

August 2022

Transformation Based Digital Technology: The Effectivity of Psychosocial Intervention Method

I Kadek Agus Hendriawan Putra
Udayana University, agushendriawan11@gmail.com

Pande Putu Narisya Ardhaneswari
Udayana University, narisya13@gmail.com

Ni Wayan Devi Ariasih
Udayana University, nwdeviariasih03@gmail.com

I Komang Krisnata Kanaya
Udayana University, krisnatakanaya77@gmail.com

Follow this and additional works at: <https://scholarhub.ui.ac.id/smartcity>



Part of the [Cognitive Psychology Commons](#), [Community Psychology Commons](#), [Counseling Psychology Commons](#), [Developmental Psychology Commons](#), [Health Psychology Commons](#), and the [School Psychology Commons](#)

Recommended Citation

Putra, I Kadek Agus Hendriawan; Ardhaneswari, Pande Putu Narisya; Ariasih, Ni Wayan Devi; and Kanaya, I Komang Krisnata (2022) "Transformation Based Digital Technology: The Effectivity of Psychosocial Intervention Method," *Smart City*: Vol. 2: Iss. 1, Article 3.

DOI: 10.56940/sc.v2.i1.3

Available at: <https://scholarhub.ui.ac.id/smartcity/vol2/iss1/3>

This Literature Review is brought to you for free and open access by the Universitas Indonesia at UI Scholars Hub. It has been accepted for inclusion in Smart City by an authorized editor of UI Scholars Hub.

TRANSFORMATION BASED DIGITAL TECHNOLOGY: THE EFFECTIVITY OF PSYCHOSOCIAL INTERVENTION METHOD

ABSTRACT

A multitude of patterns resulting from technological change have an influence on people's mental health. People in the digital era need strong mental health in order to prevent mental disease. Coupled with the pandemic condition that happened around two years ago, it also took a part of the economic chain stability in the public, which is really important for everyday daily life. From the literature studies that have been read, showed that approximately 20% of the Indonesian population has the potential to have a mental disorder. Based on the various mental health problems that occur, the approach using the psychosocial intervention method is a way that can be used as a solution. This study is literature review that Study efficacy of digital transformation method in psychological interview case, and research based on 48 journals from various online sources. The benefit of digital psychosocial intervention is saving cost for intervention time and making it easy for people to get intervention. This research aims to study how to use digital platforms as a means of solving psychosocial transformation. The result of this study found that digital psychosocial interventions have an efficacy that is given via several platforms.

Keywords: Digital transformation; E-Health; Effectivity, Mental health; Psychosocial Intervention

INTRODUCTION

The digitalization of technology means humans have to adapt to various changes in the activities they do every day. A workaholic culture, a lifestyle that is increasingly setting very high indicators, interventions from multiple aspects and pressures from the surrounding environment, and changes in trends, make mental health problems very at risk for everyone. The COVID-19 pandemic, which struck numerous countries in diverse parts of the world, also played a role. As a consequence, governments all around the globe rushed to put emergency measures in place, including lockdowns, travel bans, screening and preventing, and cost-cutting packages. Some initiatives contributed to the misunderstanding over their efficacy and effects. For example, is lockdowns, although possibly effective in preventing new viruses, increased economic distance, hurting the employment and wages of millions around the world (Ashraf, 2020). Based on Basic Health Research in 2018 reported that 19 million people aged 15 years and over were indicated to have mental and emotional disorders while more than 12 million were indicated to be depressed. And for now, Indonesia has a prevalence of people with mental disorders around 1 in 5 of the population, meaning that about 20% of the population in Indonesia has the potential for mental disorders (KEMENKES, 2021)

Numerous prior researchers have found that social networks and support are linked to mortality, morbidity, recovery, and disease progression. In psychological intervention, digital therapy is a life review technique that has been demonstrated to decrease suffering and enhance the quality of life for patients with mental illness. Both successful implementation and acceptability of dignity therapy offered through therapist-supported web-based, application, or social media deployment to minimize costs, improve time efficiency, and promote treatment access were studied in this research study (Bentley et al., 2020).

Through offering treatments immediately to patients who need them in low - income or even no environments such as patient healthcare, healthcare technology techniques have the potential to erase obstacles and enhance access to mental health care. In addressing sexual abuse and its impacts outside of the treatment session, digital health technology may minimize provider barriers such as uncomfortable, insufficient time, and a lack of support services. Once employed within organized healthcare contexts, health technology may assist in addressing compassion fatigue as well as a lack of patient care by assessing, intervening immediately, and easily moving patients to appropriate treatment (Schouten et al.,2021). (Schouten et al.,2021).

When compared to the conventional face-to-face method, digital psychotherapy has the benefit of being available at any time and place, individuals may work at their own speed, and at-risk folks may be contacted more rapidly. Digital psychotherapy can also cost reduction and can reach areas that are difficult to find a psychiatrist. Instead, as a consequence, a successful technology psychological intervention can fulfil the underprivileged population's requirements. Despite technology treatments already being helpful in countries, no technology psychological intervention for clinical depression has been established or evaluated in Indonesia so far. Non-digital intervention (for example, face-to-face treatment provided by a therapist) is inappropriate for use as a prevention approach in a large population due to a paucity of competent clinicians and exorbitant expenditures (Chen et al., 2021). This study aims to efficiency of digital psychosocial interventions and take references from other countries worldwide due to the few sources dealing in local context. This is due to the increasing use of the internet and mobile devices by young people, as well as the integration of digital care into traditional therapy settings and Technology-based psychosocial interventions can also be an optimized strategy to address potential problems associated with traditional face-to-face care

METHODS

This paper uses a systematic literature review (SLR) through review by identifying, evaluating, and collecting existing research data topics including psychosocial interventions, digital transformation, effectiveness, and mental health. Initially, there were 214 pieces of literature published from 2000 to 2022 involved in the preliminary study. We use the keyword Digital transformation; E-Health; Effectiveness, Mental health; Psychosocial Interventions to make it easier to find journals. Sources are then narrowed down by means of having to have a human object as research, the results of the journal are clear and the method used must be in the form of digital transformation as well as conventional so that it becomes 48 papers that significantly build the discussion in this paper, each group member chooses 12 papers in a way, so that there are 48 papers collected, plus additional references. From this process, the study developed two main focuses that were used as topics of discussion: digital transformation and psychosocial interventions.

RESULTS AND DISCUSSION

From the 48 articles data that have been summarised, we put it into a table that you can access on the Appendix.

1. Psychosocial Intervention

1.1 Definition

Psychosocial interventions seek to alleviate the psychological, social, emotional, relational, and vocational difficulties associated with mental illness (Walker, 2015). Psychosocial interventions are treatments that place a greater emphasis on psychological, behavioural, and social aspects than on biological issues (Bourne et al., 2022). Counselling, health education, and social support are all examples of such interventions (Ciucă et al., 2022). NICE recommends that psychological and psychosocial therapies for people with intellectual disabilities be adapted to their unique needs and preferences (National Institute for Health and Care Excellence, 2016). They may assist individuals, enhance their quality of life, and decrease hospitalization and placement failure rates (Bourne et al., 2022). Psychosocial therapies are excellent treatments because they are action-oriented, provide alternatives to medication when necessary, and help patients adhere to their medications. Psychological therapy, according to (Bourne et al., 2022; Ciucă et al., 2022), enhanced emotional, cognitive, and behavioural outcomes.

Psychosocial therapies are designed to alleviate an individual's perceived distress and the associated interruption to their lives (Turton, 2016). Using this data, we can determine which PSIs are most effective at promoting and supporting recovery (Lipscomb, 2006). Due to the collaborative nature of psychosocial therapies, they necessitate the development and maintenance of appropriate engagement skills (Walker, 2015).

1.2. Non-Digital Psychosocial Intervention

Non-Digital Psychosocial Intervention is a type of mental health intervention that involves a range of techniques, activities, and face-to-face (in person) interactions in the settings of the family, school, community, and health-care system (Ananta Krishnan, 2020). Non-digital interventions allow community resources like schools, primary health care, and other organizations to be used (Ananta Krishnan, 2020). Actions taken to prevent the emergence of a medical state are known as preventive programs. Promotive treatments aim to promote well-being by concentrating on the positive rather than the negative elements of mental health. Clinical and psychological techniques to recognizing, managing, and treating particular mental health issues are emphasized in curative programs. They want to help individuals control their own health and lives.

These interventions have shown promise in High Income Country's (HICs) and Lower Middle-Income Country's (LMICs). The environment is very influential in the development and mental growth of children. In addition to the environment around the house, the school environment and education also have a great influence. Education and school environments naturally help children and adolescents grow (Barry et al., 2013; Fazel et al., 2014; Liebenberg et al., 2015). Gender imbalances in LMIC formal education require community-based interventions. Unschooled kids can now work with seniors and multi-faceted therapies to gain economic, social and life skills. Among the options are financing, skill development, and physical examinations (Anantkrishnan,2020). Counselling groups are designed to allow people of all ages to talk about anything. Activities like training, role plays, problem-solving exercises and quizzes are used to encourage participation. Sports mentoring programs help young people develop new skills, overcome anxiety, and gain confidence. Preventive measures like psychoeducation and mental health literacy programs can help raise mental health awareness and early detection. Talking therapies are interventions in which a trained professional converse with a troubled individual or group (Ananthkrishnan, 2020). Life skills training is offered to children and their families as part of effective juvenile mental health prevention.

2. MENTAL HEALTH

2.1. Definition

The World Health Organization (WHO) describes mental health as "a condition of well-being in which a usually sees his or her own potential, is capable of dealing with routine life pressures, is productive and creative at work, and therefore can contribute to community." Furthermore, keep in mind that physical and mental health are intimately intertwined – mental, physical, and social functioning are all connected (WHO, 2020). In reality, accepting well-being as a fundamental part of mental health is difficult for someone in a tough, possibly harmful life situation: most people would think of someone experiencing a level of well-being when killing a few people. During the conflict, a person's mental condition worsens, and he or she will consider healthy someone who is depressed and has recently been fired by an employer in a position when occupational chances are rare (Galderisi et al., 2015). Furthermore, all health issues, as well as societal perceptions of childhood and adolescence, must be assessed within a cultural and

developmental framework (Walker, 2005). Different definitions of mental illness are used. The World Health Organization defines "mental illnesses" broadly, including mental disease, intellectual disability, personality disorder, substance dependence, and reaction to adversity (WHO, 2020).

