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REVIEW

Digital psychiatry: implications for patients and services

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Abstract

The COVID-19 pandemic has resulted in an increased burden on all medical services and healthcare professionals are applying new strategies to cope with the added demands. During the pandemic mental healthcare services in many parts of the world have been reorganised to incorporate modern technology and maintain efficient service delivery. Mental health professionals are playing a major role in alleviating the suffering resulting from this pandemic. A selective survey of the literature, including narrative reviews, was carried out to study the implications of digital psychiatry. Historically, epidemics have had a substantial effect on mental health and general health services. Telehealth appears to be the right solution to the present mental health crisis, but technology cannot substitute for human presence and proximity in mental health services, so the newer interventions have advantages and disadvantages. Remote methods of therapy are likely to continue to be used and proper assessment of these new ways of working in psychiatry is required. In the post-pandemic period, the challenge will be to combine digital and in-person therapies. Discussions about digital revolution in the field of psychiatry should be modified to digital evolution.

Key words: COVID-19; Ethics; Human closeness; Mental health; Telepsychiatry; Therapeutic alliance

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Introduction

On 11 March 2020, the COVID-19 outbreak was declared a pandemic by the World Health Organization. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) caused far more infection and deaths than the 2002 and 2012 coronavirus epidemics (World Health Organization, 2020a, b). The complications of COVID-19 create an additional burden on health services that were already stretched beyond their means. The impact of the current pandemic on mental health is expected to be profound (Holmes et al, 2020). The immune response to SARS-CoV-2 itself can cause psychiatric sequelae or morbid psychological factors, such as psychological effects of the illness, fears about infecting others, and stigma; these factors can also trigger psychiatric consequences (Mazza et al, 2020). The psychiatric complications of COVID-19 have been discussed (Ellul et al, 2020; Holmes et al, 2020; Kotfis et al, 2020; Rogers et al, 2021), and these psychiatric and neuropsychiatric issues put a heavy burden on mental health services. Vaccinations are expected to ease these psychiatric complications by combatting the pandemic, but some countries are lagging in widespread vaccination.

When digital psychiatry was introduced three decades ago, there were a number of obstacles to its use. The early part of the 21st century saw increased numbers of personal computers, yet there was caution in introducing their use in healthcare, and the widespread use of telemedicine has thus been slow to evolve (Smith and Gray, 2009; Barnett et al, 2018). However, the COVID-19 pandemic removed many perceived barriers to the adoption of virtual care (Mann et al, 2020; Perez Sust et al, 2020). Digital psychiatry is being used more widely to handle the added pressures on mental health services caused by the pandemic. In the UK, the NHS rapidly implemented widespread delivery of virtual psychiatric care, despite existing cautionary guidance from the Royal College of Psychiatrists (Dave et al, 2021). One of the profound impacts of COVID-19 on mental health services is the emergence of apps and IT-based interventions to help mental wellbeing.

Digital psychiatry has initiated a cultural shift among mental health practitioners. Similarly to the attitudes of patients towards digital psychiatry, mental health professionals

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have differing opinions about its application in clinical practice, ranging from dread to enthusiasm. Even traditional thinkers in healthcare are eager to give new forms of interventions a try. Some clinicians are apprehensive about the negative consequences of electronic communication in psychiatry because of the ethical dilemmas and issues surrounding its practical applications (Sabin and Harland, 2017).

Telepsychiatry

Digital psychiatry includes social networking tools like smartphones, text messaging, videos, websites and message boards. It is used as an umbrella term for digital interventions that are delivered via websites, mobile-based apps and the delivery of telemedical healthcare through virtual (videoconferencing) platforms. Digital psychiatry and telepsychiatry are terms used interchangeably. In fact, the term telepsychiatry links traditional psychiatry with digital psychiatry as telepsychiatry existed several decades ago and was used to provide psychiatric services. Analytically, it means an interaction between a patient and clinician who are in different sites, through the use of transmitted live sound and video images (Jones et al, 2006). Telepsychiatry is all about remote consultation, but the contemporary phrase 'digital psychiatry' is much more than that. Digital psychiatry moves beyond just the digital delivery of a consultation, to the provision of on-demand, highly personalised, confidential and secure care made available through an easy-to-use intuitive interface (Dave et al, 2021). Both terms are used in this article. The proliferation of use of smartphones among service users and health providers makes the terminology of telepsychiatry meaningful. The COVID-19 pandemic has brought newer forms of communication technology into the arena of mental health services, and these have enabled efficient provision of psychiatric services in this period of global crisis. Initially, only telepsychiatry was used, but it evolved into digital psychiatry in a short span of time, incorporating different technological innovations. The integration of telepsychiatry into other technological innovations, such as mobile apps, virtual reality, big data and artificial intelligence, offers new prospects for providing enhanced mental health support.

