

## Use of E-Technology in Mental Health Promotion, Prevention and Early Intervention – Opportunities and Challenges

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Thank you for your very kind introduction. I have to congratulate the Mental Health Association of Hong Kong on your 65<sup>th</sup> birthday. You are always the leader of mental health rehabilitation in Hong Kong and always pave the way to take us forward. I am deeply honoured to participate in this significant symposium. I bring you greetings from Newcastle, Australia. Recently I have relocated to the University's Singapore campus, thus I am now closer to Hong Kong.

Today I would like to share with you on e-technology in delivering mental health care. I will first give examples of e-mental health in Australia and then I will introduce some of my work. I will discuss the opportunities and challenges we face in applying e-technology in mental health care.

### **E-Technology and Mental Health**

E-technology can be incorporate into the whole spectrum of care, including promotion, prevention, early intervention, treatment, rehabilitation and maintenance (National Mental Health Commission, 2014). Many big players in the technology arena have come into health care, for example, Google, Apple, Alibaba and Amazon. The World Health Organization's (WHO)(2019) report concluded that e-technologies provide concrete opportunities to tackle health system challenge. For example, to facilitate targeted communications to individuals in order to

generate demand and broaden contact coverage. E-technology may also be targeted to health workers to give them more immediate access to clinical protocols through, for example, decision-support mechanisms or telemedicine consultations with other health workers. E-technology can help to deliver health care in places that have less resources, such as, lack of services / manpower. E-technology enables health care to be accessed by more people and it can help to promote universal health coverage, which is one of the Sustainable Development Goal (WHO, 2019).

In Australia, the New South Wales government since 2016, has established a 10-year plan in promoting e-health. The aims are to develop an integrated health system, to deliver patient-centred care, and to improve quality health outcome. The following is some examples of using e-technology to deliver mental health services.

Headspace: eheadspace provides free online and telephone support and counselling to young people 12 - 25 and their families and friends. Young people can access qualified health professionals through an on-line service. This reduces the barrier to attend mental health services face-to-face (<https://headspace.org.au/eheadspace/?stage=Live>).

Beyond Blue: focuses on depression and anxiety. It offers information and support. People can talk with a trained mental health

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Transcript of Plenary Session (I) of 65<sup>th</sup> Anniversary Symposium on Mental Health on 10<sup>th</sup> December 2019.

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professional through phone calls, online, email chat, and online forum (<https://www.beyondblue.org.au/get-support/get-immediate-support>).

Kids Helpline: offers free, private and confidential, telephone and online counselling service specifically for young people aged between 5 and 25. Kids of various age group, teachers and parents, can access online counselling and it can be streamed to the schools as well (<https://www.kidshelpline.com.au/>).

iBobbly: is a social and emotional wellbeing self-help app for young Aboriginal and Torres Strait Islander Australians aged 15 years and over. The app is shaped by Aboriginal and Torres Strait Islander community members to ensure that iBobbly is culturally informed and safe. The app can be used on a tablet or i-pad as well. The app used a lot of images, stories and symbols from the indigenous culture to convey the message. This app has been piloted and extended to indigenous provinces in Australia. A long-term follow-up has been conducted (<https://www.blackdoginstitute.org.au/resources-support/digital-tools-apps/ibobbly/>).

E-technology enables people get in touch with mental health services without physically present in an out-patient clinic or in a hospital. It reduces stigma and barriers to seek help for mental health problems. The services that delivered through e-technology must fit into the culture and language of our target population.

### **Supporting family carers of people living with dementia: A new mobile application**

I like to share with you an app which has been developed in Australia for family carers of people living with dementia. Family carers of people living with dementia experience high levels of stress. Behavioural

and psychological symptoms in people living with dementia (BPSD) cause greater stress to carers than cognitive and functional problems and significantly predict early nursing home placement. Psychoeducation through smartphone applications (apps) focusing on BPSD management is an accessible and effective way to support carers. Based on previous studies and research evidences (Edberg, Moyle, & Chan, 2012; Tay & Chan, 2017), we had developed an app for supporting the carers. The app has been designed with support from research evidence and carers' input to reduce interface barriers. The app consists of: (1) information about dementia such as causes, sign and symptoms, available community resources, fall prevention and long-term caregiving issues; (2) videos of 8 scenarios focusing on management of common BPSD such as agitation, aggression, confusion, repetition, hoarding and hiding things, suspicion, wandering, eating problems, bathing problem, inappropriate sexual behaviour, hallucination and delusion, and communication; (3) podcasts of caregiving skills; (4) visual pill tracker; (5) daily mood tracker (6) caregiver diary; (7) family photos (Zhang, Chan, Wynne et al., 2016).

