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Dropping the E: the potential for integrating e-mental health in psychotherapy

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Abstract

E-mental health, or the use of technology in mental healthcare, has been the focus of research for over two decades. Over that period, the evidence-base for the potential of technology to improve psychotherapeutic practice has grown steadily. This sharply contrasts with the actual use of e-mental health by psychotherapists, which has remained limited. In this article, we aim to illustrate how and when different technological tools and applications can play a role in psychotherapy. At the same time, we also highlight current limitations and discuss challenges for future research. A specific, yet hypothetical case is used to guide this narrative review and make proposed applications tangible and concrete.

Key words: e-mental health, mental healthcare, online self-help, ecological momentary assessment, wearables, virtual reality, augmented reality, digital phenotyping

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1. Introduction

The use of technology within mental healthcare, often referred to as e-mental health or digital mental health, has already been around for over two decades [1, 2]. It has received interest from researchers around the world, seeking the means to support mental healthcare services to overcome some of the challenges they have been facing, such as their limited capacity and suboptimal reach [3, 4]. The wide range of applications and the evidence-base that has accumulated, stands in sharp contrast to the actual use in clinical practice, where uptake has often occurred reluctantly and limitedly [5, 6]. The COVID-19 pandemic, however, resulted in a sudden global shift, particularly in the area of telepsychotherapy where it has proven to be an important means to provide continuity of care. This led some to hint at a potential tipping point of technology use becoming more mainstream [7].

At the moment, it is unclear whether technology will be fully embraced or whether that is an idle hope. This article aims to provide a narrative, non-exhaustive overview of the potential future use of technology as a part of psychotherapy, illustrated by a specific, yet hypothetical, case. *During a visit to the grocery store, Alex witnesses a brutal robbery. As two assailants run off, they leave behind a severely injured cashier and Alex, an unharmed, yet overwhelmed spectator. After sharing their experience with the police, Alex heads back home. In the following weeks, they nevertheless seem to have difficulties leaving the events behind them and experience both physical and psychological discomfort. They increasingly stay at home and shut themselves off from the outside world.* The journey of Alex' way to recovery, using a careful combination of conventional care enhanced with technology, will provide a framework and illustrate the potential, as well as the current limitations of the field of e-mental health.

2. Finding information and choosing a (first) treatment

In a search to better understand their current situation, Alex turns to the internet. Browsing the web, they find several websites explaining the nature of traumatic events and how these events can impact functioning. They also enroll for a self-help intervention but find insufficient resolve. The quality of online mental health information, including smartphone applications for mental health, currently varies greatly. This makes the internet far from a trusted source for such information and help, and therefore limits its potential [8, 9]. Even digital natives, who are often assigned superior digital skills, experience substantial barriers to online help-seeking, as they, for example, report difficulties in finding and assessing the trustworthiness of online resources [10]. When reliable sources of information are retrieved, the literacy required to fully grasp available online mental health information seems to be beyond the reach of the majority of the general population [11]. Online self-help interventions are fairly widespread and can be accessed through websites or smartphone apps. They often extend beyond mere text and also include videos and online exercises. Despite their proven efficacy for a wide range of mental health conditions, the overall evidence for their effectiveness in real-life settings remains limited [12]. Especially high drop-out appears to be a continuing issue [13]. Although this issue can be reduced by adding minimal contact with a mental healthcare professional, through so-called guided online self-help, prolonged participation in such interventions remains challenging [14].

One of the applications which Alex experiences as helpful, is a chatbot. Although they are well aware of the artificial nature of the conversation, Alex prefers such a conversational and tailored approach over reading plain text. Most chatbots are still rule-based and are implemented as a part of stand-alone software. They control and lead the conversations, which are mostly in written language. Users have limited possibilities for interaction: they can often choose from predefined options to engage with the chatbot (e.g., yes, no, maybe) and when open-ended answers are allowed, these are incorporated as a part of the rule-based conversation ('Tell me about a situation you dealt with in the past.' ... 'Keeping

this situation in mind, how did it make you feel’?). These applications focus primarily on therapy or training, in domains such as depression or autism [15]. Evidence on the outcomes of chatbots is limited, but generally, findings concerning diagnostic quality, therapeutic efficacy and user acceptability are promising [16].