Husain et al (2021) suggest that guaranteeing robust consent procedures is vital in telepsychiatry and that patients should be informed of any risks regarding privacy and confidentiality, and the limitations of the safeguards that are in place to prevent breaches. Patients should be advised to participate in consultations in a private space, as there is risk of confidential information being heard by people in their immediate vicinity (Husain et al, 2021). The applications of telepsychiatry have not been explored sufficiently to fully support its usefulness, but there is evidence for its efficacy in general psychiatric care (Shore, 2013). Appreciating both the advantages and disadvantages of digital psychiatry puts clinicians in a better position to assess where its application could be beneficial, which technologies are best, and how any shortcomings can be mitigated/taken into account. The available data in digital mental health studies are primarily based on its application in people with mood and anxiety disorders, and under-represent its use with severe disorders such as psychosis, so caution must be exercised when extrapolating research findings across the spectrum of mental disorders. Its most common use is in the delivery of cognitive behavioural therapy (Bashshur et al, 2016).

Positive aspects of digital psychiatry

Benefits for patients

Digital therapies provide more autonomy to patients as they engage with them from their home environments. Unlike in hospital settings, virtual interviews may allow shy and sensitive patients to be more forthcoming, as they may feel more comfortable expressing their feelings, for example towards staff.

As well as delivering remote therapy, technology can also be used to boost adherence to treatment, such as by using text message reminders for appointments and medications, as simply monitoring adherence behaviours has been found to be unlikely to have a long-term effect.

Web-based tools such as apps are handy for individuals who feel comfortable using them. Smartphones can execute many functions, including monitoring, assessing and treating

physical and mental health conditions with the use of apps. Their portability, immediacy, affordability, anonymity and accessibility, are reasons to pursue research on their efficacy (Marshall et al, 2019). Apps can be especially useful for treating minor psychiatric disorders.

Variations in response to telepsychiatry in different age groups are significant, but studies to verify the effect of age are lacking. Digital care tools have been used to promote early course psychosis care, and have been found to contribute better predictive models and expand existing treatment options (Torous et al, 2019). Data from electronic health recording systems could be mined and used to develop models that can help determine the severity of a patient's symptoms, aiding accurate and timely diagnoses, and personalise their treatment, as well as forecasting and mitigating future risks. Patients with early course psychosis are typically young adults who have been brought up in a progressively digital world, making them excellent candidates for the roll out of digital psychiatric services (Lal et al, 2018). In the author's clinical experience, intelligent young adults with psychosis are likely to experiment with smartphone apps designed to support mental health even without the prompting or knowledge of the clinical team. The younger generation cannot be stopped from using technological devices, so it is important that clinicians are aware of and support their use.

McGee et al (2020) proposed that before telemedicine becomes 'the new normal,' more comprehensive assessments should be conducted, taking into account the attitudes and skills of individuals on both sides of the webcam. Internet, video and telephone simplify social correspondence, and one potentially important application could be their ability to reduce loneliness, particularly with those self-isolating following exposure to SARS-CoV-2. Patients with anxiety, mood symptoms and substance abuse disorders appear to have responded to digital psychiatry without serious negative consequences. However, one earlier study in the USA found that young adolescents who spent more time online experienced increases in problems related to conduct and self-regulation (George et al, 2018), so research in digital psychiatry should also investigate harmful effects of digital technologies on mental health.

Digital psychiatry could also be helpful for housebound patients, prison inmates, and those with high anxiety, agoraphobia or other conditions. It could also be beneficial for community-based interventions such as support groups, senior citizens with limited access to physical services and those experiencing domestic abuse. Digital technology has enhanced social connectivity, so patients need not feel isolated. It can lessen the stress felt by patients when they have to wait for appointments and engage in face-to-face interviews and reduces the need to cancel appointments as a result of weather or health problems. Telepsychiatry is particularly desirable for people with busy lives as it removes the need to travel to appointments.