Mental health is influenced by a variety of factors including our emotional, psychological, and social well-being, all of which have an impact on our thoughts, feelings, and actions (Sama Afsana A, 2016). Several health disorders are related to mental disease, and many of these illnesses increase the risk of mental disorders or extend periods of mental illness. Comorbidity affects assistance for physical diseases as well as diagnosis, therapy, and compliance and also impacts treatment results for physical disorders, including disease-related death. Mental illness is also associated with many health conditions and contributes independently to disability and quality of life for many health conditions (Prince et al., 2007). The major effect model and the stress-buffering model are two ideas suggested by Cohen and Wills to explain how social ties influence health outcomes. These two approaches were not necessarily incompatible; in fact, both may help explain how specific aspects of social relationships influence psychological well-being. Primary effects, it has been argued, regulate structural components of social relationships (such as social media and social networking integration), while stress buffering mechanisms impact functional parts of social relationships (such as perceived support) (Kawachi, 2001).

2.2 Mental Health Cause

Mental health issues can lead to numerous complications. SARS-CoV-2, the virus that causes COVID-19, has ravaged people, institutions, and states. Economic, societal, and psychological consequences are still being felt (Badahdah, 2021). The COVID-19 pandemic has already caused stress, helplessness, worry, isolation, and despair (Badahdah, 2021). Mental health issues can lead to maladaptive coping mechanisms like substance abuse and even suicide (Badahdah, 2021). Extreme weather (hurricanes, floods), war-related or economic displacement, and terrorist acts all contribute to emergencies and disasters (hereafter referred to as "children"). Children may become fearful, clingy, jumpy, or irritable (or, in contrast, detached or numb) as a result of their severe discomfort. While employment benefits one's mental health, a toxic workplace can cause physical and mental issues. Workplace harassment and bullying are common complaints that can harm an individual's mental health (WHO, 2016). Workplace attitudes, values,

beliefs, and behaviors affect employees' emotional and physical health. As the name implies, workplace stressors can cause emotional or mental distress. Increased use of social media has been linked to an increase in mental health disorders among adolescents and young adults in the US (Braghieri, 2021). Social media has been linked to depression and suicidal thoughts (Liu et al., 2018; Valkenburg et al., 2021).

3. DIGITAL TRANSFORMATION

3.1 Definition

In recent years, digitalization has already been viewed as an important topic in global strategic studies research. At a substantial stage, digitalization refers to significant changes in society and industry as a result of the utilization of digital technology (Agarwal et al., 2010; Majchrzak et al., 2016). New digital technology enables significant operational and market improvements, such as improving customer satisfaction, optimizing processes, or developing new business opportunities. Based on our literature review, we present an inductive framework that defines digital transformation as a way companies communicate to changing environmental conditions by modifying their value creation processes through the use of digital technology. This strategy must be successful and yield positive results (Gregory, 2019).

Transformation in public sector requires new ways of collaborating with stakeholders, developing new frameworks for service delivery, and establishing new types of partnerships in order to be effective. Modification and transitions that are powered by a digital technology foundation are described here. A company's organizational transition to big data, analytical, cloud services, mobile applications, and social media platforms are referred to as digitalization (Nwankpa & Roumani, 2016). Unlike how businesses regularly alter and grow in response to the changing business environment, digitalization is a substantial upgrade that is built on digital technology and ushers in new changes to company operations, business processes, and value generation (Nwankpa & Roumani, 2016). Organizations that are digital leaders take full use of the potential presented by digital technology, as well as their impact on society, in a strategic and prioritized way (Georgy, 2019).

3.2 Digital psychosocial Intervention

According to the current HICs literature, research on digital psychosocial therapies has generally focused on personal or treatment aim of integrating implementation challenges instead

of intervention level implementation constraints. Researchers found in this research that attitudes and perceptions about interventions are essential for both patients and staff and that the complexity of treatments is a substantial barrier to the deployment of digital psychosocial therapies in the public service (pevonska, 2021)

A substantial body of data suggests that digital therapies are useful for a variety of people and situations using various communication modalities. Digital psychosocial interventions have previously been shown to meet the same professional practice requirements and outcomes as face-to-face contact. An online platform is very helpful for socially isolated persons in reducing anxiety in newly divorced adults (Shapira, 2021). Researchers, healthcare professionals, policy analysts, and other groups have stressed the need of, as well as the paucity of research and solutions for people experiencing divorce, particularly low-cost digital interventions. In comparison to more traditional face-to-face therapies, digital alternatives can enhance accessibility while also enhancing convenience, equity, and resource allocation (Amato, 2000; Dennis & Ebata, 2005; Bowers et al., 2011).

3.3. Factors that Influence Interest in Using Digital Psychosocial Interventions

Digital psychosocial therapies incorporated in a device, such as a mobile phone app, have the potential to enhance mental health care for persons with PSD in LMICs while also easing the burden of psychosis on patients and their families (Pemovska et al., 2021). Digital self-help interventions can be accessed via the internet, a mobile device, or a computer and come in both guided and unguided formats. Digital interventions hold promise not just because young people are increasingly using the internet and mobile devices, but also because of other potential benefits like as accessibility, reach, apparent anonymity, and blended therapy, which combines digital and traditional treatment settings (Schouten et al., 2021). Digital health therapies aimed at changing behavior (such as psychological therapy provided via the Internet and smartphone applications) have the potential to close this essential service delivery gap. (Palermo and colleagues, 2020). According to the findings of (Shum et al.,2019; Leo et al.,2022), interventions using a digital platform or device produce positive outcomes, such as the potential to improve mental health and quality of life to a clinically meaningful degree, as well as raising mental health awareness and promoting a perspective for reducing sleep difficulties.

4. EFFECTIVITY DIGITAL PSYCHOSOCIAL INTERVENTION

4.1 Mobile apps

The findings of studies utilizing mobile apps methods have several advantages, including supporting the most recent evidence that mobile applications are a cost-effective medium, structured development and implementation of this concept combines services to improve sustainability and cost efficacy reviewed from (Sudhest et al., 2020), becoming easily reachable, and also being appropriate for the delivery of welfare interventions reviewed from (Champion et al., 2018). More in-depth study is required to validate and expand these results in extended interventions, bigger populations, and more varied populations studied (Domogalla et al., 2021). Mental and behavioral difficulties were commonly addressed in cognitive behavioral therapy such as study patient groups, and reviewed strategies (Deary et al., 2018). The use of mobile applications research outcomes also has flaws, such as no long-term follow-up, making it difficult to know how advantages are managed sustainably (Brooks et al., 2021). The study lacked a control group to establish if the benefits were attributable to natural changes over time (Hiscock et al., 2020).

4.2 Text Message

According to (Bentley et al., 2020) research, the use of email or text message methods is observed to be more effective, judging from the aspect of time and cost. The use of this email is acceptable to the general public, saves therapists time and money, and appears to achieve people who may not even receive treatment. Morality counseling through email has the highest chance of reducing time and expense constraints. One of the benefits of text message-based therapies, according to (Figuroa et al., 2021) research, is the capacity to effectively add machine learning algorithms into research design and examine if these techniques boost efficiency. The Reinforcement learning algorithm has the ability to significantly improve the efficacy of digital mental health research, as well as their intelligent automation and adaptation. Text Message treatment has various disadvantages, including a lack of engagement to research without communication with researchers, suggesting decreased participation. Furthermore, as discussed by Figuroa et al and Bentley et al, internet recruiting carries the possibility of fraudulent conduct

4.3 Video-Based

The digital psychosocial counselling for dementia caregiver and psychological painful accident at work using video-based technologies was popular during the COVID-19 Pandemic (Singh et al., 2022; Czaja et al., 2013). Once learned, the video-based intervention can be used self-guided to safeguard psychological well-being and prevent decreased functioning in the short and long term (Singh et al., 2022). (Czaja et al., 2013) discovered that using video to provide a multi-component intervention to multicultural group cognitive dementia patients was feasible. The use of this strategy has been criticized for its small sample size, focus on two ethnic groups, and caregiver conditions (Czaja et al., 2013). A lack of evidence for a specific blended form of the brief cognitive task intervention may also be a factor (Singh et al., 2022).

4.4 Online Discussion

Frias et al., 2020 stated that using technology-based psychosocial interventions for borderline personality disorder was an optimized strategy that can handle potential issues which is connected with traditional treatments (face to face). More accessible, complicated, flexible, pleasant, accurate and ultimately cost-effective such as several advantages for the uses of technology-based evidence-based treatments. The limitation used online discussion methods reported by (Frias et al., 2020) is online discussion is still a new finding method that is being developed, so it is necessary to involve various studies and the collection of various evidence in the implementation.

4.5 Web-based

According to the findings of the study, web-based psychosocial intervention provides various advantages in the management of mental health problems. Because so many people use technology to access the internet, a web-based psychosocial intervention questionnaire was developed. It becomes easier for caregivers to gather data, therefore this strategy saves time and cost effective for intervention patients (Birnbaum et al., 2017). To establish if methods were practicable and acceptable in younger and older people living independently at the time of the study, behavioral, qualitative, and some self-report data were employed (Arnold et al (2019). Although this method has a limitation in that when we access a web page, there may be advertisements that interfere with our ability to view the website, resulting in inhibition when using the web (Birnbaum et al., 2017). Accessing use the internet will have to wait a long time for the

website to load. As a result, psychological web-based services must be designed to handle a huge amount of people at the same time a group of persons at the same time.