3. Taking on psychotherapy

Although they have gained some insights into the nature and origin of their current state, Alex’ general discomfort remains. After reaching out to a psychotherapist, they are asked to monitor their mood for a week, for several times a day. Becoming aware of the change in their mood patterns over the course of the day and in response to random events, proves to be insightful for Alex and also helps their psychotherapist to guide them towards recovery. Ecological momentary assessment (EMA) is an alternative approach to retrospective self-report. As it allows for the real-time gathering of information, often through a smartphone application, it can, for example, help to obtain a more clear picture of mood dysregulation, especially when frequently repeated over time and also taking into account context-specific information, like the activity one is engaged in at the time of reporting [17–18]. Currently, EMA is mostly used as a part of research projects, where it is often referred to as experience sampling monitoring [19]. The limited transfer may be in part due to the fact that few research applications actually manage to transfer to, or be made available for, clinical practice [20]. And even if they do so, making applications sufficiently engaging to stimulate long-term use will be another challenging hurdle to overcome [21].

Later on, Alex also makes use of a wearable device, which registers their psychophysiological responses. Somewhat surprisingly to them, the data reveal moments of increased psychophysiological activity that they were not fully aware of and can link to stressful events. These insights further guide treatment. The potential of psychophysiology has been best documented in the context of biofeedback. Real-time physiological processes like heart rate or skin conductance are shared with patients as a part of this treatment (component), with the aim of helping them to gain voluntary

control over these processes [22]. Large and expensive devices, which tended to limit mobility and led to most applications solely being explored in lab settings, have over time evolved to more compact wearables. Although the quality of the data gathered by the ever-increasing diversity of wearable devices is not yet fully meeting the gold standards of state-of-the-art lab equipment [23, 24, 25], collecting data in more ecologically valid settings is promising for psychological assessment and intervention. The evidence-base for the added value of wearables in clinical practice is, however, currently still very limited. An increasing range of applications are nevertheless emerging, with the potential to extend and ameliorate treatment, for example, in sleep monitoring or for the detection of stressors in everyday life [26, 27].

The therapist also suggests to make use of virtual reality (VR), as a means to facilitate an imaginal exposure session. After this successful session, an in-person visit to the site of the initial trauma also takes place, which proves to be very helpful. The fairly recent introduction of VR as a consumer technology contrasts with the long-standing tradition of this technology in specialized research settings, where patients have been exposed to virtual environments for over two decades, either through screens or using immersive head-mounted devices [28]. Although most studies have primarily focused on PTSD and anxiety disorders, particularly specific phobias, research has also been branching out into other mental health disorders [29]. VR treatments tend to share a number of common advantages for both treatment and assessment, like increased control and manipulation of environments, the potential for tailoring, and real-time automated data capture. There are nevertheless also a number of limitations, which for example relate to the lack of widely available, evidence-based software programs to use as a part of routine care. Keeping up with technological developments can also prove to be challenging, as this not only requires to remain informed of recent advances, for example concerning the potential in the emerging field of augmented reality [30], but often also implies (the purchase of) novel hardware equipment [31]. Although the exact working mechanisms in the context of anxiety disorders still seem up for debate [32], prolonged exposure appears to be the most commonly applied technique. A patient is gradually introduced into VR

trauma-related environments and explores accompanying memories and fears in a safe and controlled manner. A therapist can for example opt to start from a very generic setting (e.g., a default supermarket) and allow a patient to freely explore this environment. Subsequently, customizations can be added to tailor this environment to a particular trauma (e.g., noises, relevant colours or visuals, avatars of robbers) and a therapist can also be more directive in their guidance. The overall aim is to learn a patient how to emotionally (re)process information concerning the traumatic event more accurately, which in turn helps to remove negative feelings and fear responses concerning the trauma and related cues [33].

4. Maintaining balance

Alex gradually manages to go back to their daily routines and decides to install a tracking app on their smartphone for some time. It monitors their activities and notifies them if any changes occur in their day-to-day patterns. At one point, the app reports a strong drop in physical activity. Initially, they are automatically presented with practical and tailored advice, such as resuming their daily morning run, which Alex finds helpful. In the end though, they decide to get back in touch with their therapist for two additional follow-up sessions. The amount of data gathered as a part of our regular day-to-day activities is substantial and will only increase in the near future, as the amount of digital, connected devices we use and the information they are able to gather are only increasing over time. Digital phenotyping (DP), or the “moment-by-moment quantification of the individual-level human phenotype in situ using data from personal digital devices” [34] makes use of this potential. By combining data from smartphones, wearables and other devices, it obtains a digital index of an individual’s behavior and functioning [35]. Psychotherapists could benefit from (even) better insights in the evolution of individual patients. DP could show them digital patterns that indicate a patient’s stability, while also informing them of deviations from those patterns, which might warrant caution [36]. Perhaps even more importantly, DP could be used as a means to better distinguish individual patient characteristics and tailor treatments towards their individual needs, moving towards precision

mental health [37]. Compared to all the previous steps described in our hypothetical patient's trajectory, this last one is still largely theoretical, although rapid advances are nevertheless expected to be made in this domain.