Broadening access to services

The impact of COVID-19 on mental health has been huge and there are not enough resources and services to meet this unprecedented demand, but digital psychiatry could help to fill this treatment deficit. There is evidence that digital psychiatry is a feasible platform that is acceptable to users and effective in improving outcomes and quality of life in patients with a variety of psychiatric disorders (Bashshur et al, 2016).

Digital psychiatry can also be used globally, and could be of particular benefit in highly populated countries. An increasing number of studies suggest that telepsychiatry can help to improve quality of care, as it can remove geographical barriers between patients and providers. In addition, it can be used to overcome cultural and language barriers in service delivery using specific virtual reality software. To overcome these challenges, a patient would need to become familiar with the use of a virtual reality headset. In one case, videoconferencing was used to seek a second opinion from an overseas mental health professional regarding an immigrant patient in the UK. Previously, such an international consultation would have taken much longer. Digital psychiatry can be used to help overcome language and cultural barriers, for example, by using digital translation services. Digital psychiatry can promote international collaboration and exchange of scientific knowledge and augment medical and psychiatric research, leading to the development of newer treatment strategies. Video recordings offer a permanent record of interviews and can be examined at the clinician's convenience.

Table 1. Advantages of digital psychiatry	
Benefits to patients	Patients who are sensitive to stigmatisation may prefer telepsychiatry
	People with physical limitations may find remote treatment particularly useful
	Digital platforms allow patients to self-monitor and present themselves in a way that traditional methods of assessment have not allowed
	Less risk of negative transference reaction
	Can increase quality of and adherence to treatment
	Flexibility and continuity of care
	Empowers patients
Benefits for service provision	Useful in densely populated countries as it increases the number of patients that psychiatrists can reach and diagnose, reducing waiting time
	Can increase access to treatment and is cost effective
	Easier to report problems immediately
	Offers better predictive models
	Helps to overcome staff safety concerns
	Valuable tool in psychiatric education and research
	Can overcome communication barriers between professionals
	Options for checking medication adherence through specialised apps on patients' smartphones

Digital psychiatry has already increased the volume of patients that clinicians can treat without a concurrent increase in waiting time. The ease of access that telepsychiatry offers is just one benefit. Developing digital care tools helps with early intervention and care, and can increase motivation in patients who engage with it. Patients with disabilities have equal access to digital technology and it can increase patient satisfaction with services. It allows access to specialists that would not be available in rural or poor areas. The main advantages of digital psychiatry are listed in Table 1.

Undesirable effects of digital psychiatry

Difficulty in assessing the patient

One of the major drawbacks of telepsychiatry is that physical disorders and medical problems could escape medical attention and be overlooked. Lack of physical examination could fail to detect some complications of psychotropic medications that require urgent medical investigations and interventions. Mental health workers might overlook their clients' physical symptoms as they focus on psychiatric symptomatology, and psychiatric patients may deny having such symptoms because of the focus on their mental health. Virtual interviews hinder the detection of physical symptoms. Digital psychiatry has prescribing limitations, for example controlled substances cannot be prescribed when patients are not in authorised healthcare settings.

Telepsychiatry is not suitable for patients with suicidal thoughts and intentions, patients with dementia or confusion, those with learning or other related disability, and anyone presenting with life-threatening illnesses. It may not be a feasible option for patients with sensory disabilities like blindness and hearing loss.

Traditionally, body language and eye contact are crucial parts of a psychiatric assessment to establish a good rapport between mental health workers and patients, but digital psychiatry may restrict this. Mental state examinations conducted using digital techniques are less productive than face-to-face interviews. Normally clinicians gain a subjective feel for clinical symptoms through non-verbal communications during traditional personal interviews. Subjective clinical reactions are more important in psychiatric practice than in any other medical specialties, and digital psychiatry makes it harder to gauge these subjective reactions. Patients who are guarded about their symptoms can pretend and give a false impression

of wellness in virtual interviews, and the clinician could miss physical clues. It has been proposed that the current outlook on mental state examination through digital psychiatry might change with the development of newer technological devices. At the moment, mental state examination is very much a subjective and non-quantitative evaluation. Advocates of digital psychiatry claim that advances in technology could be used to measure almost every component of the mental state exam.