4.6 Digital Game

Digital Game is one of psychosocial intervention method that use video a game to intervention mental health. This method is suitable use by children or teenager who often play video game. The method is very suitable because it uses an approach according to the hobbies of children and teenagers. Digital game has various advantages for youth anxiety disorders, including cognitive behavioral therapy (CBT), pharmaceutical treatments, or a combination of both. many children don't get this treatment properly (Compton, 2021; Ebert, 2015; James, 2005). The study by (Shum et al., 2019) found that A combination of school and digital game-based programs improved students' mental health understanding and positive automatic thoughts. In specifically, the study discovered an immediate and consistent improvement in students' mental health education after program implementation when compared to the control group. The study also provided important data on the effectiveness of using both digital game-based and school-based methods in implementing mental health improvement programs in Hong Kong. It was proved to be highly successful in the mental health knowledge of the involved students even 6 months after the program's launch, demonstrating a high sustained impact of mental health knowledge improvement among the students. Furthermore, because the program was not taught by a teacher, no significant improvements in the end measures of anxiety, negative automatic thoughts, and self-esteem were discovered. According to (Gonsalves et al., 2021), the problem of adopting digital game intervention is that there are still differences in smartphone ownership and internet connectivity.

4.7 Social Media

One example of a technological application that may assist people in accessing in-person services is social media (engaging types of web-based information and communication). A number of digitally cognitive behavior therapy (CBT) programs for anxiety and depression have been developed and implemented. The investigation conducted by (Gewali et al., 2021) cognitive behavioral (CBT) therapy offers a way to overcome access barriers to in-person services. The capacity of social media approaches to facilitate perinatal adolescent psychological health is

discussed, as well as an example of how technology that allow materials can be tailored to this unique situation.

CONCLUSION

From several journal sources that have been determined has led to the conclusion that psychological intervention strategies are working well. Psychosocial therapies for mental illness are non-pharmacological treatments that address psychological, social, emotional, relational, and occupational issues. Non-digital activities make use of community resources such as schools, primary health care, and other organizations. Non-pharmacological therapies for mental illness are known as psychosocial interventions. Promotive treatments focus on the positive features of mental health in order to increase happiness. Our thoughts, feelings, emotions, and moods are all part of our mental health.

Digital psychosocial intervention treatment can help people with mental illness get better mental health care and minimize the impact of psychosis on patients and their families, digital interventions are also very cost and time saving because, digital interventions being able to reach people where there are no psychiatrists and does not need to be reached directly to where the patient is. Interventions can be delivered via the internet, mobile devices, computers, digital games, web-based, online discussions, video-based, text messages, and mobile applications. Each intervention has its advantages, namely that text messaging and web-based have the same thing in common acceptable to the general public, saves therapists time and money, and appears to achieve people who may not even receive treatment, is the capacity to effectively add machine learning algorithms into research design and examine if these techniques boost efficiency and It becomes easier for caregivers to gather data, therefore this strategy saves time and cost effective for intervention patients The limitations of using the online intervention method are that it is still a new discovery method that is being developed, so it is necessary to involve various studies and the collection of various evidences in its implementation. and need to be improvised along with technological developments

REFERENCES

- Agarwal, Ritu, Guodong (Gordon) Gao, Catherine DesRoches, and Ashish K. Jha. “**Research Commentary**—The Digital Transformation of Healthcare: Current Status and the Road Ahead.” *Information Systems Research* 21, no. 4 (December 2010): 796–809. <https://doi.org/10.1287/isre.1100.0327>.
- Amato, P. (2000). The consequences of divorce for adults and children. *Journal of Marriage and Family*, 62(4), 1269-1287. <https://doi.org/10.1111/j.1741-3737.2000.01269>.
- Ananthakrishnan, A., Samuels, F., & Himmelstine, C. (2020). *Non-digital interventions for adolescent mental health and psychosocial well-being*
- Arnold, Chelsea, Kristi-Ann Villagonzalo, Denny Meyer, John Farhall, Fiona Foley, Michael Kyrios, and Neil Thomas. “Predicting Engagement with an Online Psychosocial Intervention for Psychosis: Exploring Individual- and Intervention-Level Predictors.” *Internet Interventions* 18 (December 2019): 100266. <https://doi.org/10.1016/j.invent.2019.100266>.
- Ashraf, B. N. (2020). Economic impact of government interventions during the COVID-19 pandemic: International evidence from financial markets. *Journal of Behavioral and Experimental Finance*, 27, 100371. <https://doi.org/10.1016/j.jbef.2020.100371>
- Badahdah, A., Khamis, F., Al Mahyijari, N., Al Balushi, M., Al Hatmi, H., Al Salmi, I., Albulushi, Z., & Al Noomani, J. (2021). The mental health of health care workers in Oman during the COVID-19 pandemic. *International Journal of Social Psychiatry*, 67(1), 90–95. <https://doi.org/10.1177/0020764020939596>
- Bentley, B., O’Connor, M., Williams, A., & Breen, L. J. (2020). Dignity therapy online: Piloting an online psychosocial intervention for people with terminal illness. *DIGITAL HEALTH*, 6, 205520762095852. <https://doi.org/10.1177/2055207620958527>
- Berkman, L. F., & Kawachi, I. (Eds.). (2000). *Social epidemiology*. Oxford University Press.
- Birnbaum, M. L., Garrett, C., Baumel, A., Scovel, M., Rizvi, A. F., Muscat, W., & Kane, J. M. (2017). Using Digital Media Advertising in Early Psychosis Intervention. *Psychiatric Services*, 68(11), 1144–1149. <https://doi.org/10.1176/appi.ps.201600571>

- Bourne, J., Harrison, T. L., Wigham, S., Morison, C., & Hackett, S. (2022). A systematic review of community psychosocial group interventions for adults with intellectual disabilities and mental health conditions. *Journal of Applied Research in Intellectual Disabilities*, 35(1), 3–23. <https://doi.org/10.1111/jar.12919>
- Bowers, J. R., Ogolsky, B. G., Hughes, R., & Kanter, J. B. (2014). Coparenting through divorce or separation: A review of an online program. *Journal of Divorce & Remarriage*, 55(6), 464-484. https://doi.org/10.1080/1050_2556.2014.931760
- Brooks, H., Syarif, A. K., Pedley, R., Irmansyah, I., Prawira, B., Lovell, K., Opitasari, C., Ardisasmita, A., Tanjung, I. S., Renwick, L., Salim, S., & Bee, P. (2021). Improving mental health literacy among young people aged 11–15 years in Java, Indonesia: The co-development of a culturally-appropriate, user-centred resource (The IMPeTUs Intervention). *Child and Adolescent Psychiatry and Mental Health*, 15(1), 56. <https://doi.org/10.1186/s13034-021-00410-5>
- Champion, L., Economides, M., & Chandler, C. (2018). The efficacy of a brief app-based mindfulness intervention on psychosocial outcomes in healthy adults: A pilot randomised controlled trial. *PLOS ONE*, 13(12), e0209482. <https://doi.org/10.1371/journal.pone.0209482>
- Chen, X., Zhang, X., Zhu, X., & Wang, G. (2021). Efficacy of an Internet-Based Intervention for Subclinical Depression (MoodBox) in China: Study Protocol for a Randomized Controlled Trial. *Frontiers in Psychiatry*, 11, 585920. <https://doi.org/10.3389/fpsy.2020.585920>
- Ciucă, A., Moldovan, R., & Băban, A. (2022). Mapping psychosocial interventions in familial colorectal cancer: A rapid systematic review. *BMC Cancer*, 22(1), 8. <https://doi.org/10.1186/s12885-021-09086-8>
- Compton, S. N., Peris, T. S., Almirall, D., Birmaher, B., Sherrill, J., Kendall, P. C., March, J. S., Gosch, E. A., Ginsburg, G. S., Rynn, M. A., Piacentini, J. C., McCracken, J. T., Keeton, C. P., Suveg, C. M., Aschenbrand, S. G., Sakolsky, D., Iyengar, S., Walkup, J. T., & Albano, A. M. (2014). Predictors and moderators of treatment response in childhood anxiety disorders: Results from the CAMS trial. *Journal of Consulting and Clinical Psychology*, 82(2), 212–224. <https://doi.org/10.1037/a0035458>
- Czaja, S. J., Loewenstein, D., Schulz, R., Nair, S. N., & Perdomo, D. (2013). A Videophone Psychosocial Intervention for Dementia Caregivers. *The American Journal of Geriatric Psychiatry*, 21(11), 1071–1081. <https://doi.org/10.1016/j.jagp.2013.02.019>

- Deary, V., McColl, E., Carding, P., Miller, T., & Wilson, J. (2018). A psychosocial intervention for the management of functional dysphonia: Complex intervention development and pilot randomised trial. *Pilot and Feasibility Studies*, 4(1), 46. <https://doi.org/10.1186/s40814-018-0240-5>
- Dennis, C.-L. (2014). Psychosocial interventions for the treatment of perinatal depression. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 28(1), 97–111. <https://doi.org/10.1016/j.bpobgyn.2013.08.008>
- Dennis, S., & Ebata, A. (2005). Family life education on the technological frontier. In S. F. Duncan & H. W. Goddard (Eds.), *Outreach in family life: Principles and practices for effective family life outreach education* (pp. 180-219). Sage
- Domogalla, L., Beck, A., Schulze-Hagen, T., Herr, R., Benecke, J., & Schmieder, A. (2021). Impact of an eHealth Smartphone App on the Mental Health of Patients With Psoriasis: Prospective Randomized Controlled Intervention Study. *JMIR MHealth and UHealth*, 9(10), e28149. <https://doi.org/10.2196/28149>
- Ebert, D. D., Zarski, A.-C., Christensen, H., Stikkelbroek, Y., Cuijpers, P., Berking, M., & Riper, H. (2015). Internet and Computer-Based Cognitive Behavioral Therapy for Anxiety and Depression in Youth: A Meta-Analysis of Randomized Controlled Outcome Trials. *PLOS ONE*, 10(3), e0119895. <https://doi.org/10.1371/journal.pone.0119895>
- Eysenbach, G., Webb, T., Botelho, R., Cugelman, B., Thelwall, M., & Dawes, P. (2011). Online interventions for social marketing health behavior change campaigns: A meta-analysis of psychological architectures and adherence factors. *Journal of Medical Internet Research*, 13(1), E17. <https://doi.org/10.2196/jmir.1367>
- Figuroa, C. A., Hernandez-Ramos, R., Boone, C. E., Gómez-Pathak, L., Yip, V., Luo, T., Sierra, V., Xu, J., Chakraborty, B., Darrow, S., & Aguilera, A. (2021). A Text Messaging Intervention for Coping With Social Distancing During COVID-19 (StayWell at Home): Protocol for a Randomized Controlled Trial. *JMIR Research Protocols*, 10(1), e23592. <https://doi.org/10.2196/23592>
- Figuroa, C. A., Hernandez-Ramos, R., Boone, C. E., Gómez-Pathak, L., Yip, V., Luo, T., Sierra, V., Xu, J., Chakraborty, B., Darrow, S., & Aguilera, A. (2021). A Text Messaging Intervention for Coping With Social Distancing During COVID-19 (StayWell at Home): Protocol for a Randomized Controlled Trial. *JMIR Research Protocols*, 10(1), e23592. <https://doi.org/10.2196/23592>
- Frías, Á., Solves, L., Navarro, S., Palma, C., Farriols, N., Aliaga, F., Hernández, M., Antón, M., & Riera, A. (2020). Technology-Based Psychosocial Interventions for People with Borderline Personality

