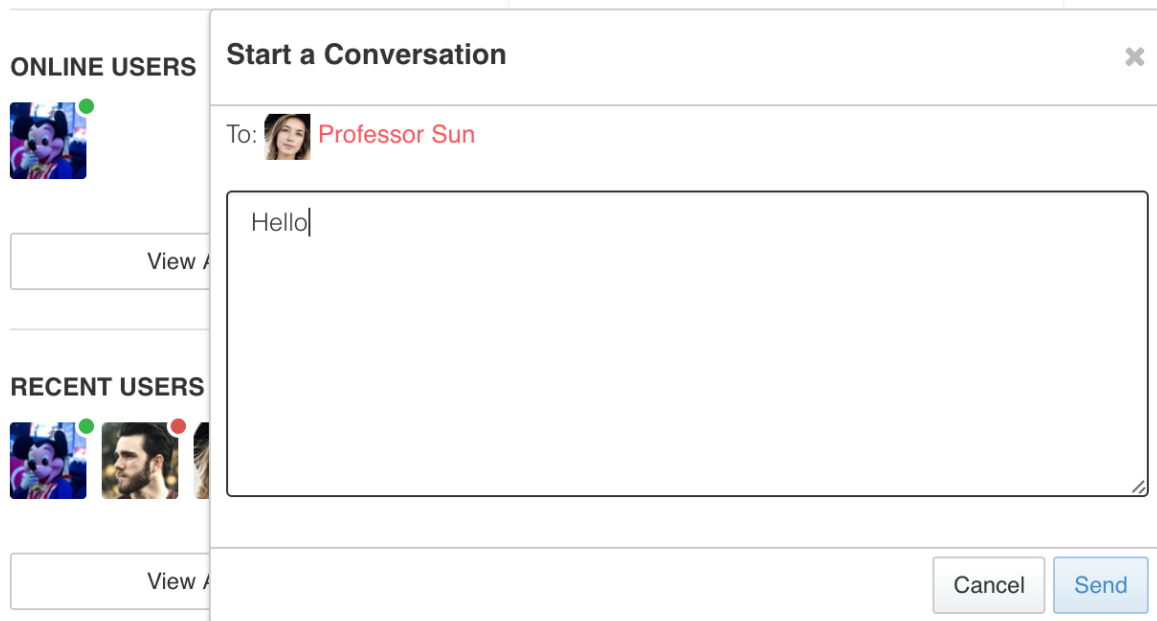

Figure 1. Mental-Health Support App, online consultation.

the design of our own app by prioritizing on-line consultation, professional tips, and self-evaluation tests. Reaction the prototype was largely positive.

Another more general conclusion from this project is that automated support should complement rather than replace human-interaction. Online consultation was a priority for our users and online consultation would, in many cases, lead to an actual meeting with a counselor or psychologist. The main benefit of our app would be to support the user up until this point.

Another important conclusion from our investigation is that mental health support apps require people to continue using the apps in order to record enough data for them to help with any diagnosis or help prescribe any sort of treatment. A study showed that 60 percent users stopped using the MoodGYM after they finished the first module [8]. If mental-health support apps are to be effective they need to encourage people keep using them. So apps need not only to include core functionality, but they also need to be usable, entertaining and reward progress in order to keep users interested.

ACKNOWLEDGEMENTS

REFERENCES

[1]   K. Demyttenaere, R. Bruffaerts, J. Posada-Villa, I. Gasquet, V. Kovess, J. Lepine, *et al.*, "Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys," *Jama,* vol. 291, pp. 2581-2590, 2004.

[2]   X.-Y. Xing, F.-B. Tao, Y.-H. Wan, C. Xing, X.-Y. Qi, J.-H. Hao, *et al.*, "Family factors associated with suicide attempts among Chinese adolescent students: a national cross-sectional survey," *Journal of Adolescent Health,* vol. 46, pp. 592-599, 2010.

[3]   K. Mertz and D. Folkemer, "High-tech medical records: can electronic records transform health care?," *State legislatures,* vol. 34, p. 24, 2008.

[4]   H. Christensen, K. M. Griffiths, and C. Groves, *MoodGYM training program: clinicians manual*: Centre for Mental Health Research, ANU, 2004.