During our pilot study, we found on average the carers used the app at least twice a week, and the most used component was the education information. They also like the daily mood tracker and to watch the videos. We asked them the strengths of this app. They liked various components of the app, such as the videos, the text information, some like the mindfulness exercises. Different people like different components. We believe that is the strength of the app, that it provided different options to the carers. They could use the components that they considered as most important for them.

Two years ago, when I was in Hong Kong, I presented this app in another conference. My colleagues from the Chinese University of

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Hong Kong were very interested in this app. They translated the app into Chinese and re-developed the video into Chinese and modified the content to fit into the Hong Kong culture. All the videos are now in Cantonese and with subtitle as well. They also translated the text information from English into Chinese (<http://www.nur.cuhk.edu.hk/cgv/>). They have now completed the randomized control trial. It is a good example of how an app could be adopted to different cultures.

### **Supporting new mums: a new mobile application**

Let me introduce to you another app which was developed based on my previous work on post-natal depression. Before we developed this app, we conducted a review on what was out there in the market, we found many apps or websites with information for postnatal mothers. We reviewed the quality of these apps or websites by using the criteria based on Silberg Scale, we found many had limited disclosure about the information of the authors, as well as the references for information included in the app itself. At the time of the study, we found only 14 app that contained information on postnatal depression (Zhang, Ho, Wynne, Chan, et al., 2016). This is thus important to develop an evidence-based app for new mothers. We aimed to focus on new mothers' psycho-social well-being and not just focus on baby care. We adopted evidence generated from previous studies (e.g. He, Zhu, Chan, et al., 2018; Gao, Xie, Yang, & Chan, 2015; Shorey, Chan, Chong & He, 2015) to develop this app. We helped new mothers to understand their body, their mind, and their baby. The app contains yoga video, text information, daily journal, personal photos and daily mood tracker (Fealy, Chan, Wynne, et al., 2019).

### **Does it work?**

Recent systematic reviews suggested some evidences supporting the effectiveness of using

e-technology in mental health care (Garrido, Millington, Cheers, 2019; Stratton, Lampit, Choi, et al., 2017). The WHO (2019) has examined the implementation of technology in health around the globe and supported. There were evidences of the potential of using technology in health care to improve outcomes. But more rigorous controlled trials are needed to evaluate its effectiveness and cost-effectiveness. We also need to investigate its effects on different groups in the community, such as ethnic minority groups; as well as equity and rights of access to e-technology in health care (WHO, 2019).

Enam, Torres-Bonilla and Eriksson et al. (2018) developed the Evidence in eHealth Evaluation model, which comprised of 6 phases (design, pretesting, pilot study, pragmatic trial, evaluation, and postintervention). They proposed that the generation of robust evidence of effectiveness and efficiency would be plausible when the evaluation is conducted through all the six phases. The model proposed to assess specific aspects in each phase instead of evaluating all aspects in a single phase. This approach of evaluating eHealth interventions can capture comprehensive evidence that is usually dynamic and complex in nature. It is also important that whatever new technology we use, and whatever new interventions that we develop, we will involve patients and/or the carers from the very beginning and through all the six phases. We will continue to evaluate the intervention after we complete the trial. When the intervention is translated into routine practice, we will continue monitoring to assess long term outcomes. It is to determine whether the effects observed in the trial are replicated in routine practice.

### **Conclusion**

To conclude, I like to quote a statement about technology from Bill Gates. "Never before in history has innovation offered promise of so much to so many in so short a

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time.” Technology has advanced so much in the past decades. Technology causes disruption to health care. Is technology a panacea to health care? I would say, “No”. At the heart of health care is us, health care professionals - our humanity, our compassion and our creativity in care. As health care professionals, we are the translators of technology. We translate the technology to our patients and carers. We use technology in care provision, and we teach patients and carers using technology to take care of themselves. Thank you.

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