5. Conclusion and recommendation

The trajectory outlined above illustrates how e-mental health, through a variety of technologies, could contribute to the extension and enhancement of psychotherapeutic practice. Further progress should, however, still be achieved in the field of translational and implementation research [38, 39]. E-mental health will only be able to reach its full potential, when it is sufficiently tailored to the particular context of mental healthcare, taking into account attitudes and preferences of psychotherapists, their clients, the organizations they are a part of, and the broader mental healthcare context that surrounds them [40]. What that potential exactly entails, also varies depending on the type of technology. On the one hand mobile apps currently seem most promising to improve (cost-)effectiveness of current services, even despite the challenges concerning continued usage. These do not only have a large reach, but can also be integrated with relative ease as a part of current practice (in high-income countries) or address unmet needs (in middle- to low-income countries) [41, 42]. On the other hand, technologies like virtual reality or digital phenotyping do not simply enhance current practices, but actually introduce new opportunities for the field of mental healthcare altogether. Such advanced technologies will require more time to reach their full potential.: Thresholds for actual usage are significantly higher, both for clinicians as for patients, and implementation will also require paying increased attention to ethical and deontological concerns that might arise [43].

Although the implementation of these aforementioned technologies might seem challenging, this goal is far from unattainable, but will require substantial investments from all relevant actors [44].

Healthcare professionals will, for example, have to seek sufficient continuous education and institutions for higher education should pay increasing attention to (the potential of) technology in their curricula [45]. Health services and regulatory agencies should on the one hand facilitate the use

of technology, for example through reimbursement, and on the other hand set quality criteria for professionals and determine competencies for those who want to make use of technology as a part of their treatments. Finally, also developers have a role to play, as applications should be developed multidisciplinary and robust evaluation evidence should be established in collaboration with researchers. These collaborative efforts will help us to move away from the current position of e-mental health as a distinct part of clinical practice. In time collective efforts and further technological evolutions will hopefully allow us to drop the e in e-mental health, and fully integrate technological approaches into mental healthcare.

References and recommended reading

Papers of particular interest, published within the period of review, have been highlighted as:

* of special interest

** of outstanding interest

1. Riper H, Andersson G, Christensen H, Cuijpers P, Lange A, Eysenbach G: **Theme issue on e-mental health: a growing field in internet research.** *J Med Internet Res* 2010, **12**:e74.
<https://doi.org/10.2196/jmir.1713>
2. Mohr DC, Weingardt KR, Reddy M, Schueller SM: **Three problems with current digital mental health research... and three things we can do about them.** *Psychiatric Services* 2017, **68**:427-429.
<https://doi.org/10.1176/appi.ps.201600541>
3. Kazdin AE, Blase SL: **Rebooting psychotherapy research and practice to reduce the burden of mental illness.** *Perspectives on Psychological Science* 2011, **6**:21-37.
<https://doi.org/10.1177%2F1745691610393527>
4. Corinna J: **Special issue internet interventions: Editorial “integrating technology into mental health care delivery in Europe (ICare)”.** *Internet interventions* 2019, **16**:1.
<https://doi.org/10.1016/j.invent.2018.07.001>
5. Vis C, Mol M, Kleiboer A, Bührmann L, Finch T, Smit, J, Riper, H: **Improving implementation of eMental health for mood disorders in routine practice: systematic review of barriers and facilitating factors.** *JMIR mental health* 2018, **5**:e20. <https://doi.org/10.2196/mental.9769>
6. Van Gemert-Pijnen JEW, Nijland N, Van Limburg M, Ossebaard HC, Kelders SM, Eysenbach G, Seydel ER: **A holistic framework to improve the uptake and impact of eHealth technologies.** *J Med Internet Res* 2011, **13**:e111. <https://doi.org/10.2196/jmir.1672>
7. Wind TR, Rijkeboer M, Andersson G, Riper H: **The COVID-19 pandemic: The ‘black swan’ for mental health care and a turning point for e-health.** *Internet interventions* 2020, **20**:100317.
<https://doi.org/10.1016%2Fj.invent.2020.100317>

