ARCADA

The use of e-health applications in treating depression online

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Abstract

The need for new innovative healthcare services has in recent years become more evident because of the ageing of the population and increased budgetary pressure. One solution to this is the use of information and communication technology (ICT) and the Internet to provide new methods for utilizing and improving public health services. In the treatment of depression, one of the most burdensome diseases globally, the use of these novel approaches in the form of online therapy, has been shown to be as effective as face-to-face therapy and more cost-effective. But for a digital health service to be effective, the service has to be designed so that it is user-centered. In this paper, a Finnish mental health service, Mental Hub, is inspected, assessed and discussed, especially from the aspect of effectiveness, service design principles and the contributions of online therapy in treating depression. Online therapy treatments for depression have been shown to be effective in treating depression, and can be accessible for people who have difficulty in getting face-to-face therapy due to high cost. Online therapy can also be convenient for those who feel the stigma to attend face-to-face therapy in physical settings. Therefore, awareness of online interventions and therapy in the treatment of depression should be increased.

Keywords: e-health, digitalization, depression, online therapy.

1   INTRODUCTION

This working paper is about digital technologies in treating depression with online therapy. The paper introduces three main areas -digitalization and e-health, depression and online therapy. The aim of this paper is to inspect, assess and discuss the use of a digital solution for clients with mental health challenges, more specifically depression. The digital solution inspected in this article is the Mental Hub (mentalhub.fi) provided by the Hospital District of Helsinki and Uusimaa (HUS) region. The focus will be on the

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effectiveness and contributions of online therapy in treating depression as well as service design principles. Service design is an important issue when developing new technologies. As a method, it always thinks of the end users' best interest and the effectiveness of the service (Stickdorn & Schneider 2010). The responsibility of choosing the right treatment options for depression is usually left for the individuals seeking these treatments. This method of treatment selection can lead to ineffective treatment and resulting in loss of resources (Salminen et al. 2016).

This Arcada working paper is co-authored by students attending the e-health course at Arcada University of Applied Sciences in 2017 with supervising teachers. The purpose of the course was to explore the current state and future visions of the ongoing digitalization in the field of health and welfare. Co-writing as a process can be seen as a pedagogical model for enhancing students' deep evidence-based learning.

1.1 E-health

Healthcare systems globally are facing new challenges because of the ageing of the population and increased budgetary pressure. This presents a need for new, innovative solutions within health and welfare (Gemert-Pijnen et al. 2013). The use of information and communication technology (ICT) provides new methods for utilizing and improving health services in an efficient way. The rapid developments in ICT during the last decades has led to the rise of new concept in health and welfare called e-health, or electronic health. E-health can be defined as the transfer of health resources and health care by electronic means (WHO 2016). E-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related digital technologies (Eysenbach 2001). The advantages of these technologies are cost-effectiveness, equality, efficiency of care, improvement of the quality of care, and empowerment of consumers (Gemert-Pijnen et al. 2013). The use of electronic processes in health encourages efficient use of health-related resources, including reducing costs, increasing the speed of delivery and removing the need for a physical space in healthcare delivery. Digital solutions support the changing role of patients from a passive, to a more participative role while enhancing their responsibility over their own health through different digital solutions (European commission 2014). The ways and purposes of different e-health application in health and welfare are many, and there are already many different digital solutions that are helping treat health related problems as well as aiding in promoting health.

1.2 Depression

According to the World Health Organization (WHO) depression is the biggest contributor to global disability. Between 2005 and 2015 the estimated number of people living with depression increased by 18.4% (WHO 2014; WHO 2017). In Europe, there are thirty million people suffering from clinical depression. In Finland, there are over fifty thousand individuals suffering from depression (WHO 2017). The economic costs of depression rise up to 610 billion euros per year in Europe (Walhbeck et al. 2015). Therefore it can be said that depression is one of the most burdensome diseases in the

