

Research Report: Exploring Needs, Impediments and Perspectives for a Digital Mental Health Tool in Psychiatric Settings

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Abstract. The COVID-19 pandemic brought forth rapid responses and changes in the acceptance of digital health interventions. Digital solutions appear increasingly promising, yet little is known about the peculiarities in the psychiatric context, contrary to other medical branches. The project MeHealth aimed at disclosing specific needs and reservations of patients and professionals in the psychiatric field. Apprehensions towards technology were found to be held on both sides. Cooperating with a psychiatric hospital in Austria, through a transdisciplinary research approach including focus groups and workshops, a framework for an integrated Digital Mental Health Tool was established. The findings leading to the framework show a strong need for patient-empowerment, enhancement of trust in technology and the need for multi-stakeholder cooperation. Digital tools should be designed to enhance the continuity of care and information exchange on behalf of the patient. Learnings were gained, which prove recommendable for future R&D projects on digitalization in the delicate field of psychiatry.

Keywords. Mental Health, Psychiatry, Transdisciplinary Research, eHealth, mHealth, Telehealth, Disease Management, Psychosocial Support System

1. Introduction

The COVID-19 pandemic arose to be challenging on many levels, particularly on the mental wellbeing of individuals and the mental healthcare system itself [1]. Digital and remote healthcare services were quickly and temporarily implemented out of necessity during lockdowns.² However, the initial technology-led responses to the pandemic have morphed into broader discussions on whether virtual and “hybrid psychiatric care” [2] are here to stay and how those could be successfully implemented in the future. Furthermore, a progressive shift in the societal perception of mental illness, as well as growing awareness caused by “accumulating evidence about detrimental impacts of the pandemic” [3] caused an emphasis on the urgent need to improve psychiatric and psychosocial care in Austria. Telemedicine, eHealth and mHealth applications bear considerable promises to improve the efficiency and continuity of care experience of patients, as well as the work processes of professionals in the field. Although numerous “mental health

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² Data from partner hospital in the exploratory research project from 2019-2021 comprised phone calls in context of follow-up care after inpatient stay (medical and therapeutic) and Videocalls for hearings under the law on involuntary commitment (client used: Zoom Video Communications Inc.).

apps” can be found in App-Stores as well as in current research [4–6], those are often focused on specific diagnoses, herein neglecting rather basal insufficiencies or shortcomings of the current care system, which are rather common to patients no matter what spectrum of psychiatric disorder. A number one priority we identified was the need for an integrated digital approach towards a cross-sectoral platform, meaning the inclusion of different points of medical and psycho-social services and multi-professional teams as standard. The project MeHealth was designed to explore the various needs by focusing on the experience-based knowledge of psychiatric patients, as well as their fears, doubts and restraints towards digital tools in a psychiatric setting. Equally, further understanding on concerns regarding digital applications of not only psychiatrists [7] but of all involved psychiatric professionals was established as the core of the exploratory research interest. Thus, by including psychiatric health professionals in Austria, field-relevant and professional perspectives were collected and a framework for a Digital Mental Health Tool (DMHT) was established.

This exploratory project was a response to the rapid shift towards digital and integrated health solutions [8], triggered by the COVID-19 pandemic. Our aim was to contribute the specific peculiarities of the psychiatric context, from a particular healthcare service region (in this case from one federal state in Austria), to the current discourse. Existing research is frequently focused on fragmented aspects of (digital) mental healthcare, either from a singular professional, scientific or diagnostic angle [9, 10], on health monitoring (e.g. passive or active data collection via smartphone), (mood) tracking [11], or specific tech-interventions such as Artificial Intelligence and chatbots [12], herein skipping essential steps and conditions necessary to be tackled prior to sophisticated high-tech implementations. Among these are first and foremost questions on trust, knowledge on effective needs, but also most often improving quite basal requirements (e.g. such as providing alternatives to the fax machine, which to this day is still in use in hospitals in Austria, due to lack of basic hardware or legal and official sanctioned alternatives).