- Disorder: A Scoping Review of the Literature. *Psychopathology*, 53(5–6), 254–263.
<https://doi.org/10.1159/000511349>
- Galderisi, S., Heinz, A., Kastrup, M., Beezhold, J., & Sartorius, N. (2015). Toward a new definition of mental health. *World Psychiatry*, 14(2), 231–233. <https://doi.org/10.1002/wps.20231>
- Gewali, A., Lopez, A., Dachelet, K., Healy, E., Jean-Baptiste, M., Harridan, H., Evans, Y., Unger, J. A., Bhat, A., Tandon, D., & Ronen, K. (2021). A Social Media Group Cognitive Behavioral Therapy Intervention to Prevent Depression in Perinatal Youth: Stakeholder Interviews and Intervention Design. *JMIR Mental Health*, 8(9), e26188. <https://doi.org/10.2196/26188>
- Gonsalves, P. P., Sharma, R., Hodgson, E., Bhat, B., Jambhale, A., Weiss, H. A., Fairburn, C. G., Cavanagh, K., Cuijpers, P., Michelson, D., & Patel, V. (2021). A Guided Internet-Based Problem-Solving Intervention Delivered Through Smartphones for Secondary School Pupils During the COVID-19 Pandemic in India: Protocol for a Pilot Randomized Controlled Trial. *JMIR Research Protocols*, 10(10), e30339. <https://doi.org/10.2196/30339>
- Hiscock, H., Ng, O., Crossley, L., Chow, J., Rausa, V., & Hearps, S. (2021). Sleep Well Be Well: Pilot of a digital intervention to improve child behavioral sleep problems. *Journal of Paediatrics and Child Health*, 57(1), 33–40. <https://doi.org/10.1111/jpc.15106>
- James, A. A., Soler, A., & Weatherall, R. R. (2005). Cognitive behavioral therapy for anxiety disorders in children and adolescents. In The Cochrane Collaboration (Ed.), *Cochrane Database of Systematic Reviews* (p. CD004690.pub2). John Wiley & Sons, Ltd.
<https://doi.org/10.1002/14651858.CD004690.pub2>
- Kawachi, I. (2001). Social Ties and Mental Health. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 78(3), 458–467. <https://doi.org/10.1093/jurban/78.3.458>
- Leo, A. J., Schuelke, M. J., Hunt, D. M., Metzler, J. P., Miller, J. P., Areán, P. A., Armbrrecht, M. A., & Cheng, A. L. (2021). *Digital mental health intervention for orthopedic patients with symptoms of depression and/or anxiety: Pilot feasibility study (Preprint)* [Preprint]. JMIR Formative Research. <https://doi.org/10.2196/preprints.34889>
- Liu, M., Xue, J., Zhao, N., Wang, X., Jiao, D., & Zhu, T. (2021). Using Social Media to Explore the Consequences of Domestic Violence on Mental Health. *Journal of Interpersonal Violence*, 36(3–4), NP1965-1985NP. <https://doi.org/10.1177/0886260518757756>

- Mahendran, R., Lim, H. A., Tan, J. Y. S., Chua, J., Lim, S. E., Ang, E. N. K., & Kua, E. H. (2015). Efficacy of a brief nurse-led pilot psychosocial intervention for newly diagnosed Asian cancer patients. *Supportive Care in Cancer*, 23(8), 2203–2206. <https://doi.org/10.1007/s00520-015-2771-0>
- Meerwijk, E. L., Parekh, A., Oquendo, M. A., Allen, I. E., Franck, L. S., & Lee, K. A. (2016). Direct versus indirect psychosocial and behavioral interventions to prevent suicide and suicide attempts: A systematic review and meta-analysis. *The Lancet Psychiatry*, 3(6), 544–554. [https://doi.org/10.1016/S2215-0366\(16\)00064-X](https://doi.org/10.1016/S2215-0366(16)00064-X)
- Meulen, I. C., May, A. M., Ros, W. J. G., Oosterom, M., Hordijk, G.-J., Koole, R., & Leeuw, J. R. J. (2013). One-Year Effect of a Nurse-Led Psychosocial Intervention on Depressive Symptoms in Patients With Head and Neck Cancer: A Randomized Controlled Trial. *The Oncologist*, 18(3), 336–344. <https://doi.org/10.1634/theoncologist.2012-0299>
- Montgomery, R. M., Boucher, E. M., Honomichl, R. D., Powell, T. A., Guyton, S. L., Bernecker, S. L., Stoeckl, S. E., & Parks, A. C. (2021). The Effects of a Digital Mental Health Intervention in Adults With Cardiovascular Disease Risk Factors: Analysis of Real-World User Data. *JMIR Cardio*, 5(2), e32351. <https://doi.org/10.2196/32351>
- Nwankpa, J.K., Roumani, Y., 2016. IT capability and digital transformation: a firm performance perspective. In: International Conference of Information Systems, Dublin, Ireland.
- Palermo, T. M., de la Vega, R., Murray, C., Law, E., & Zhou, C. (2020). A digital health psychological intervention (WebMAP Mobile) for children and adolescents with chronic pain: Results of a hybrid effectiveness-implementation stepped-wedge cluster randomized trial. *Pain*, 161(12), 2763–2774. <https://doi.org/10.1097/j.pain.0000000000001994>
- Pemovska, T., Arėnliu, A., Konjufca, J., Uka, F., Hunter, J., Bajraktarov, S., Stevović, L. I., Jerotić, S., Kulenović, A. D., Novotni, A., Novotni, L., Radojčić, T., Repišti, S., Ribić, E., Ristić, I., Mešević, E. S., Zebić, M., & Jovanović, N. (2021). Implementing a digital mental health intervention for individuals with psychosis—A multi-country qualitative study. *BMC Psychiatry*, 21(1), 468. <https://doi.org/10.1186/s12888-021-03466-x>
- Possemato, K., Wu, J., Greene, C., MacQueen, R., Blonigen, D., Wade, M., Owen, J., Keane, T., Brief, D., Lindley, S., Prins, A., Mackintosh, M.-A., & Carlson, E. (2022). Web-Based Problem-solving Training With and Without Peer Support in Veterans With Unmet Mental Health Needs: Pilot Study of Feasibility, User Acceptability, and Participant Engagement. *Journal of Medical Internet Research*, 24(1), e29559. <https://doi.org/10.2196/29559>

- Prince, M., Patel, V., Saxena, S., Maj, M., Maselko, J., Phillips, M. R., & Rahman, A. (2007). *Global Mental Health 1 No health without mental health*. 370, 19.
- Sama Afsana A. (2016). A Study of Mental Health and Psychological Well Being among Teachers and Lecturers. *International Journal of Indian Psychology*, 3(3). <https://doi.org/10.25215/0303.137>
- Scholte, W. F., Verduin, F., Kamperman, A. M., Rutayisire, T., Zwinderman, A. H., & Stronks, K. (2011). The Effect on Mental Health of a Large Scale Psychosocial Intervention for Survivors of Mass Violence: A Quasi-Experimental Study in Rwanda. *PLoS ONE*, 6(8), e21819. <https://doi.org/10.1371/journal.pone.0021819>
- Schouten, M. J. E., Dekker, J. J. M., de Bruijn, T. Q., Ebert, D. D., Koomen, L. M., Kosterman, S. L. A., Riper, H., Schaub, M. P., Goudriaan, A. E., & Blankers, M. (2021). Effectiveness of a digital alcohol moderation intervention as an add-on to depression treatment for young adults: Study protocol of a multicentre pragmatic randomized controlled trial. *BMC Psychiatry*, 21(1), 265. <https://doi.org/10.1186/s12888-021-03222-1>
- Schramm, D. G., & McCaulley, G. (2012). Divorce education for parents: A comparison of online and in-person delivery methods. *Journal of Divorce & Remarriage*, 53(8), 602-617. <https://doi.org/10.1080/10502556.2012.721301>
- Shapira, S., Yeshua-Katz, D., Goren, G., Aharonson-Daniel, L., Clarfield, A. M., & Sarid, O. (2021). Evaluation of a Short-Term Digital Group Intervention to Relieve Mental Distress and Promote Well-Being Among Community-Dwelling Older Individuals During the COVID-19 Outbreak: A Study Protocol. *Frontiers in Public Health*, 9, 577079. <https://doi.org/10.3389/fpubh.2021.577079>
- Shum, A. K., Lai, E. S., Leung, W. G., Cheng, M. N., Wong, H. K., So, S. W., Law, Y. W., & Yip, P. S. (2019). A Digital Game and School-Based Intervention for Students in Hong Kong: Quasi-Experimental Design. *Journal of Medical Internet Research*, 21(4), e12003. <https://doi.org/10.2196/12003>
- Singh, L., Kanstrup, M., Gamble, B., Geranmayeh, A., Göransson, K. E., Rudman, A., Dahl, O., Lindström, V., Hörberg, A., Holmes, E. A., & Moulds, M. L. (2022). A first remotely-delivered guided brief intervention to reduce intrusive memories of psychological trauma for healthcare staff working during the ongoing COVID-19 pandemic: Study protocol for a randomised controlled trial. *Contemporary Clinical Trials Communications*, 100884. <https://doi.org/10.1016/j.conctc.2022.100884>

