



## RESEARCH PAPER

## OPEN ACCESS

## Digital age on mental health: Prevalence, challenges and the rise of telemental health solutions

Anas Ali Alhur<sup>\*1</sup>, Mohammed Sumehan Alharbi<sup>2</sup>, Ghalib Hamad Yahia Al Khomsan<sup>3</sup>, Ali Mohammed Ali Alasmari<sup>2</sup>, Sami Saeed Alzahrani<sup>4</sup>, Hamad Hashan Muhammad Al-Yami<sup>5</sup>, Abdullah Yaanallah Alghamdi<sup>2</sup>, Saad Abdullah Alshehri<sup>2</sup>, Omar Mohammed Bagader<sup>6</sup>, Mana Hashan Mohammed Almunajjim<sup>7</sup>, Fawzi Obaid Abdullah Al-Otaibi<sup>8</sup>, Abdulkarem Rashed Almutairi<sup>8</sup>, Hassan Faisal Ali Abu Saq<sup>9</sup>, Saleh Ahmed Makki<sup>4</sup>, Mohammed Mousa Altharwy<sup>10</sup>

<sup>1</sup>Department of Health Informatics, College of Public Health and Informatics, University of Hail, Saudi Arabia

<sup>2</sup>Royal Court Medical Clinic, Saudi Arabia

<sup>3</sup>Yadamah General Hospital, Saudi Arabia

<sup>4</sup>Ministry of Health, Saudi Arabia

<sup>5</sup>Ministry of Health, Yadama General Hospital, Saudi Arabia

<sup>6</sup>Compliance adm in Riyadh Region, Saudi Arabia

<sup>7</sup>National Guard Health Affairs, Saudi Arabia

<sup>8</sup>Saudi Red Crescent Authority, Saudi Arabia

<sup>9</sup>Yadmah Hospital, Saudi Arabia

<sup>10</sup>Rurwaydat Al Ard General Hospital, Saudi Arabia

**Key words:** Digital age, Mental health, Telemental health, Cyberbullying, Digital era

<http://dx.doi.org/10.12692/ijb/23.6.242-248>

Article published on December 12, 2023

### Abstract

This literature review critically assesses the prevalence of mental health disorders and the acceptance of telemental health services in the digital age, incorporating a systematic analysis of recent literature to uncover significant trends, benefits, and challenges. Findings reveal a notable global increase in mental health disorders, with digital age stressors like cyberbullying exacerbating conditions among vulnerable populations. Despite these challenges, telemental health services are emerging as a vital component of mental healthcare, offering remote access to care and reducing barriers related to distance, accessibility, and stigma. The review highlights a growing acceptance of these services among both healthcare professionals and patients, influenced by factors such as ease of use, technological trust, and the effectiveness of remote therapeutic relationships. However, the integration of telemental health into standard care practices faces obstacles including concerns over privacy, data security, and the ethical implications of using artificial intelligence in mental health care. The review underscores the critical need for healthcare systems to adapt to these digital innovations, ensuring ethical standards and equitable access to enhance mental health outcomes in the digital era.

\* Corresponding Author: Anas Ali Alhur ✉ [anas.ali.alhur@gmail.com](mailto:anas.ali.alhur@gmail.com)

## Introduction

The integration of digital technology in healthcare, particularly telemental health services, marks a pivotal shift in addressing the increasing prevalence of mental health disorders. This literature review aims to assess the current landscape of these disorders and examine the acceptance and utilization of telemental health services in the digital age. The review delves into the multifaceted impact of the digital era on mental health, exploring how technological advancements have both alleviated and exacerbated mental health issues. Studies have shown that digital platforms can both support and hinder mental health, making the role of telemental health services increasingly vital (Organization, 2022)

Telemental health services, encompassing telepsychology and telepsychiatry, offer a promising solution to the growing demand for mental health care. These services provide remote, digital access to mental health professionals, breaking down barriers of distance, accessibility, and stigma. However, the acceptance of these services varies, influenced by factors such as cultural perceptions, awareness, and trust in digital healthcare platforms (Connolly *et al.*, 2022).