world and regarded as a public health priority by the WHO (2017). In the future, it is predicted to be the leading cause of disability in developed nations (Oliphant, 2010). Depression can cause the affected person to suffer greatly and function poorly at work, at school and in the family (WHO 2017). Depression is considered both a symptom and an illness, and as an umbrella term it includes differentiated disorders, such as major depressive disorder, dysthymic disorder and seasonal affective disorder (Oliphant 2010). The underlying causes developing depression are many. Lyness et al. (2017) mention changes in brain function, genetics and life changes and circumstances as leading causes for depression. Poverty, unemployment, a loved one's death, physical illness and problems caused by alcohol and drug abuse are also factors that increases the risk for depression (WHO 2017). Depressive disorder is also a major predictor of suicide in adults. The majority of those who committed suicide have been in touch with health care providers months prior to their death (Conwell 2001). Detecting depression can be difficult in adults since it can be accompanied by other chronical illnesses (Chapman 2007). The cost of treating depression in adults is high since it results in more visits to the doctor, sick leaves from work and sometimes even emergency room visits. Whether alone or accompanied with another chronic illness, it is a major disability source and can cause unnecessary suffering. Thus the need to find effective treatment methods is highly important.

1.3   Depression treatment and online interventions

There are several interventions used to treat clinical depression. Some of these include pharmacotherapy (antidepressants), electro-convulsive therapy (ECT) and psychotherapy. Pharmacotherapy has little evidence that it reduces the recurrence of the disease once medication is terminated. Electro-convulsive therapy has been used only in severe cases, and it can damage the brain cells (Hollon et al. 2002). Psychotherapy in treating depression has been proven be helpful. Cognitive behavioral therapy (CBT) is the most studied therapy form and proved to be a very effective method in treating depression (De Rubies et al. 2005; Joutseniemi et al. 2011). A recent systematic review concluded that cognitive behavioural therapy reduces not only repeated self-harm but also repeated suicide attempts and that it should be the preferred treatment for all patients with depression (Gøtzsche & Gøtzsche 2017). But delivering face-to-face psychotherapeutic interventions to a population is challenging given the lack of resources (Montero-Marín et al. 2016; Salminen et al. 2016). An alternative to the traditional face-to-face interventions are online-based psychological interventions, where mental health counselling is delivered over the internet. In addition to the cost effectiveness it offers, the Internet also enables a way of providing psychological treatments that may attract people who do not show up at traditional mental health services because of different barriers such as the stigma related to mental health issues (Montero-Marín et al. 2016; Hollon et al. 2002). There are many different digital solutions for delivering online psychotherapy such as apps for text-based chatting, conference or video calls, and audio-messaging-therapy. Online-based interventions in treating depression seem to be effective, although the effects seem to be more favorable for guided or assisted interventions. However, stand-alone Internet-based treatments for depression have also shown to be effective (Montero-Marín et al. 2016). A large British review (Naidu et al. 2016) with the aim of finding a good method on how to deliver CBT to working age persons who are on sick leave due to mild to moderate depression or anxiety, found out that online therapy is as

effective as face-to-face therapy and it is more cost-effective. There are also other ways to include ICT when treating depression. Some of these include psychoeducation, behavioral activation, problem solving therapy, cognitive restructuring preventing relapse, and online intervention. These treatment options help patients retrieve more knowledge on their illness and managing negative thoughts (Warmerdam 2012). There are a myriad of different software and platforms available for getting the required help. Individuals suffering from mental health problems are able to influence their health in ways that has not been possible earlier, but they are also increasingly expected to choose between an array of alternatives in relation to illness detection and treatment (Johnson & Case 2012). So choosing an option for treatment also come with the difficulty of choosing the appropriate and reliable platform according to one's situation. The current care guidelines in Finland for treating depression is medication (antidepressants) combined with psychotherapy (Duodecim 2016). Due to lack of resources, the treatment lies more on medication than therapeutic treatments (Joutseniemi et al. 2011). The most effective result is believed to be achieved by using medication and therapy simultaneously (Duodecim 2016). It has been suggested that for persons suffering of milder forms of depression, therapy could be used as a stand-alone treatment (Fournier et al. 2010). However, because of the complexity, stigma, and barriers to care that mental illness present, individuals do not always seek help, and there is a need to provide alternative ways to seek help and get treatment (Ayers et al. 2013).

2   MENTAL HUB

The digital solution explored in this article is Mental Hub (mentalhub.fi). Mental Hub (in Finnish Mielenterveystalo) is a web-based hub provided by the Hospital District of Helsinki and Uusimaa region (HUS). It offers content about mental health for customer and professional use. It also offers online therapy for people suffering from depression (Mielenterveystalo 2017).