- Stinesen-Kollberg, K., Thorsteinsdottir, T., Wilderäng, U., & Steineck, G. (2013). Worry about one's own children, psychological well-being, and interest in psychosocial intervention: Worrying about the children after breast cancer. *Psycho-Oncology*, 22(9), 2117–2123. <https://doi.org/10.1002/pon.3266>
- Tol, W. A., Barbui, C., Galappatti, A., Silove, D., Betancourt, T. S., Souza, R., Golaz, A., & van Ommeren, M. (2011). Mental health and psychosocial support in humanitarian settings: Linking practice and research. *The Lancet*, 378(9802), 1581–1591. [https://doi.org/10.1016/S0140-6736\(11\)61094-5](https://doi.org/10.1016/S0140-6736(11)61094-5)
- Vial, Gregory. “Understanding Digital Transformation: A Review and a Research Agenda.” *The Journal of Strategic Information Systems* 28, no. 2 (June 2019): 118–44. <https://doi.org/10.1016/j.jsis.2019.01.003>.
- Walker, S. (2015a). *Psychosocial Interventions in Mental Health Nursing*. SAGE Publications, Inc. <https://doi.org/10.4135/9781473909892>
- Walker, S. (2015b). *Psychosocial Interventions in Mental Health Nursing*. SAGE Publications, Inc. <https://doi.org/10.4135/9781473909892>
- Widyawati. (2021, October 7). *Kemenkes Beberkan Masalah Permasalahan Kesehatan Jiwa Di Indonesia – Sehat Negeriku*. Sehat Negeriku. <https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20211007/1338675/kemenkes-beberkan-masalah-permasalahan-kesehatan-jiwa-di-indonesia/>.
- Williamson, H., Hamlet, C., White, P., Marques, E. M. R., Paling, T., Cadogan, J., Perera, R., Rumsey, N., Hayward, L., & Harcourt, D. (2019). A Web-Based Self-Help Psychosocial Intervention for Adolescents Distressed by Appearance-Affecting Conditions and Injuries (Young Persons' Face IT): Feasibility Study for a Parallel Randomized Controlled Trial. *JMIR Mental Health*, 6(11), e14776. <https://doi.org/10.2196/14776>
- World Health Organization. (2010). Healthy workplaces: A model for action: for employers, workers, policy-makers and practitioners. *Ambientes de Trabajo Saludables: Un Modelo Para La Acción: Para Empleadores, Trabajadores, Autoridades Normativas y Profesionales*. <https://apps.who.int/iris/handle/10665/44307>
- World Health Organization. (2021). *Mental health atlas 2020*. World Health Organization. <https://apps.who.int/iris/handle/10665/345946>
- Zuccolo, P. F., Xavier, M. O., Matijasevich, A., Polanczyk, G., & Fatori, D. (2021). A smartphone-assisted brief online cognitive-behavioral intervention for pregnant women with depression: A study

protocol of a randomized controlled trial. *Trials*, 22(1), 227. <https://doi.org/10.1186/s13063-021-05179-8>

APPENDIX

Category	Author	Main Issue	Methods	Number of Participant/Sample	Key Finding	Limitation
Text Messaging	Figueroa et al (2021)	Help people cope with the stress and anxiety of COVID-19 social distancing	Sending messages on a random schedule using a micro randomized trial (MRT) design, UR, RL	N/A	A study will examine whether automated supportive text messages will improve depression, anxiety and mood of a broad community sample in a fully remote trial. One advantage of text messaging-based interventions is the ability to easily incorporate machine learning algorithms into the research design, researchers say.	Lack of connection to the research without contact with the researcher and, therefore, show lower engagement. Furthermore, online recruitment comes with risks of fraudulent activity.
Social Media	Gewali et al (2021)	Adolescents and young adults aged <25 years (youth) are at a higher risk of perinatal depression than older adults, and they experience elevated barriers to in-person care	social media group CBT intervention to prevent perinatal depression in youth in the United States	21	A study has shown the potential of social media group interventions to support perinatal youth mental health. A social media platform was selected that allows multiple conversation channels and conceals group member identity. Content was tailored to be multimodal (text, images, and video) and the language was shortened and simplified.	sample size was small, and Washington State was overrepresented. In addition, we recruited several youth participants through health care facilities and community programs, which may have preferentially captured the perspectives of youth who had relatively high engagement in existing services
Digital Game	Shum et al (2019)	In Hong Kong, with an increasing number of children experiencing mental health issues, there is a need to not only develop innovative interventions but also	The digital game-based lessons were written into an adventurous story that combines the elements of a storyline, dialogues, problem-solving, challenges, mini-games,	459	Digital games have been shown to be effective in elevating the knowledge of mental health and promoting perspective-taking in primary school students of Hong Kong	First, no significant improvements were found in the outcome measures of anxiety, negative automatic thoughts, and self-esteem. the conducted statistical analyses may not specifically reveal the effectiveness of the digital game-

Smart City

		develop comprehensive prevention interventions so as to reduce their anxiety symptoms and enhance their emotional management and interpersonal relationships.	teamwork, and so on.			based element of the program
Website	Birnbaum, Michael	Identifying and engaging youth with early-stage psychotic disorders in order to facilitate timely treatment initiation remains a major public health challenge	landing page was developed with the primary goal of encouraging help-seeking individuals in New York City to contact their local early psychosis intervention clinic	3257	Digital ads appear to be a reasonable and cost-effective method to reach individuals who are searching for behavioural health information online.	Google analytics is capable of providing insight into the demographic characteristics of searchers, it is impossible to know precisely who they are and why they are searching. It is unclear if ads were interacting with a prospective patient, family member, concerned friend, or someone else entirely
Video based	Singh et al (2022)	Addressing the mental health needs of healthcare staff exposed to psychologically traumatic events at work during the COVID-19 pandemic	blend of digitalized self-administered materials (e.g., video instructions) and guided (remote) support	130	Interventions that are brief, can be delivered remotely and within the initial days or weeks after trauma, and that once learnt can be used in a self-guided manner, have the potential to protect psychological well-being and prevent disrupted functioning in both the short and longer-term	a null finding may indicate a lack of evidence for this particular blended version of the brief cognitive task intervention (comprised of digital components and guided, remote support), delivered to this particular population of Swedish healthcare staff, during an ongoing pandemic which escalated in intensity whilst the trial was underway
Mobile App	Brooks et al (2021)	mental health problems emerge in late childhood and contribute significantly to the global burden of disease.	storyline digital application was co-developed for young people aged 11–15 with the primary aim of improving mental health literacy and self-management.	N/A	increasing mental health literacy is a useful way to prevent mental health problems and improve mental health and wellbeing	Our study has a number of limitations. Participants who took part in the primary research components whilst sampled purposively were limited to three geographical areas of Java, Indonesia and findings may not translate to other areas of Indonesia.

Smart City

Digital Game	Gonsalves et al (2021)	The COVID-19 pandemic has increased the incidence of suicide.	Using “POD Adventures” game, is a gamified mental health intervention delivered via a smartphone app and supported by counsellors for a target population of secondary school students in India	70	This pilot trial will help understand the feasibility of implementing and evaluating a remotely delivered digital mental health intervention in a low-resource setting.	limited access and technical issues, lack of time, doubts regarding the perceived helpfulness of the program, and preferences for face-to-face help
Website	Arnold et al (2019)	to investigate demographic, psychological, and treatment variables that may predict engagement with a self-guided, recovery focused online intervention for people with psychosis.	Using the SMART (the Self-Management and Recovery Technology) was developed as a resource on self-management and personal recover, and aims to promote personal recovery and self-management of mental health in individuals with a history of psychosis	154	Psychosis patients can use e-books, social media and mobile phones for self-care in a range of clinical settings, according to a study by the University of Bath's Psychoanalysis and Neurobiofeedback (SBMR) faculty.	Log data is a useful tool for analysing how people use websites, but it has limitations when it comes to understanding user experience and perceptions of the intervention. Analysis of log data is also unable to measure users' engagement with behavioural or attitudinal aspects of the interventions.
Online discussion	Frias et al (2020)	Evidence-based psychosocial interventions for borderline personality disorder (BPD) still faces multiple challenges regarding treatment accessibility, adherence, duration, and economic costs. Over the last decade, technology has addressed these concerns from different disciplines.	Technology could be used to help people with mental health problems such as depression, anxiety and post-traumatic stress disorder (PTSD) in the future, according to researchers at the University of Bath and Gloucestershire.	15	Effectiveness and efficacy in all software is the feasibility, acceptance, and/or usability for use	Generalization of findings were limited because most samples predominantly consisted of women and two studies were based on single-case study
Video based	Czaja et al (2013)	Available services and intervention programs for dementia caregivers are often underutilized because of issues such as cost, logistics, lack of knowledge	A technology based multi-component psychosocial intervention was delivered in-home and via videophone technology over 5 months	138	A technology-based format was feasible for delivering a multi-component intervention to minority family dementia caregivers.	limitations associated with the study include a modest sample size, restriction to two ethnics groups, and the findings that the caregivers may not

Smart City

		about available services, or insufficient support from others.				have had as much distress as caregivers in other intervention trials.
Online discussion	Mens et al (2015)	identify mediators underlying the effects of an education and a peer support intervention for women with breast cancer and to determine if the efficacy of a peer support intervention is moderated by cancer severity.	planned as a 2 (early stage, late stage) × 3 (education intervention, peer support intervention, control condition) design; however, the education condition for the late-stage cancer group was dropped, because of slow recruitment. Participants completed measures of well-being prior to being randomized (Time 1), then again 2 weeks after the group meetings ended (Time 2), and 6 months later (Time 3).	245	Peer support interventions have positive short-term effects on well-being, among women with late and early-stage breast cancer, and these effects are partially mediated by changes in life purpose. Education interventions have positive short-term effects on well-being among women with early-stage breast cancer	Several limitations to the present study may also have contributed to the failure to find long-term effects.
Text Messaging	Bentley et al (2020)	Dignity therapy is a manualised psychotherapeutic life review intervention that reduces distress and enhances quality of life for people with terminal illness and their families.	The therapist who performed the interview shaped the transcribed or emailed responses using the prescribed editing process and then re-engaged with the participant using their preferred contact method to further edit and finalise the document. Final documents were printed and mailed to participants, and an electronic copy was provided via email, if	6	Online delivery of dignity therapy is feasible and acceptable, reduces therapist time and clinical cost, and appears to reach people who would not otherwise receive the therapy. Dignity therapy via email may have the greatest potential to reduce time and cost barriers.	therapy online, it has some limitations. The pilot study included a small sample size with an over representation of female, educated participants. All participants were regular users of smartphones and/or computers.