The digital age has also seen the rise of issues like cyberbullying, which has a profound impact on mental health, particularly among adolescents and young adults. Studies have highlighted the prevalence and psychological effects of cyberbullying, emphasizing the need for effective strategies to address this growing problem (Alhur and Alhur, 2023)

Furthermore, the integration of advanced technologies such as Artificial Intelligence (AI) in telemental health services presents both opportunities and challenges. AI-driven telemental health services have the potential to revolutionize mental health care by providing personalized, efficient, and accessible care. However, concerns about privacy, data security, and the ethical use of AI in healthcare pose significant challenges that need to be addressed (Alhur *et al.*, 2023).

This literature review seeks to provide a comprehensive understanding of the current state of mental health disorders and the role of telemental health services in the digital age. By examining the prevalence of mental health issues, the acceptance of digital health solutions, and the challenges and opportunities within this domain, the review aims to shed light on the way forward in leveraging digital technology to enhance mental health care.

## Materials and methods

### *Research question*

The primary research question guiding this literature review is: "What is the current prevalence of mental health disorders, and how are telemental health services being accepted and utilized in the digital age?"

### *Database and source selection*

To ensure the comprehensiveness and relevance of the literature, we conducted searches across multiple databases, including PubMed, Scopus, Web of Science, and Google Scholar. These databases were selected for their extensive coverage of peer-reviewed journal articles in medical, psychological, and technological fields.

### *Search strategy*

The search strategy employed a combination of keywords related to "mental health disorders," "telemental health," "digital age," "prevalence," and "acceptance." Filters were applied to narrow the search results to publications within the last 10 years, written in the English language, and categorized as peer-reviewed articles.

### *Inclusion and exclusion criteria*

The inclusion criteria encompassed peer-reviewed journal articles and conference proceedings published within the past decade that directly addressed the prevalence of mental health disorders and telemental health services. Exclusion criteria were applied to exclude non-English publications, non-academic content, and studies not directly related to the research question.

### *Data extraction and analysis*

Data extraction was conducted using a standardized form that captured essential information from each selected article, including the study's methodology, findings, sample size, relevance to the research question, and potential biases. Subsequently, a thematic analysis was performed to identify common themes, trends, challenges, and best practices within the selected literature.

### *Quality assessment*

The quality assessment of each study was independently carried out by two reviewers. The assessment considered various factors, including the rigor of the study's methodology, the size of the sample, relevance to the research question, and the presence of bias. This dual-reviewer approach ensured that the selection of articles met high-quality standards and minimized potential biases.

### *Ethical considerations*

Throughout the literature review process, ethical considerations were paramount. Proper acknowledgment and citation of sources were observed, and all data used adhered to ethical standards of research, ensuring the integrity of the review's findings.

## **Results and discussion**

### *Prevalence of mental health disorders*

Studies indicate a significant global prevalence of mental health disorders, with digital age factors like cyberbullying impacting mental health, particularly among adolescents (Phan *et al.*, 2022). Major Depressive Disorder (MDD) is consistently identified as one of the most prevalent mental health disorders, affecting approximately 7-10% of the global population (Depression, 2017). Bipolar Disorder exhibits a lower but still significant lifetime prevalence, ranging from 1-2% in the general population (Merikangas *et al.*, 2010).

Anxiety Disorders: Generalized Anxiety Disorder (GAD) is estimated to affect approximately 3-5% of the global population, with a higher prevalence

observed in women compared to men (Kessler *et al.*, 2005). Social Anxiety Disorder presents lifetime prevalence rates that vary from 2-7% (Baldwin *et al.*, 2018).

Schizophrenia, one of the most widely recognized psychotic disorders, has a global prevalence estimated at approximately 1% (Simeone *et al.*, 2015). Schizoaffective Disorder, while less prevalent than schizophrenia, exhibits significant variability in prevalence across populations (Hjorthøj *et al.*, 2017). Also, Alcohol Use Disorder (AUD) is among the most common substance use disorders, with a lifetime prevalence ranging from 8-14% (Grant *et al.*, 2017). Prevalence rates for Substance Use Disorder (SUD) vary widely depending on the specific substance and demographic factors, with estimates ranging from 1-10% (Abuse, 2020).