Another potential drawback of digital psychiatry is that the patient may have trouble distinguishing the clinician's voice and it may lack an empathetic tone over a video call. As examples, patients with paranoid delusions could misconstrue the use of technology as surveillance or tracking, and patients with abstract thinking impairments could misinterpret the information they receive if they feel overloaded. The ability to receive and contemplate information is impaired when too much is received at one time. This can result in 'information poisoning', leading to increased patient stress and exacerbating psychiatric problems. What really matters is how patients weave that information into their understanding of how the world works.

Another concern is that social services may find it harder to formally admit patients when they are being treated or assessed via telepsychiatry. There are also employment restrictions in its application, as clinicians must be approved in the patient's region at the time of service provision.

Technological problems

Mental health staff must be proficient with technology, but many are require extra training. Digital psychiatry requires that service users have access to the internet via a smartphone or computer. The initial cost of providing staff with equipment can be higher and many countries cannot afford this expense. It needs to be taken into account that even in developed countries, broadband services are often lacking in rural communities and disruptions to connection are common, especially in bad weather. Hardware and software glitches can also occur at any time or place and these can be difficult to avoid or rectify.

Problems with provision of care

Continuity of care needs to be maintained with multiple healthcare providers and this could be compromised in telepsychiatry settings. Theoretically, digital psychiatry carries a higher risk of negligence by practitioners because of limitations of supervision. There is also the potential hazard of fraudulent behaviour by practitioners. On the other hand, patients could get access to the private details of their practitioners and could misuse these. Patients are also able to record video or teleconferences, and these could be tendered as evidence in legal pursuits.

Marginalised patients could become even more marginalised by remote psychiatric interventions (Wilkinson, 2020). One measure may not suit everyone, and different subspecialties of psychiatry may have to assess the advantages and disadvantages within the context of their practice. 'Zoom fatigue' may become a problem as well, with reports from the USA suggesting that digital healthcare has resulted in considerable physician burnout (Gawande, 2018).

Telepsychiatry is not sufficient for comprehensive case-taking and documentation, an integral component of psychotherapy. Difficulties in establishing good rapport, privacy, safety and technological limitations are some impediments to the use of telepsychiatry (Cowan et al, 2019). The therapeutic 'energy exchange' that occurs in face-to-face sessions is also missing in telepsychiatry.

Traditional psychiatry professionals may also be reluctant to accept or adopt this new method of consultation, or to trust newcomers to the profession who willingly incorporate this method in to their practice. The principal disadvantages of digital psychiatry are outlined in Table 2.

Impact on psychiatric practice

Impaired therapeutic alliance?

Therapeutic alliance is a reciprocal transitory dependency between the therapist and the patient that is central to all forms of psychological therapies. The therapeutic relationship

Table 2. Disadvantages of digital psychiatry	
Downsides for patients	Less productive in eliciting subjective symptoms
	Decreases face-to-face interactions between service users and their service providers, and lacks personal touch and human connections
	Lack of access to technology as a result of financial constraints
	Physical constraints or cognitive factors may also pose problems for patients and their carers
	Not for everyone: younger children, clients with dementia and those with certain learning or other disability may find treatment less effective or not possible to engage with
	Patient confidentiality could be compromised, as using the internet and certain programmes can risk privacy
	Lack of physical examination may prevent detection of some of the complications of psychotropic medications that require urgent medical intervention and investigation
	Patients may require technological training
Downsides for service provision	Harder to establish good rapport with patients
	Risk of being unable to respond to psychiatric emergencies in a timely manner
	Clinicians may require technological training
	Apprehension about ethical issues
	Initial cost implications
	Medical conditions could be overlooked

is basically a working relationship, implying the rapport between a healthcare professional and a client, and is the means by which therapists and clients engage with each other to achieve constructive change (Curtis, 1979; Silber, 1982).