Smart City

			requested.			
Mobile apps	Domogalla et al (2021)	Psoriasis has a negative impact on patients' physical and mental health and can lead to anxiety and depression.	novel intervention that combines an educational program with a disease management smartphone app on the mental health of patients with psoriasis.	107	educational program combined with the psoriasis app had a positive impact on the mental health of patients with psoriasis if not used too frequently.	monocentric design, small study cohort, and limited generalizability of the results. In particular, the number of patients in the subgroups divided by app use frequency was quite low, which could have led to missed or overinterpreted differences between the groups
Website	Agrawal et al (2010)	United States expends extraordinary efforts toward the digitization of its health-care system, and as policy makers across the globe look to information technology (IT) as a means of making healthcare systems safer, more affordable, and more accessible,	health information technology such as electronic health records (EHR) in particular have the potential to fundamentally transform almost every aspect of health service	N/A	HIT has a positive impact on quality, including lower mortality, improved vaccination rate increased use of recommended procedures and patient safe	HIT has limitations like no sample are got to trial this
Website	Williamson et al (2019)	To establish the feasibility of evaluating YPF for 12–17-year-olds self-reporting appearance-related distress and/or bullying associated with a visible difference.	YP Face IT (YPF), is a Web-based seven session self-help program plus booster quiz, utilising cognitive behavioural and social skills training for young people (YP) struggling with a visible difference.	32	the positive impact on repeated outcome measures was analysed descriptively with some inferential methods used to describe the sample and estimate parameters	As there is no best alternative therapy available for YP with a visible difference, apart from limited access to a mental health practitioner, there was no active control arm. Although our initial concerns that YP randomized to receive UC may be disappointed were borne out, there was minimal evidence that this deterred participation.
Video based	Lodder et al (2020)	Autism stigma is a strong contributing factor to poor parental mental health, yet there are currently no interventions available that	psychosocial group support intervention was developed with the aim to improve parental mental health. Three sessions		This study set out to test the feasibility and acceptability of delivering a psychosocial stigma support intervention for parents of autistic	There are several limitations worth noting given the small sample size no firm conclusion can be drawn. Also, the qualitative analysis may have been more

Smart City

		are evidenced to improve parents' mental health in part through increasing resilience to stigma.	were delivered face to face, and five sessions via videoconference. A secret Facebook group was set up to support the intervention and increase retention rates.		children in a blended format.	sophisticated and richer had there been a larger sample size with more focus groups or if the evaluation was done via one-to-one interviews.
Website	Barbabella et al (2016)	As part of the European project INNOVAGE, a pilot study was conducted for developing and testing a Web-based psychosocial intervention aimed at empowering family caregivers of older people in Italy, Sweden, and Germany. The program offered information resources and interactive services to enable both professional and peer support	A mixed-methods, sequential explanatory design was adopted. Caregivers' psychological well-being, perceived negative and positive aspects of caregiving, and social support received were assessed before and after the 3-month intervention. Poststudy, a subsample of users participated in focus groups to assist in the interpretation of the quantitative results.	94	The intervention seemed to contribute to the improvement of family caregivers' awareness, efficacy, and empowerment, which in turn may lead to a better self-recognition of their own needs and improved efforts for developing and accessing coping resources	Limitation the study was conceived as a pilot test of a new Web-based program, able to carry out only a short-term and limited assessment of the intervention
Website	Yanez et al (2015)	The utility of psychosocial interventions in reducing symptom burden and improving health-related quality of life for men with localized prostate cancer has been demonstrated.	cancer care health intervention program that consisted of a 10-week, Web-based group CBSM intervention (eg, relaxation strategies and stress management); this was compared with a health promotion (HP) control among a diversegroup of men with APC.	74	technology based CBSM interventions among diverse men with APC may be feasible, acceptable, and efficacious.	Despite these strengths, it is important to note that the sample size for this study was underpowered to detect significant intervention effects and that all participants were provided with tablets; this limits the generalize-ability of the study to individuals who have access to mobile technology.

<p>Online discussion</p>	<p>Pemovska et al(2021).</p>	<p>Implementing a digital mental health intervention for individuals with psychosis - a multi-country qualitative study</p>	<p>This is a multi-country, multi-language qualitative study of the perceived implementation feasibility of DIALOG+. It involved primary data collection using qualitative methods in the form of semi-structured focus groups to explore perceived implementation facilitators and barriers of DIALOG+ from the perspective of key stakeholders, patients with psychosis, carers, clinicians and policymakers, in five SEE countries (Bosnia and Herzegovina, KosovoFootnote1, North Macedonia, Montenegro and Serbia). Additional file 2 contains SRQR reporting guidelines.</p>	<p>174</p>	<p>Implementation of psychosocial interventions in mental health services has the potential to improve the treatment of psychosis spectrum disorders (PSD) in low- and middle-income countries (LMICs) where care is predominantly focused on pharmacotherapy.</p>	<p>Effective treatment and management of psychotic spectrum disorders (PSD) is multi-faceted and expensive. PSD frequently cause severe disability, more often than other mental health disorders, resulting in significant health, social and economic burden.</p>
<p>Website</p>	<p>Possemato et al (2022).</p>	<p>eHealth tools have the potential to meet the mental health needs of individuals who experience barriers to accessing in-person treatment. However, most users have less than optimal engagement with eHealth tools. Coaching from peer specialists may increase their engagement with eHealth.</p>	<p>This study was found to meet all human subjects, data security, and privacy requirements for research approval by the local institutional research boards where the study investigators were located.</p>	<p>81</p>	<p>This pilot study aims to test the feasibility and acceptability of a novel, completely automated web-based system to recruit, screen, enrol, assess, randomize, and then deliver an intervention to a national sample of military veterans with unmet mental health needs; investigate whether phone-based peer support increases the use of web-based problem-solving</p>	<p>automated processes for recruiting, enrolling, screening, assessing, and providing a cognitive behavioral eHealth intervention are feasible and acceptable overall; however, additional efforts are necessary to achieve adequate study end assessment completion rates.</p>

Smart City

					training compared with self-directed use; and generate hypotheses about potential mechanisms of action for problem-solving and peer support for future full-scale research.	
Website	Prince et al (2007).	Such estimates have drawn attention to the importance of mental disorders for public health.	develop and evaluate psychosocial interventions that can be integrated into management of communicable and non-communicable diseases.		Mental health awareness needs to be integrated into all aspects of health and social policy, health-system planning, and delivery of primary and secondary general health care.	Conversely, many health conditions increase the risk for mental disorder, and comorbidity complicates help-seeking, diagnosis, and treatment, and influences prognosis.
Test	Sama Afsana A. (2016)	The research tools for mental health scale was measured by Dr. A. K. Shreevastav and Dr. Jagdish and the psychological well-being scale was measured by Bhogle and Prakash (1995).	The 't' test is applied to check the significance of mental health and psychological well-being in teachers and lecturers to check the method which was used for test.	120	difference between teachers and lecturers in mental health and psychological	The result shows, there is no significant difference between teachers and lecturers in mental health and psychological well-being
Website	Scholte (2011)	War has serious and prolonged mental health consequences. It is argued that post-emergency mental health interventions should not only focus on psychological factors but also address the social environment.	The protocol for this trial and supporting CONSORT checklist are available as supporting information	251	the mental health of all survivors of mass violence studied here improved over time.	without limitations sometimes there are parties who are not responsible for answering surveys not seriously

Smart City

Telephone	Davis et al (2010)	More than five million people in the United States are affected by Alzheimer's disease or related dementias, and two-thirds of them are cared for at home by family members	The intervention was entirely telephone delivered in 10 contacts over 3 months. Caregivers randomized to non-contact control were not prevented from using other community-based mental health or support resources, therefore reflecting standard care.	26	Results from this study demonstrate that caregivers receiving FITT-NH showed a greater reduction of guilt feelings and more positive interactions with staff compared to those caregivers receiving no additional contact.	documented that the majority of caregivers fail to use community-based resources, such as those provided through the Alzheimer's Association or similar organizations. Furthermore, attendance at support groups within nursing homes is very poor. The reasons for resource non-use are complex, but FITT-NH has the potential to be a better utilized than in-office treatments as telephone delivery offers semi-anonymity and convenience.
Website	Beatty et al (2021)	Women living with metastatic breast cancer (MBC) face significant distress and unmet needs, yet few resources have been developed for this population. The current study aimed to develop and evaluate the usability of Finding My Way-Advanced (FMW-A), a web-based self-guided psychosocial program for women with MBC.	FMW-A was co-designed through adapting an efficacious online program for people with curatively treated cancer and receiving iterative rounds of input and feedback from a multidisciplinary co-design team including consumers, clinicians, and academics	8	Usability testing indicated participants found content helpful and relatable, and identified significant pragmatic improvements to be made prior to further testing.	limitations include small sample size and minimal diversity in participants' cultural and educational backgrounds.
Online discussion	Douma et al (2021)	To evaluate the efficacy of an online psychosocial group intervention for parents of children with a chronic illness, in terms of anxiety and depression, and disease-related coping skills.	randomized controlled trial comparing an intervention group to a waitlist control group. In the group intervention parents learned how to use adaptive coping strategies taught with cognitive behavioral therapy and acceptance and commitment therapy techniques. Assessments	73	Parental anxiety and depression decreased, and use of adaptive coping skills improved after the intervention. The online character, the focus on parents themselves instead of on their child and the possibility for parents of children with rare illnesses to	limitations is the unknown recruitment and enrolment rates and the lack of information about nonrespondents, because of the partially online open recruitment