### *Acceptance of telemental health services*

Studies have shown that a significant portion of mental health professionals, including psychiatrists and psychologists, have embraced telemental health services. The acceptance is influenced by factors such as ease of use, reimbursement policies, and the ability to reach underserved populations (Alhur & Alhur, 2022; Hilty *et al.*, 2013).

Telemental health acceptance among therapists and counselors is on the rise, driven by the convenience it offers to both providers and clients. Evidence suggests that training and support in using telehealth platforms can enhance their willingness to adopt these services (Patel *et al.*, 2020).

The acceptance of telemental health services among the general population has increased, especially due to the COVID-19 pandemic, which necessitated remote care options. Factors influencing acceptance include privacy concerns, access to technology, and the quality of the therapeutic relationship established online (Petersen *et al.*, 2021)

Rural and Underserved Populations: Telemental health services are particularly valuable for

individuals in rural and underserved areas. Acceptance is often higher in these populations due to the increased access to care and reduced stigma associated with seeking help remotely (Laitio *et al.*, 2023)

#### *Impact of the digital age on mental health*

The rise of social media platforms has brought about negative mental health outcomes, including increased rates of depression and anxiety, primarily due to issues like cyberbullying, social comparison, and the pressure to curate idealized online personas (Alhur & Alhur, 2023; Primack *et al.*, 2017). Additionally, excessive use of digital devices and internet-related activities can lead to digital addiction, resulting in adverse effects on mental health, such as decreased social interactions, sleep disturbances, and increased feelings of isolation (Kuss *et al.*, 2014). The online disinhibition effect, facilitated by the anonymity provided by online interactions, can lead to disinhibited behavior, potentially causing harm to oneself or others and contributing to mental health issues (Suler, 2004).

Conversely, the digital age has expanded access to mental health resources, including online therapy and mental health apps, making it easier for individuals to seek help and support (Andersson, 2016). Social media and digital communication tools can foster social connections, especially for individuals who may have difficulty with in-person interactions, as online communities and support networks provide valuable emotional support (Frison and Eggermont, 2016). Moreover, the internet offers a wealth of information and educational resources about mental health, reducing stigma and increasing awareness, which can positively impact mental health outcomes (Naslund *et al.*, 2016).

The impact of the digital age on mental health is complex and multifaceted, with both negative and positive consequences. It is essential for individuals to use digital technologies mindfully, considering their potential effects, and for policymakers and mental health professionals to address the challenges and opportunities presented by the digital age.

#### *Challenges and opportunities in telemental health*

Integrating telemental health into healthcare systems introduces both challenges and opportunities. A systematic review highlighted the importance of evaluating telemental health's efficacy and reliability compared to in-person care, revealing a diverse range of findings due to variations in study quality, diagnoses, and methodologies (Sugarman and Busch, 2023). Another study emphasized the need for comprehensive implementation strategies to enhance the delivery of mental health care remotely, noting considerable barriers across different settings (Appleton *et al.*, 2023). Research also points to the benefits of telemental health in improving access to care and reducing treatment gaps, which necessitated a rapid shift to remote care (Gibson *et al.*, 2009)

Further exploration into providers' perceptions of telemental health during the pandemic revealed varied experiences based on when providers adopted telemedicine and the proportion of their caseload served remotely. Factors such as demographic and professional characteristics, satisfaction with the telemedicine experience, and the therapeutic alliance in telemedicine settings were examined to understand the nuances of care delivery through this medium (Wilczewski *et al.*, 2022)

These studies collectively underscore the nuanced landscape of telemental health, highlighting its potential to revolutionize mental healthcare by making it more accessible and adaptable to current needs. However, the transition also necessitates addressing significant challenges, particularly in ensuring the quality and security of care.

#### **Conclusion**

This literature review underscores the profound impact of the digital age on mental health, delineating both the escalating prevalence of mental health disorders and the promising horizon of telemental health services. The findings illuminate the double-edged sword of digital technology: while it exacerbates certain mental health conditions through phenomena such as cyberbullying; it simultaneously offers groundbreaking avenues for accessible and

effective mental health care through telemental health services. These services not only transcend traditional barriers to care but also introduce a new paradigm of mental health support that is both inclusive and adaptable to individual needs.