8. Best P, Foye U, Taylor B, Hazlett D, Manktelow R: **Online interactive suicide support services: quality and accessibility.** *Mental Health Review Journal* 2013, **18**:226-239.
<https://doi.org/10.1108/MHRJ-03-2013-0009>
9. Daraz L, Morrow AS, Ponce OJ, Beuschel B, Farah MH, Katabi A, Alsawas M, Majzoub AM, Benkhadra R, Seisa MO et al.: **Can patients trust online health information? A meta-narrative systematic review addressing the quality of health information on the internet.** *Journal of General Internal Medicine* 2019, **34**:1-8. <https://doi.org/10.1007/s11606-019-05109-0>
10. Pretorius C, Chambers D, Coyle D: **Young people's online help-seeking and mental health difficulties: Systematic narrative review.** *J Med Internet Res* 2019, **21**:e13873.
<https://doi.org/10.2196/13873>
11. Stone L, Waldron R: **Great expectations and e-mental health: 'The role of literacy in mediating access to mental healthcare'.** *Aust J Gen Pract* 2019, **48**:474-479. <https://doi.org/10.31128/ajgp-11-18-4760>
12. Ebert DD, Van Daele T, Nordgreen T, Karekla M, Compare A, Zarbo C, Brugnera A, Øverland S, Trebbi G, Jensen KL et al.: **Internet-and mobile-based psychological interventions: applications, efficacy, and potential for improving mental health.** *European Psychologist* 2018, **23**:167-187.
<https://doi.org/10.1027/1016-9040/a000318>
13. Baumel A, Muench F, Edan S, Kane JM: **Objective user engagement with mental health apps: systematic search and panel-based usage analysis.** *J Med Internet Res* 2019, **21**:e14567.
<https://doi.org/10.2196/14567>

* In this study, real-world data is use to illustrate the (lack of) engagement with mental health apps available to the public, illustrating the critical issue for digital stand-alone interventions to reduce current high drop-out rates.
14. Renfrew ME, Morton DP, Morton JK, Hinze JS, Przybylko G, Craig BA: **The Influence of Three Modes of Human Support on Attrition and Adherence to a Web- and Mobile App-Based Mental**

- Health Promotion Intervention in a Nonclinical Cohort: Randomized Comparative Study.** *J Med Internet Res* 2020, **22**:e19945. <https://doi.org/10.2196/19945>
15. Abd-Alrazaq AA, Alajlani M, Alalwan AA, Bewick BM, Gardner P, Househ M: **An overview of the features of chatbots in mental health: A scoping review.** *International Journal of Medical Informatics* 2019, **132**:103978. <https://doi.org/10.1016/j.ijmedinf.2019.103978>
 16. Vaidyam AN, Linggonegoro D, Torous J: **Changes to the Psychiatric Chatbot Landscape: A Systematic Review of Conversational Agents in Serious Mental Illness.** *The Canadian Journal of Psychiatry* 2020, **Advance online publication**:0706743720966429. <https://doi.org/10.1177%2F0706743720966429>
 17. Shiffman S, Stone AA, Hufford MR: **Ecological momentary assessment.** *Annu. Rev. Clin. Psychol.* 2008, **4**:1-32. <https://doi.org/10.1146/annurev.clinpsy.3.022806.091415>
 18. Colombo D, Fernández-Álvarez J, Patané A, Semonella M, Kwiatkowska M, García-Palacios A, Cipresso P, Riva G, Botella C: **Current state and future directions of technology-based ecological momentary assessment and intervention for major depressive disorder: A systematic review.** *Journal of Clinical Medicine* 2019, **8**:465. <https://doi.org/10.3390/jcm8040465>
 19. Mestdagh M, Dejonckheere E: **Ambulatory Assessment in Psychopathology Research: Current Achievements and Future Ambitions.** *Current Opinion in Psychology* in press.
 20. Hidalgo-Mazzei D, Llach C, Vieta E.: **mHealth in affective disorders: hype or hope? A focused narrative review.** *International Clinical Psychopharmacology* 2020, **35**:61-68. <https://doi.org/10.1097/yic.0000000000000302>
 21. Aryana B, Brewster L, Nocera J: **Design for mobile mental health: an exploratory review.** *Health and Technology* 2019, **9**:401-424. <https://doi.org/10.1007/S12553-018-0271-1>
 22. De Witte NAJ, Buyck I, Van Daele T: **Combining biofeedback with stress management interventions: A systematic review of physiological and psychological effects.** *Applied Psychophysiology and Biofeedback* 2019, **44**:71-82. <https://doi.org/10.1007/s10484-018-09427-7>