[5]   M. Fenger, J. Lindschou, C. Gluud, P. Winkel, L. Jørgensen, S. Kruse-Blinkenberg, *et al.*, "Internet-based self-help therapy with FearFighter™ versus no intervention for anxiety disorders in adults: study protocol for a randomised controlled trial," *Trials,* vol. 17, p. 525, 2016.

[6]   D. Solomon, J. Proudfoot, J. Clarke, and H. Christensen, "e-CBT (myCompass), antidepressant medication, and face-to-face psychological treatment for depression in Australia: A cost-

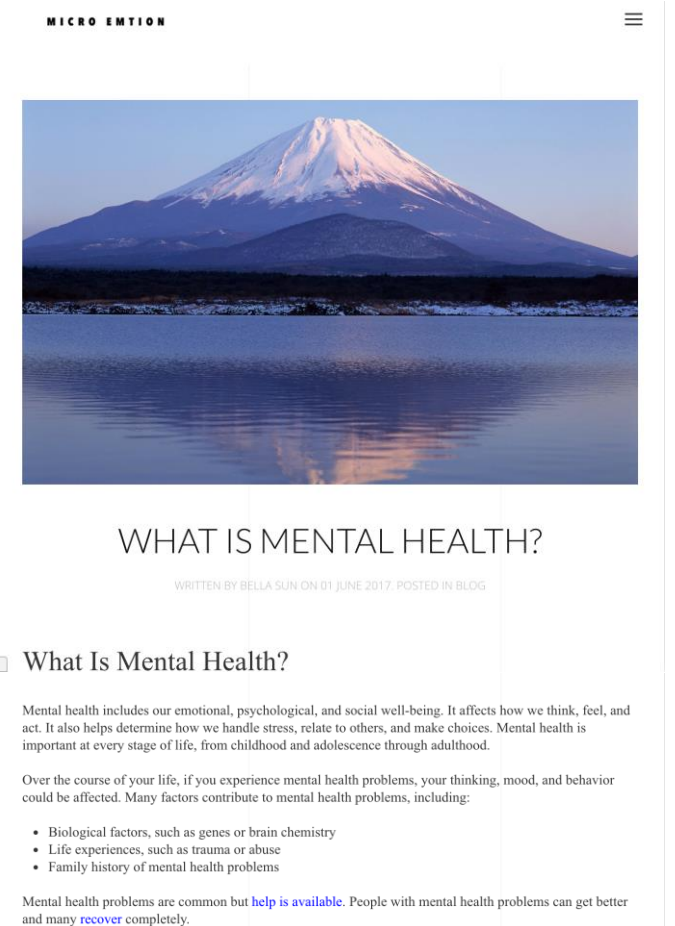*Figure 2. Mental-Health Support App, self-evaluation quizes.*

Figure 3. Mental-Health Support App, mental-health tips.

effectiveness comparison," *Journal of medical Internet research,* vol. 17, 2015.

[7]   M. T. Mahmoudi, K. Badie, and S. H. A. Varnousfaderani, "A Comparative Study on The Existing Graphical User Interfaces for Occupational Therapy."

[8]   A. L. Calear, H. Christensen, A. Mackinnon, and K. M. Griffiths, "Adherence to the MoodGYM program: outcomes and predictors for an adolescent school-based population," *Journal of affective disorders,* vol. 147, pp. 338-344, 2013.
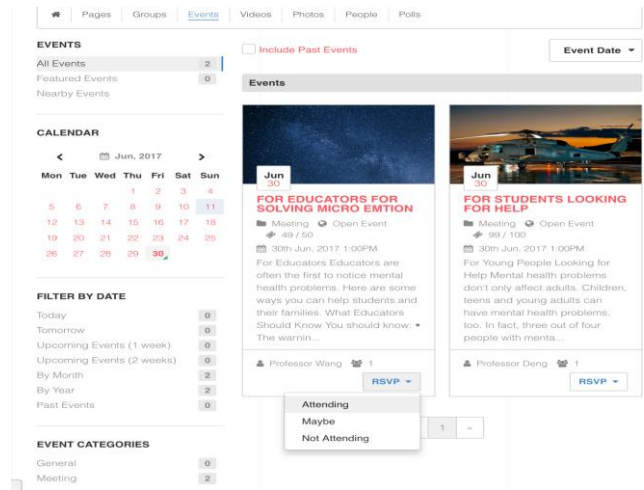
Figure 4. Mental-Health Support App, events and activities.