The growing acceptance of telemental health among healthcare professionals and patients alike signals a pivotal shift towards a more digitally integrated healthcare ecosystem. However, this transition is not without its challenges. Concerns surrounding data privacy, the ethical implications of artificial intelligence, and the need for robust digital health literacy among both providers and patients are critical issues that must be addressed to harness the full potential of telemental health services.

As we navigate the complexities of mental health in the digital era, policymakers, healthcare providers, and technology developers must collaborate in creating a secure, ethical, and patient-centered telemental health infrastructure. This collaborative effort should aim to not only mitigate the adverse effects of the digital age on mental health but also to leverage digital innovations to enhance mental health care. By doing so, we can ensure that the digital age catalyzes a more accessible, effective, and compassionate mental health care system.

## References

- Abuse S.** 2020. Mental Health Services Administration. Behavioral Health Barometer: United States, Volume 6: indicators as measured through the 2019 National Survey on Drug Use and Health and the National Survey of Substance Abuse Treatment Services. HHS Publication No. Substance Abuse and Mental Health Services Administration: Rockville, MD, USA.
- Alhur AA, Alhur AA.** 2023. Cyberbullying: An Overview of its prevalence in Saudi Arabia a literature review. *Journal of Contemporary Social Science and Education Studies (JOCSES)* **3**(1), 93–104.
- Alhur AA, Alhur AA, Aldhafeeri MD, Alghamdi SE, Bazuhair WS, Al-Thabet AA, Alharthi KM, Alhusini N. T, Alnughaymishi RA, Alibrahim HS.** 2023. Telemental health and artificial intelligence: Knowledge and attitudes of Saudi Arabian individuals towards ai-integrated telemental health. *Journal of Population Therapeutics and Clinical Pharmacology* **30**(17), 1993–2009.
- Alhur A, Alhur AA.** 2022. The Acceptance of Digital Health: What about Telepsychology and Telepsychiatry? *Jurnal Sistem Informasi* **18**(2), 18–35.
- Andersson G.** 2016. Internet-Delivered Psychological Treatments. *Annual Review of Clinical Psychology* **12**(1), 157–179.  
<https://doi.org/10.1146/annurev-clinpsy-021815-093006>
- Appleton R, Barnett P, Vera San Juan N, Tuudah E, Lyons N, Parker J, Roxburgh E, Spyridonidis S, Tamworth M, Worden M, Yilmaz M, Sevdalis N, Lloyd-Evans B, Needle JJ, Johnson S.** 2023. Implementation strategies for telemental health: A systematic review. *BMC Health Services Research* **23**(1), 78.  
<https://doi.org/10.1186/s12913-022-08993-1>
- Baldwin D, Stein MB, Hermann R.** 2018. Generalized anxiety disorder in adults: Epidemiology, pathogenesis, clinical manifestations, course, assessment, and diagnosis. UpToDate [Internet]. Waltham (MA): UpToDate.  
<https://medilib.ir/uptodate/show/496>
- Connolly SL, Miller CJ, Gifford AL, Charness ME.** 2022. Perceptions and use of telehealth among mental health, primary, and specialty care clinicians during the COVID-19 pandemic. *JAMA Network Open* **5**(6), e2216401–e2216401.
- Depression WHO.** 2017. Other common mental disorders: Global health estimates. Geneva: World Health Organization, 24.