Smart City

			(online questionnaires) took place at baseline (T0), 6-months (T1), and 12-months (T2) follow-up.		participate.	
Online Intervention	Bentley et al (2020)	Dignity therapy is a life review intervention shown to reduce distress and enhance the quality of life for people with a terminal illness and their families	This study employed a one-group pre-test post-test design to pilot methods. Australian adults diagnosed with a terminal illness with a prognosis of six months or less were recruited for the study. The primary outcome measure was a Participant Feedback Questionnaire used in previous face-to-face dignity therapy studies. Data regarding therapist time and details about final documents were recorded	6	Online delivery of dignity therapy is feasible and acceptable, reduces therapist time and clinical cost, and appears to reach people who would not otherwise receive the therapy. Dignity therapy via email may have the greatest potential to reduce time and cost barriers.	limitations is the pilot study included a small sample size with an overrepresentation of female, educated participants. All participants were regular users of smartphones and/or computers
App-based	Champion et al	Previous evidence suggests that mindfulness training may improve aspects of psychosocial well-being. Whilst mindfulness is traditionally taught in person, consumers are increasingly turning to mindfulness-based smartphone apps.	The present pilot randomised controlled trial compared the impact of engaging with the self-guided mindfulness meditation (MM) app 'Headspace' (n = 38) for a period of 10 or 30 days, to a waitlist (WL) control (n = 36), using a cohort of adults from the general population.	12	This pilot randomised controlled trial shows that self-reported improvements in psychosocial outcomes can be achieved at low cost through short-term engagement with a mindfulness-based smartphone app and should be followed up with more substantive studies.	although we attempted to recruit a sample size in keeping with guidelines for pilot RCT, our outcome measures were assessed online, and relied on self-reported questionnaires, which are noisy and open to interpretation Thus, future studies may wish to compensate for this potential bias by recruiting larger samples.

Smart City

Online Intervention	Chen et al (2021)	Subclinical depression is a prevalent mental health problem and increases the incidence of the onset of major mood disorders, such as major depressive disorder	Eligible participants will be randomly assigned to the Mood Box group, the online psychoeducation group, and the naturalistic observation group at a ratio of 1:1:1. The intervention period is 8 weeks, and participants will be continuously followed up for 1 year.	435	Once proven effective and acceptable, Mood Box could be potentially integrated into the routine clinical service to facilitate the management for people with subclinical depression	all participants will be recruited from first-year university students in Beijing this, the sample might not be representative of the subclinical depression population in China. However, in light of the findings that the onset age of depression is during teenage years (37), adolescents and young adults are a high-risk population for subclinical depression.
Video based	Czaja et al (2013)	Available services and intervention programs for dementia caregivers are often underutilized because of issues such as cost, logistics, lack of knowledge about available services, or insufficient support from others	Medically unexplained loss or alteration of voice—functional dysphonia—is the commonest presentation to speech and language therapists (SLTs). Besides the impact on personal and work life, functional dysphonia is also associated with increased levels of anxiety and depression and poor general health.	74	These interventions were acceptable to patients. Emotional and psychosocial issues presented routinely in the study patient group and CBT techniques were used, deliberately and inadvertently, in both treatment arms.	One of the chief limitations with this trial is that one therapist delivered both interventions. It was clear from the monitoring of this trial that there was a considerable-intervention effect. This was ascertained through the clinician’s self-awareness, through the supervisory relationship and through the first author reviewing the recordings of therapy sessions
Digital interview	Schouten et all (2021)	Depressive disorders and problematic drinking often co-occur, also among young adults.	Participants will be recruited at three Dutch mental health care centres and through social media. Assessments take place at baseline and after 3-, 6- and 12-months post-randomization. The primary outcome is treatment response at 6-month follow-up, operationalized as a composite score that combines alcohol use and	156	This study evaluates the (cost-) effectiveness of an add-on digital alcohol moderation intervention for young adults who are in treatment for depressive disorders. If proven effective, the digital intervention could be implemented in mental health care and improve treatment for people with co-occurring depressive disorders and problematic alcohol use.	The authors found statistical significant effects in favour of the digital intervention compared to the control condition in depression and alcohol use outcomes post-treatment, but these group differences were not maintained after 3- and 6-months follow-up. Furthermore, no economic evaluations of digital interventions for co-occurring depressive disorders and problematic alcohol use have been conducted.

			depression measures and indicates whether treatment has been successful or not. Secondary outcomes are depressive symptoms and alcohol use (i.e., number of weekly standard drinks and AUDIT score). An economic evaluation will be conducted alongside the trial.			
Digital group discussion	Shapira et al (2021)	Although, these measures may be effective in preventing infection, morbidity, and death, they can also lead to increased loneliness and alienation, potentially bearing dire health consequences both from a mental and physical health point of view	The intervention includes seven twice-weekly online guided group sessions <i>via</i> Zoom. In parallel, the participants can communicate with each other and with the moderator through a designated WhatsApp group. The main purpose of the intervention is to create a safe virtual learning space for participants to share their hardships in a supportive atmosphere, and acquire skills related to coping with the pandemic and the measures taken against it (i.e., social distancing). Du	65<	This study aims were to develop a short-term online group intervention utilizing Zoom and WhatsApp to increase digital literacy, relieve adverse mental health effects and promote better coping and well-being among community-dwelling older individuals who have been shut in during the COVID-19 pandemic.	Using internet-based platforms to deliver mental health interventions raises a number of ethical issues and challenges. First, in order to ensure confidentiality and privacy during the online sessions and minimize cybersecurity risks, the collection and storage of data comply with the Israeli Protection of Privacy Regulations (Data Security): All data collected will be stored in a secured server and only the main investigators will have access to the final datasets. The second issue relates to distress management or the risk that the topics discussed during the sessions may exacerbate distress among some participants

Smart City

Digital	Stinesen-Kollberg (2013)	This study investigated the association between worrying about own children and low psychological well-being during the year that follows breast cancer.	In an observational population-based study, we collected data from 313 women operated for breast cancer at Sahlgrenska University Hospital in Gothenburg, Sweden		Worrying about one's own children (3–7 on a 1–7 visual digital scale) was, among other variables, significantly associated with low psychological well-being 1 year after breast cancer surgery (relative risk 2.63; 95% CI 1.77–3.90; posterior probability value 98.8%).	In a healthcare system where resources are scarce, it becomes imperative to identify to whom resources should be directed
Linking practice and research	Tol et al (2011)	links practice, funding, and evidence for interventions for mental health and psychosocial wellbeing in humanitarian settings.	We studied practice by reviewing reports of mental health and psychosocial support activities (2007–10); funding by analysis of the financial tracking service and the creditor reporting system (2007–09); and interventions by systematic review and meta-analysis.	160	Most interventions took place and were funded outside national mental health and protection systems. 32 controlled studies of interventions were identified, 13 of which were randomised controlled trials (RCTs) that met the criteria for meta-analysis.	Overall, research and evidence focus on interventions that are infrequently implemented, whereas the most commonly used interventions have had little rigorous scrutiny.
Review & research	Widyawati. (2021)	Mental health problems have become an unresolved health problem in society, both at the global and national levels. Especially during the COVID-19 pandemic, mental health problems will be even more difficult to solve.	To the public, to maintain personal health and remain obedient and disciplined with health protocols so as not to contract COVID-19, and always maintain mental health by managing stress well, creating a safe, comfortable atmosphere for all family members in our homes.	N/A	Local governments must make mental health programs and services the focus of attention, of course by providing various facilities and infrastructure related to adequate mental health.	one psychiatrist serves about 250 thousand residents. According to him, this is a very big burden in an effort to improve mental health services in Indonesia

Smart City

<p>Web-based</p>	<p>Williamson et al (2019)</p>	<p>Disfigurement (visible difference) from wide-ranging congenital or acquired conditions, injuries, or treatments can negatively impact adolescents' psychological well-being, education and health behaviours.</p>	<p>Randomized controlled trial with nested qualitative and economic study evaluating YPF compared with usual care (UC). Feasibility outcomes included: viability of recruiting via general practitioner (GP) practices (face to face and via patient databases) and charity advertisements; intervention acceptability and adherence; feasibility of study and data collection methods; and health professionals' ability to monitor users' online data for safeguarding issues.</p>	<p>687</p>	<p>YPF aims to help YP overcome social anxiety, manage social stigma, and reduce negative thoughts about their appearance that can lead to unhelpful behaviors.</p>	<p>the study focused on comparison of recruitment rates via targeted letters, mass mail out, charities, and consultations; reasons YP with an appearance-altering condition declined participation; questionnaire completion rates and missing data; YPF acceptability (indicated by logged user statistics, session feedback, and percentage of YP/practice staff reporting login issues); YP and parent/carer views on YPF/UC; and the number and nature of safeguarding concerns and any action required.</p>
<p>Smartphone based</p>	<p>Zuccolo et all (2021)</p>	<p>Pregnancy is strongly associated with increased risk for depression. Approximately 25% of pregnant women develop depression.</p>	<p>We will conduct a 2-arm parallel-randomized controlled clinical trial in which 70 pregnant women aged between 16 and 40 years with depression will be randomized to intervention or active control. The intervention group will have access to Motherly, a smartphone app based on three concepts: psychoeducation, behavior monitoring, and gaming elements.</p>	<p>70</p>	<p>Our study adds to the literature by testing whether an app providing an intervention package, including CBT, psychoeducation, nutrition, physical activity, and social support, can promote maternal and child health and well-being.</p>	<p>Due to the fact that the RCT will be conducted during the coronavirus pandemic in Brazil, all contact with participants, including assessments and CBT sessions, will be exclusively online and/or by phone. Given the heterogeneity in infrastructure between regions within the country, it is possible that assessors will face connection issues.</p>