23. Menghini L, Gianfranchi E, Cellini N, Patron E, Tagliabue M, Sarlo M: **Stressing the accuracy: Wrist-worn wearable sensor validation over different conditions.** *Psychophysiology* 2019, **56**:e13441.
<https://doi.org/10.1111/psyp.13441>
24. Nelson BW, Low CA, Jacobson N, Areán P, Torous J, Allen NB : **Guidelines for wrist-worn consumer wearable assessment of heart rate in biobehavioral research.** *NPJ Digital Medicine* 2020, **3**:1-9.
<https://doi.org/10.1038/s41746-020-0297-4>
25. Konstantinou P, Trigeorgi A, Georgiou C, Gloster AT, Panayiotou G, Karekla M: **Comparing apples and oranges or different types of citrus fruits? Using wearable versus stationary devices to analyze psychophysiological data.** *Psychophysiology* 2020, **57**:e13551. <https://doi.org/10.1111/psyp.13551>
26. Guillodo E, Lemey C, Simonnet M, Walter M, Baca-García E, Masetti V, Moga S, Larsen M, HUGOPSY Network , Ropars J, Berrouiguet S: **Clinical Applications of Mobile Health Wearable-Based Sleep Monitoring: Systematic Review.** *JMIR mHealth and uHealth* 2020, **8**:e10733.
<https://doi.org/10.2196/10733>
27. Debard G, De Witte N, Sels R, Mertens M, Van Daele T, Bonroy B: **Making wearable technology available in mental healthcare through an online platform with stress detection algorithms: the Carewear project.** *Journal of Sensors* 2020, 8846077. <https://doi.org/10.1155/2020/8846077>
28. Rothbaum BO, Hodges L, Watson BA, Kessler CD, Opdyke D: **Virtual reality exposure therapy in the treatment of fear of flying: A case report.** *Behav Res Ther.* 1996, **34**:477-481.
[https://doi.org/10.1016/0005-7967\(96\)00007-1](https://doi.org/10.1016/0005-7967(96)00007-1)
29. Freeman D, Reeve S, Robinson A, Ehlers A, Clark D, Spanlang B, Slater, M: **Virtual reality in the assessment, understanding, and treatment of mental health disorders.** *Psychological Medicine* 2017, **47**:2393-400. <https://doi.org/10.1017/S003329171700040X>
30. De Witte NAJ, Scheveneels S, Sels R, Debard G, Hermans D, Van Daele T: **Augmenting Exposure Therapy: Mobile Augmented Reality for Specific Phobia.** *Frontiers in Virtual Reality* 2020, **1**:8.
<https://doi.org/10.3389/frvir.2020.00008>

31. Bell IH, Nicholas J, Alvarez-Jimenez M, Thompson A, Valmaggia L: **"Virtual reality as a clinical tool in mental health research and practice.** *Dialogues in clinical neuroscience* 2020, **22**:169-177.
<https://doi.org/10.31887/dcns.2020.22.2/lvalmaggia>
32. Scheveneels S, Boddez Y, Van Daele T, Hermans D: **Virtually unexpected: No role for expectancy violation in virtual reality exposure for public speaking anxiety.** *Frontiers in psychology* 2019, **10**: 2849. <https://doi.org/10.3389/fpsyg.2019.02849>
33. Best P, McKenna A, Quinn P, Duffy M, Van Daele T: **Can Virtual Reality ever be implemented in routine clinical settings? A systematic narrative review of clinical procedures contained within case reports for the treatment of PTSD.** *Frontiers in Virtual Reality* 2020, **1**:23.
<https://doi.org/10.3389/frvir.2020.563739>
34. Torous J, Kiang MV, Lorme J, Onnela JP: **New tools for new research in psychiatry: a scalable and customizable platform to empower data driven smartphone research.** *JMIR Mental Health* 2016, **3**:e16. <https://doi.org/10.2196/mental.5165>
35. Huckvale K, Venkatesh S, Christensen. H: **Toward clinical digital phenotyping: a timely opportunity to consider purpose, quality, and safety.** *npj Digital Medicine* 2019, **2**:1-11.
<https://doi.org/10.1038/s41746-019-0166-1>
- ** This article provides an accessible and broad introduction to the topic of digital phenotyping, while at the same time highlighting four research opportunities to help digital phenotyping adding to clinical improvement.
36. Sequeira L, Battaglia M, Perrotta S, Merikangas K, Strauss J: **Digital Phenotyping With Mobile and Wearable Devices: Advanced Symptom Measurement in Child and Adolescent Depression.** *Am Acad Child Adolesc Psychiatry* 2019, **58**:841-845. <https://doi.org/10.1016/j.jaac.2019.04.011>
37. Fagherazzi G: **Deep Digital Phenotyping and Digital Twins for Precision Health: Time to Dig Deeper.** *J Med Internet Res* 2020, **22**:e16770. <https://doi.org/10.2196/16770>