The use of professional online therapy session in Mental Hub web service can be accessed with a doctor's prescription. This reflects the validity of this service. It also shows the seriousness of these online services that these services are equivalent to the prescribed medicines. Therapies at Mental Hub are free for the user. The municipality pays for the online therapy cost (640€), which includes several months of regular therapy with the possibility to revisit therapy sessions for up to six months. Compared to the traditional therapies this method gives a cost effective way for interventions (Salminen et al. 2016). Online therapy requires a lot of reading and writing for the user, which can cause difficulties in following the treatment (Mielenterveystalo 2017). There are persons who need extra support with the use of services online due to, for example, low cognitive skills, poor sight, low socioeconomic status etc. (Naslund et al. 2015; van Gemert-Pijnen et al. 2013). A study by van der Vaart et al. (2014) about blending online therapy showed that for an online therapy to work and to be effective, there should be face-to-face sessions. The support should be adapted to each user individually and also a continued care relation with professionals to control medication and the overall health condition of the user (Mielenterveystalo 2017). This blended method gives better adherence, motivation, efficiency and increases the costs and workload among professionals.

2.1 Mentalhub.fi and the application of service design

Good service design, according to Richard Buchanan (2004), should provide systems and processes aimed at providing a holistic service to the user. Mental Hub is a practical application of e-health in the treatment of mental health issues using online therapy. Service design is an important aspect when developing new technologies. As a method, it always thinks of the end users' best interest and the effectiveness of the service (Stickdorn & Schneider 2010). To gain empowerment for users, the technology has to be designed so that it is user centered. Human centered design (HCD) (Gemert-Pijnen et al. 2013) involves users in an early stage of developing a new technology to the process. Service design supports this because its aim is a holistic thinking throughout the process when designing a new e-Health technology and the end user is the primary focus (Stickdorn & Schneider 2010). A service created according to the principles of service design should be user-centered, co-creative, sequencing, evidencing and holistic (Stickdorn & Schneider 2010). The target of these principles is the effectiveness of the service delivered.

The design of Mental Hub considers all age groups. The service content is divided into sections for elderly, young people and children to address the specific mental health needs of each age group and the specific needs of each user. Users are able to take part in their healthcare process and follow their progress as well as give feedback about their care. From a service design perspective, this is both user centered and co-creative. User-centered in that by taking part in their healthcare process, users will have a sense of inclusiveness, which has shown as a positive factor in health promotion. It is also co-creative, as the feedback from users will help in the further development of the service. However, Mental Hub is lacking in the recognition of multilingualism of users. There are many non-Finnish and non-Swedish speakers in Finland where the service is designed to serve, yet Finnish and Swedish are the only available languages for the service. This not only affects user-centeredness of the service but also equality, which is one of the principles of e-health according to Eysenbach (2001).

3 DISCUSSION AND CONCLUSION

The major focus of this paper was to inspect, assess and discuss the use of a digital solution for depression with a specific aim to evaluate their effectiveness in the management and treatment of depression using online therapy. We chose Mental Hub as our model e-health tool. We evaluated it using the principles and theories of service design. We found out that online therapy is effective in the treatment of depression and as effective as the more traditional face-to-face therapy. We also found that online therapy is more cost effective than the traditional face-to-face therapy. In this article, we also discussed what digitalization and e-health are, as well as depression and its treatment options focusing more on the use of online therapy. In digitalization, service design is very important for improving the use and implementation of new technologies. Clinical depression is burdensome for individuals and society. The mostly common treatment psychotherapy is helpful, but it is not available for all due to inadequate resources. Online therapy and interventions are advocating overcoming the mental health issues with the help of the internet. Online therapy is accessible and cost-effective treatment for people who have difficulty in getting face-to-face therapy due to high cost. The arrangement of

online therapy to get the service on their own home is convenient for those people who feel the stigma to attend face-to-face therapy in a hospital or a therapist's office. Online therapy is a comparatively more independent service that is easier to access according to one's need. Benefits of online therapy over traditional therapy vastly depends upon the individual patients using these services.

Online therapy is still less known to people due to lack of awareness. The use of online therapy in clinical practice is growing, yet there is not enough online services provided. Since these therapies lack a personal face-to-face contact, it can be difficult for a wide range of people to understand its seriousness. The online services should be designed in such a way that could serve to individual patient. There are many different software and platforms available for getting required help in depression treatment. Awareness of online interventions and therapy in the treatment of depression should be increased with the aim to provide suitable treatment forms and treatment alternatives for people suffering from depression.

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