- Frison E, Eggermont S.** 2016. Exploring the Relationships Between Different Types of Facebook Use, Perceived Online Social Support, and Adolescents' Depressed Mood. *Social Science Computer Review* **34**(2), 153–171.  
<https://doi.org/10.1177/0894439314567449>
- Gibson K, Kakepetum-Schultz T, Coulson H, O'Donnell S.** 2009. Telemental health with remote and rural First Nations: Advantages, disadvantages, and ways forward. National Aboriginal Health Organisation (NAHO) Conference Ottawa. [http://meeting.knet.ca/mp19/file.php/16/Publications/Gibson\\_et\\_al\\_NAHO\\_November\\_2009.pdf](http://meeting.knet.ca/mp19/file.php/16/Publications/Gibson_et_al_NAHO_November_2009.pdf)
- Grant BF, Chou SP, Saha TD, Pickering RP, Kerridge BT, Ruan WJ, Huang B, Jung J, Zhang H, Fan A.** 2017. Prevalence of 12-month alcohol use, high-risk drinking, and DSM-IV alcohol use disorder in the United States, 2001-2002 to 2012-2013: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *JAMA Psychiatry* **74**(9), 911–923.
- Hilty DM, Ferrer DC, Parish MB, Johnston B, Callahan EJ, Yellowlees PM.** 2013. The Effectiveness of Telemental Health: A 2013 Review. *Telemedicine and E-Health* **19**(6), 444–454.  
<https://doi.org/10.1089/tmj.2013.0075>
- Hjorthøj C, Stürup AE, McGrath JJ, Nordentoft M.** 2017. Years of potential life lost and life expectancy in schizophrenia: A systematic review and meta-analysis. *The Lancet Psychiatry* **4**(4), 295–301.
- Kuss D, Griffiths M, Karila L, Billieux J.** 2014. Internet addiction: A systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design* **20**(25), 4026–4052.
- Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE.** 2005. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry* **62**(6), 593–602.
- Laitio A-M, Giunti G, Halonen R.** 2023. Perceived barriers and facilitators in using patient-reported outcome systems for cancer care: Systematic mapping study. *JMIR Cancer* **9**(1), e40875.
- Merikangas KR, He J, Burstein M, Swanson SA, Avenevoli S, Cui L, Benjet C, Georgiades K, Swendsen J.** 2010. Lifetime prevalence of mental disorders in US adolescents: Results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry* **49**(10), 980–989.
- Naslund JA, Aschbrenner KA, Marsch LA, Bartels SJ.** 2016. The future of mental health care: Peer-to-peer support and social media. *Epidemiology and Psychiatric Sciences* **25**(2), 113–122.
- Organization WH.** 2022. Mental health and COVID-19: Early evidence of the pandemic's impact: scientific brief, 2 March 2022. World Health Organization.  
<https://apps.who.int/iris/bitstream/handle/10665/352189/WHO-2019-nCoV-Sci-Brief-Mental-health-2022.1-eng.pdf>
- Patel SY, Huskamp HA, Busch AB, Mehrotra A.** 2020. Telemental Health and US Rural–Urban Differences in Specialty Mental Health Use, 2010–2017. *American Journal of Public Health* **110**(9), 1308–1314.  
<https://doi.org/10.2105/AJPH.2020.305657>
- Petersen MW, Dantoft TM, Jensen JS, Pedersen HF, Frostholt L, Benros ME, Carstensen TBW, Ørnbøl E, Fink P.** 2021. The impact of the Covid-19 pandemic on mental and physical health in Denmark – a longitudinal population-based study before and during the first wave. *BMC Public Health* **21**(1), 1418.  
<https://doi.org/10.1186/s12889-021-11472-7>



**Phan TC, Chau B, Do HN, Vu TBT, Vu KL, Nguyen HD, Nguyen DT, Do HM, Nguyen NTT, La LBT.** 2022. Determinants of mental health among youths and adolescents in the digital era: Roles of cyber and traditional bullying, violence, loneliness, and environment factors. *Frontiers in Public Health* **10**, 971487.

**Primack BA, Shensa A, Sidani JE, Whaite EO, Yi Lin L, Rosen D, Colditz JB, Radovic A, Miller E.** 2017. Social media use and perceived social isolation among young adults in the US. *American Journal of Preventive Medicine* **53**(1), 1–8.

**Sugarman DE, Busch AB.** 2023. Telemental health for clinical assessment and treatment. *Bmj*, 380. <https://www.bmj.com/content/380/bmj-2022-072398.full>

**Suler J.** 2004. The Online Disinhibition Effect. *CyberPsychology & Behavior* **7**(3), 321–326. <https://doi.org/10.1089/1094931041291295>

**Wilczewski H, Paige SR, Ong T, Barrera JF, Soni H, Welch BM, Bunnell BE.** 2022. Perceptions of telemental health care delivery during COVID-19: A cross-sectional study with providers, February-March 2021. *Frontiers in Psychiatry* **13**, 855138.