Transference in therapy happens when a patient attaches anger, hostility, love, adoration or many other possible feelings to their therapist (Gelso and Hayes, 1998). Some therapists actively encourage this as part of the therapeutic process. In psychoanalysis, therapists try to understand a person's unconscious mental processes through transference reactions. Countertransference occurs when a therapist redirects their own feelings or desires onto their patients. This may be a reaction to the patient's transference. No systematic studies have been conducted to evaluate the role of the transference reaction in virtual therapies.

It is likely that digital therapies may not generate strong therapeutic transference reactions, but just as patients have a pattern of feelings, attitude and past experiences towards their therapist, patients may also have transference reactions towards telepsychiatry and the operational systems that may be dubbed 'system transference' (Shore et al, 2006). System transference can be positive or negative, but clients with positive system transference embrace and encourage telepsychiatry. Therapists should be considerate towards patients with negative system transference, empathising with their concerns and difficulties without affecting the therapeutic relationship. The transference between a mechanical system and a human mind is not comparable to that between two human minds. 'Webside manner' will replace bedside manner in the new system of treatment (O'Brien and McNicholas, 2020) and clinicians will need to learn proficiency and new techniques of webside manner to compensate for the physical absence of their clients.

Deprivation of human closeness

Listening to patients, having empathy and a compassionate facial expression are the hallmarks of a caring health professional and these cannot be fully offered by electronic psychiatry. Physical nearness alone can fight off loneliness and telepsychiatry might fail in this respect, when more than 50% of the households in Europe contain only one person.

Group prayers and participation in common religious activities have been found to be successful in alleviating loneliness among spiritually minded people (Andrade and Radhakrishnan, 2009). This relationship with a deity encourages personal healing and health.

Interestingly, use of digital technology is being accepted in religious practices, although many traditionalists thought that adoption of technological intervention may defeat the goal of religion, which is binding together people spiritually in the name of a transcendental reality.

Touch in any form, such as hugs or handshakes, releases oxytocin, reduces cortisol levels, lowers the blood pressure and has a relaxing effect. People aged 75 years and over are the least likely to have one close friend and 11% of this age group have no friends at all, in comparison with 2% of those in their 20s (Office of National Statistics, 2015). These people, who are already enduring emotional starvation, have suffered maximum social deprivation because of the restrictions during lockdown. Telemedicine tools simultaneously enable humans to connect and to distance at the same time, and due consideration should be given to their advantages and disadvantages (O'Brien and McNicholas, 2020). The use of such technology has been resisted in the past for fear of losing the humanistic element of psychological management without face-to-face contact. Human interactions have long been considered the best form of treatment in mental health services. Some of the coping methods from the lockdown might stick with us in the post-pandemic period. If adequate precautions are not taken, psychiatry could lose its 'heart'.

Digital religion

Even though there has historically been deep-rooted animosity between religion and psychiatry, they are coming closer together with the growth of consciousness studies. Theoretical, ethical and theological issues of religion and electronic media interaction have been brought to the research arena, forming a new field of studies, dubbed digital religion (Campbell, 2012). This is a fairly new development stemming from digital culture, intended to coax people back to religion. In the wake of the deaths from COVID-19, religion enhances the ability to move on, provides a sense of transcendence, decreases anxiety about death and reduces depression. The use of digital technology in religious practices is viewed with skepticism and caution, as historically, technology has not fostered spiritual growth. Spiritual union through technology can be very superficial and susceptible to corruption, but the use of technological devices for the practice of religious rituals is currently justified for the purpose of social distancing.

Ethical challenges

Ethical aspects of digital psychiatry warrant great attention. It took decades of clinical discussion to formulate ethical guidelines for in-person clinical practice in a hospital setting. Digital psychiatry raises new ethical challenges and requires a fresh look at clinical practice and social issues, such as equitable access (Sabin and Skimming, 2015). Along with the traditional expectations, digital technologies create four major ethical challenges for psychiatry: managing clinical boundaries; maintaining privacy and confidentiality; establishing realistic expectations regarding digital communications; and upholding professional ideals (Sabin and Harland, 2017). Unless particular care is taken, professional principles could be sacrificed in the digital arena and many clinicians are worried about providing competent, safe care, ensuring informed consent, maintaining boundaries and ensuring health equity. Digital psychiatry carries the risk of identity fraud which would be an ethical and legal concern, so new legislation is required to ensure the confidentiality, privacy, security, liability and competency of overseeing clinicians.