38. Titov N, Hadjistavropoulos HD, Nielssen O, Mohr DC, Andersson G, Dear BF: **From research to practice: ten lessons in delivering digital mental health services.** *Journal of Clinical Medicine* 2019, **8**:1239. <https://doi.org/10.3390%2Fjcm8081239>
- * This paper is structured around ten lessons learned by the authors, while successfully establishing and implementing digital mental health services in routine care in Australia and Canada. Four levels were used to organize these lessons: 1) consumers, 2) psychotherapists, 3) health services, and 4) health systems, funders and policy makers.
39. Bührmann L, Schuurmans J, Ruwaard J, Fleuren M, Etzelmüller A, Piera-Jiménez J, Finch T, Rapley T, Potthoff S, Aouizerate B, et al.: **Tailored implementation of internet-based cognitive behavioural therapy in the multinational context of the ImpleMentAll project: a study protocol for a stepped wedge cluster randomized trial.** *Trials* 2020, **21**:893. <https://doi.org/10.1186/s13063-020-04686-4>
40. Gaebel W, Lukies R, Kerst A, Stricker J, Zielasek J, Diekmann S, Trost N, Gouzoulis-Mayfrank E, Bonroy B, Cullen K, et al: **Upscaling e-mental health in Europe: a six-country qualitative analysis and policy recommendations from the eMEN project.** *Eur Arch Psychiatry Clin Neurosci* 2020. <https://doi.org/10.1007/s00406-020-01133-y>
41. Fu Z, Burger H, Arjadi R, Bockting C L H: **Effectiveness of digital psychological interventions for mental health problems in low-income and middle-income countries: a systematic review and meta-analysis.** *Lancet Psychiatry* 2020, **7**:851–64. [https://doi.org/10.1016/S2215-0366\(20\)30256-X](https://doi.org/10.1016/S2215-0366(20)30256-X)
42. Merchant R, Torous J, Rodriguez-Villa E, Naslund JA: **Digital technology for management of severe mental disorders in low-income and middle-income countries.** *Curr Opin Psychiatry* 2020, **33**: 501-507. <https://doi.org/10.1097/YCO.0000000000000626>
43. Gooding P: **Mapping the rise of digital mental health technologies: Emerging issues for law and society.** *International Journal of Law and Psychiatry* 2019, **67**:101498. <https://doi.org/10.1016/j.ijlp.2019.101498>

* This article takes a critical look at the increasing use of technology in mental healthcare by focusing on potential major socio-legal issues. The analysis is organised around domains of use, as it focuses on the actors who use e-mental health, and on those on/with whom these technologies are used. As a conclusion to this domain-specific analysis, a brief, but insightful summary of overarching themes is presented.

44. Van Daele T, Karekla M, Kassianos AP, Compare A, Haddouk L, Salgado João, Ebert DD, Trebbi G, Bernaerts S, Van Assche E, De Witte NAJ: **Recommendations for policy and practice of telepsychotherapy and e-mental health in Europe and beyond.** *Journal of Psychotherapy Integration* 2020, **30**:160-173. <http://doi.org/10.1037/int0000218>

** In this article, the EFPA project group on eHealth highlights 25 recommendations, respectively for psychotherapists, health services and policy makers in order to provide high-quality e-mental health to clients in the wake of the first wave of the COVID-19 pandemic.

45. De Witte NAJ, Carlbring P, Etzelmueller A, Nordgreen T, Karekla M, Haddouk L, Belmont A, Øverland S, Abi-Habib R, Bernaerts S, et al.: **Online Consultations in Mental Healthcare During the Covid-19 Outbreak: An International Survey Study on Uptake and Experiences.** *JMIR Preprints* 2020:26541. <https://doi.org/10.2196/preprints.26541>

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