<p>Internet and Computer</p>	<p>Ebert et al (2015)</p>	<p>Anxiety and depression in children and adolescents are undertreated.</p>	<p>systematic searches in bibliographical databases (PubMed, Cochrane controlled trial register, Psych Info) up to December 4, 2013, included randomized controlled trials in which (b) a computer or Internet- or mobile-based</p>	<p>N/A</p>	<p>This meta-analysis aims to evaluate whether CBT is effective for treating symptoms of anxiety and depression in youth</p>	<p>When interpreting results of this study, several limitations should be considered. First, 11 of 13 studies reviewed reported no follow-up assessment with treatment versus control comparison. Second, the interventions evaluated in the studies were very heterogeneous regarding format of treatment, ranging from therapist focused group-based chat interventions based on face-to-face treatment manuals to unguided more serious gaming-based approaches. Third, also because of the limited number of studies, we were not able to perform subgroup analyses with adequate power separately for depression and anxiety or other potential subgroup analyses of interest. Fourth, most studies targeting depression excluded participants with severe depression. Consequently, our results should not be generalized to youths with severe depression. Fifth, the present study did not search for unpublished studies. Sixth, true levels of heterogeneity in meta-analyses cannot be detected with currently available statistical methods , true levels of heterogeneity in meta-analyses cannot be detected with currently available statistical methods Sixth, true levels of heterogeneity in meta-analyses cannot be detected with currently available statistical method</p>
------------------------------	---------------------------	---	---	------------	--	--

Smart City

Web based	Cugelman et al (2011)	Researchers and practitioners have developed numerous online interventions that encourage people to reduce their drinking, increase their exercise, and better manage their weight.	Drawing on systematic review methods, a combination of 84 query terms were used in 5 bibliographic databases with additional gray literature searches to find the efficacy of online intervention used Web based	763	This meta-analysis assessed online intervention design features in order to inform the development of online campaigns, such as those employed by social marketers, that seek to encourage voluntary health behavior change. A further objective was to increase understanding of the relationships between intervention adherence, study adherence, and behavioral outcomes	The scope of online interventions in this study is limited to those targeting voluntary behavioral change, similar to the types of interventions conventionally used in social marketing campaigns for public health.
Mobile apps and website	Hiscock et al (2020)	Sleep problems are common in Australian children affecting up to 30% of infants ¹ and 40% of children during the early school years. Most problems are behavioural ^{2,4} and include difficulties falling asleep, bedtime resistance, excessive daytime sleepiness and nocturnal wakening's.	provided to primary care givers via a smartphone application and complimentary website, would improve child and care giver sleep and psychosocial outcomes	120 children aged 2-13 years	To investigate whether a digital sleep intervention improves child and care giver sleep and psychosocial outcomes	Our study had some limitations. There was no long-term follow up, so it is uncertain whether improvements are maintained over time. The study lacked a control group to determine whether the improvements were because of natural change over time.
Cognitive behavioural Therapy	James et al (2009)	Childhood and adolescent anxiety disorders are relatively common, occurring in between 5-18% of all children and adolescents. They are associated with significant morbidity and impairment in social and academic functioning, and when persistent, there is a risk of	Randomised controlled trials (RCTs) of manualised CBT of at least eight sessions were included	498	To determine whether CBT is an effective treatment for childhood and adolescent anxiety disorders in comparison to waiting list or attention controls.	In order to examine the durability of CBT changes and whether, as in the case of depression, booster CBT sessions are necessary, long-term follow-up studies with adequate controls are required. The evidence of the efficacy of the differing formats or methods of delivery of CBT individual, group, parental / family, needs further study. Comparison studies with other forms

Smart City

		depression, suicide attempts and substance abuse in adulthood.				of treatment such as pharmacotherapy, including combined treatments, are warranted.
Cognitive behavioural Therapy	Deary et al (2018)	Medically unexplained loss or alteration of voice—functional dysphonia—is the commonest presentation to speech and language therapists (SLTs). Besides the impact on personal and work life, functional dysphonia is also associated with increased levels of anxiety and depression and poor general health.	Medically unexplained loss or alteration of voice—functional dysphonia—is the commonest presentation to speech and language therapists (SLTs). Besides the impact on personal and work life, functional dysphonia is also associated with increased levels of anxiety and depression and poor general health.	74	As measured by treatment flow, the intervention was as acceptable as standard voice therapy to patients. Analysis of treatment content showed that the SLT was able to conduct a complex CBT formulation and deliver novel treatment strategies for fatigue, sleep, anxiety and depression in the majority of patients	one therapist delivered both treatments
Mobile Apps (Wysa)	Leo et al (2021)	Depression and anxiety commonly coexist with chronic musculoskeletal pain, and when this occurs, standard orthopaedic treatment is less effective. Nevertheless, addressing mental health is not yet a routine part of standard orthopedic treatment, in part due to access related barriers. Digital mental health intervention offers the potential to be a scalable resource that could feasibly be incorporated into orthopedic care.	Enrollment was performed face-to-face by a research coordinator immediately after the participant’s encounter with an orthopedic clinician. Participants were provided two months of access to a mobile app called Wysa, which is an established, multi-component digital mental health intervention that uses chatbot technology and text-based access to human counselors to deliver cognitive behavioral therapy, mindfulness	Adult patients (18 years and older) who presented to a non-surgical orthopedic specialist	The primary purpose of this study was to assess the feasibility of introducing a digital mental health intervention (Wysa) within an outpatient orthopedic setting to patients who endorse coexisting symptoms of depression and/or anxiety. The secondary purpose was to perform a preliminary effectiveness analysis of the intervention.	The primary limitation is that, due to the availability of resources, there was no true control arm.

Smart City

			training, and sleep tools, among other features. For this study, Wysa access also included novel, behavioral activation-based features specifically developed for users with chronic pain.			
Social Media	Liu et al (2018)	A great deal of research focuses on the negative consequences of domestic violence (DV) on mental health. Golding (1999) found that 47.6% of the battered women suffer from depression and more than 17.9% of them have attempted suicide.	selected the DV cases from a pool of 1.16 million Weibo users. All Weibo users in our original data pool were active users, with more than 500 posts during the past 2 years. Approximately 92% of users had more than one update (e.g., login) every day on Weibo.	232	This study aims to explore the short-term outcomes of DV on individuals' mental health.	In this case, we provided reliable evidence on DV's short-term impact on several aspects of mental health, with the before/after measurements perfectly matching the timing of DV incidents. The OER approach in our study was regarded as having much potential for future explorations of mental health and violence.
Face to face session	Mahendran et al (2015)	Psychosocial issues and psychiatric co-morbidity often contribute to, and sometimes exacerbate, the cancer disease burden on both patients and their caregivers. Interventions should be evidence-based, appropriate to needs, and effectively delivered by the healthcare team.	The semi-structured intervention comprised 20- to 30-minute face-to-face sessions with trained oncology nurses, monthly for 2 months and then bimonthly for 4 months. Patients received psycho-education on symptoms of stress, anxiety, and depression and counseling and were taught behavioral techniques such as deep breathing, progressive muscle relaxation, and positive self-talk	121 (aged < 21)	To developed and tested the efficacy of a brief nurse-led psychosocial intervention to alleviate these patients' distress, minor psychiatric morbidity, and psychosocial concerns.	further research is necessary to explore the efficacy and viability of this intervention

Smart City

Questionnaires	Meulen et al (2022)	Many patients with head and neck cancer (HNC) experience depressive symptoms after treatment.	Participants completed five questionnaires at home and returned them using a prepaid return envelope at baseline, before the start of cancer treatment, and at 3, 6, 9, and 12 months after the completion of cancer treatment. The primary endpoint was 12 months after completion of cancer treatment; the other measurements were taken to gain insight into the pattern of change in depressive and physical symptoms.	205	This randomized controlled trial investigated the effects of a psychosocial nurse counseling and after intervention (NUCAI) versus usual care on the depressive and HNC-related physical symptoms of patients with HNC at 1 year after diagnosis.	The results of this study need to be confirmed in future studies so that the NUCAI can be implemented in daily clinical practice
Mobile Apps	Montgomery et al (2021)	The American Heart Association has identified poor mental health as a key barrier to healthy behavior change for those with cardiovascular disease (CVD) risk factors such as high blood pressure, high cholesterol, and diabetes.	Data were obtained from existing Happify users who reported the aforementioned CVD risk factors. The sample included 1803 users receiving at least 6 weeks' exposure to Happify (ranging from 42 days to 182 days) who completed at least one activity and two assessments within the app during that time.	1803	The objectives of this analysis of real-world data from Happify users with self-reported CVD risk factors, including high blood pressure and cholesterol, diabetes, and heart disease, were to examine whether these users would report improvements in subjective well-being and anxiety over time (H1) and use of Happify as recommended would be associated with significantly greater improvement in subjective well-being and anxiety over time compared to less-than-recommended usage (H2).	this was a study of real-world data from Happify users, there was no opportunity to assign participants to a control group, and thus, we cannot determine whether the observed changes in outcomes were simply due to the passage of time, chance, or any number of other confounding factors.

Smart City

<p>Mobile Apps</p>	<p>Palermo et al (2020)</p>	<p>Digital health interventions targeting behavior change (ie, psychological interventions delivered through the Internet and smartphone applications) have the unique potential to bridge this critical gap in service delivery.</p>	<p>Patients referred during their clinic's exposure phase received the active intervention, which included access to the WebMAP Mobile app for teens and WebMAP parent web site to learn pain self-management skills, in addition to receiving usual care at their referring clinic.</p>	<p>The sample included 143 children and adolescents aged 10 to 17 years</p>	<p>To evaluate effectiveness and implementation of a digital health delivered psychological intervention for paediatric chronic pain.</p>	<p>This study limited to clinic in United States</p>
--------------------	-----------------------------	---	--	---	---	--