The introduction of web-based electronic health records was a major development in the practice of psychiatry, and there are a number of benefits to this. However, maintaining patient health information in digital form also poses potential ethical dilemmas for mental health professionals and patients. The link between technology and ethics is a highly sensitive and vulnerable area. There are only limited research papers on the topics of legal, regulatory and ethical issues surrounding digital psychiatry (Monnier et al, 2003), demonstrating that clinicians do not fully appreciate the importance of these issues. Solutions for the management of ethical concerns are needed. While it is accepted that social media provides important avenues for communication, education and treatment, these avenues also pose ethical and practical dilemmas that require the application of established ethical principles (Frankish et al, 2012). One quick solution would be to reinforce the pre-existing ethical standards.

Discussion

The pandemic has spawned an urgent need to innovate and integrate technology into mental healthcare. The practical constraints of managing psychiatric patients during the pandemic required the promotion of telepsychiatry, but overusing digital mental health services has its own pitfalls that warrant further research. Human aspects of service delivery should be taken into consideration when implementing telepsychiatry. The role of psychiatrists will likely change with the continued use of digital technologies such as artificial intelligence in the post-COVID-19 era. It is not yet possible to draw any firm conclusions about the benefits of digital technology and more research is needed, using samples of different populations and age groups, to rigorously test the efficacy of telepsychiatry, explore its negative and positive effects and determine its role in mental health services going forward. It is important to note that telepsychiatry is not appropriate for every patient, so further research is required to assess the types of patients for whom this form of care is most appropriate.

It is not yet clear whether the worst part of the pandemic is over, so conclusions cannot yet be drawn regarding the extent of its impact on healthcare. Research studies were performed quickly because the scientific community was unprepared for a pandemic. Most studies have been observational rather than interventional, and the cross-sectional nature of many studies does not allow for interpretation of causality. Most studies were single-centre with no control group, and were lacking information on symptom history and severity pre-COVID-19 infection. Many studies were limited to European and Asian countries, but more ethnically diverse studies are vital in a global pandemic.

Clear guidelines are needed for the use of digital psychiatry. While the choices for telepsychiatry delivery are limited by the ongoing pandemic, resuming research will allow the development of better guidelines. Face-to-face therapy is undoubtedly the best method and technology can never replace the physical presence of another human, which allows for the detection and management of psychiatric conditions in a way that digital therapy cannot. However, digital psychiatry plays a key role in the continuation of care and should be used to complement traditional services. The ease with which digital psychiatry can be provided is both its strength and its vulnerability, so caution needs to be taken in terms of selecting and monitoring providers to protect service users. Given that its use is likely to outlast the pandemic, stringent regulations are needed for its provision. Professionals should be prepared for a 'new normal' and ensure that their organisations are aware of their views and experiences when making important investment decisions. Psychiatry has always suffered in budgeting arrangements and digital psychiatry could be vulnerable in the hands of officials who prioritise money-saving measures over patient care. Ethical issues in the practice of digital psychiatry are complex and warrant observation and clinical reports, with shared discussion and learning.

In an increasingly digital world, the power of technology can make clinicians forget about the power of caring. Medical professionals are increasingly disenfranchised by the flaws of modern medicine, which include its reliance on technology, and the way in which the pharmaceutical and device industries influence medical practice, and it has yet to be ascertained whether digital psychiatry would make these matters worse.

Healing is hard to define, but it can be considered a set of processes that allow us to regain integrity of body, mind and soul. More research is needed on healing the mind before we become more reliant on technology to solve mental health problems. Now that many mental health staff are ageing out of the field and the younger generation are not as attracted towards a career in psychiatry, digital mental health provision could become indispensable, although sceptics of digital psychiatry wonder whether this would pave the path to 'robotic psychiatry' in the years to come.

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Conflicts of interests

The author declares that they have no conflicts of interest.

Key points

- Digital psychiatry was introduced quickly at the outbreak of the pandemic, without sufficient research to support its efficacy and sufficient research studies assessing its impact are not yet available.
- It is too early to draw any firm conclusions about the effectiveness of digital psychiatry.
- Digital psychiatry has advantages and disadvantages, and these need to be considered in its application.
- Telepsychiatry will remain in the post-pandemic period, so well-developed legal and regulatory frameworks are needed.

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