2. Methods

Choosing a transdisciplinary and multi-actor approach allowed us to challenge the fragmentation of knowledge [13], address local contexts and vernacular particularities, as well as to initiate context-specific negotiation of knowledge [14]: Not only discipline-wise (between social sciences and computer sciences), but also with health professionals and with ‘patients’ or ‘experts by experience’ [15]. We involved current psychiatric patients (inpatients and day clinic patients), different occupational groups at the partner hospital (psychiatrists, psychologists, psychotherapists, nurses, social workers, hospital IT) and associated non-hospital stakeholders (psycho-social services). We screened the aforementioned stakeholders in terms of general needs, requirements, fears and apprehensions towards digital and integrated solutions in the psychiatric context.

Over a 14-month project duration from (10/2021-12/2022) the study comprised weekly interdisciplinary meetings to enable consistent rapport. Participating researchers came from the fields of Medical Engineering & eHealth, IT Security, User Experience Design & Human Computer Interaction, Spatial & Healthcare Planning, Sociology & Social Work and Psychotherapy Research.

2.1. Qualitative Methods

Three focus groups with patients (n=17), seven workshops with hospital staff (n=42) and one exclusively with nursing staff (n=6) were held in a face-to-face setting at the partnering hospital between January and June 2022. Four interviews with representatives of psycho-social services (n=6) in the respective healthcare region were held in a remote setting between March and April 2022. The data was recorded, transcribed and thematically coded (Documentary Method [16] and Thematic Analysis [17]). The findings were discussed in iterative cycles within the scientific research team, as well as together with hospital staff. Results were thematically categorized, prioritized, benchmarked and then derived into a “User Stories Catalogue”, which constituted the basis to define IT-Requirements, System Architecture and User Experience Design approaches.

2.2. Quantitative Methods

Patient data of the partnering hospital from 2019 to 2021 (KIS data, i.e. Hospital Information System) was analyzed, which focused on the number of remote consultations during COVID-19-lockdowns, the period prevalence of readmissions and general demographics. These data sets were integrated as the basis for patient recruitment (sampling) and further served as contextualization of qualitative data gained during focus groups and workshops.

Furthermore, an online survey (Limesurvey) was started together with the release of an explanation video, which proofed to be the suitable medium for audiovisual knowledge communication. The online survey was initiated to generate timely feedback on the conceptual idea of the proposed DMHT. The survey is still ongoing, preliminary results are currently under evaluation.

3. Results

3.1. Core Elements of the DMHT Framework

Table 1. The identified four core features, including an indication regarding which features were requested or emphasized mostly by which stakeholder group

Collection and exchange of medical (discharge) reports	Psychological and social summary reports	Social, rehabilitation or health insurance documents	Further standard features
Requirement due to the high opt-out rate of the electronic health record ELGA ³ due to fears of unclear digital traces, due to e.g. lack of knowledge on who can access this data > emphasized by Doctors	Results of e.g. psychological and social diagnostics, which are neither included in electronic health records nor given to the patient after hospital discharge > emphasized by Patients & Therapists	Transfer applications for sickness allowance, unemployment benefits or applications for rehabilitation stay, frequently prepared with the support and help of a social worker > emphasized by Social Workers	GDPR-compliant (General Data Protection Regulation) video consultation, booking appointments with different health service providers or medication reminders > emphasized by Patients & Doctors

³ ELGA is the acronym for „elektronische Gesundheitsakte“ (electronic health record) in Austria

The core feature of a DMHT in a psychiatric setting is identified as the self-directed exchange of data and documentation between different points of services. "Patient-owned" is part of the notion of "digital self-determination" and the recent discourse on "data sovereignty" related to new data-driven technologies [18]. For psychiatric patients to feel in control of their patient history and data access, they need to gain trust in technology and care providers. These challenges align with current debates on digital self-determination in health [19], particularly in the context of the European Health Data Spaces [20]. Therefore, to ensure long-term trust and utilization, a DMHT in a psychiatric setting should be a platform or application that prioritizes patient self-determination. Health or social care providers should only access data or documents with the patient's active consent.

3.2. Explainer Video as a Medium for Audiovisual Knowledge Communication

The explanatory video was a suitable way to translate descriptive personas and storyboards from the UX (User Experience) work package, as well as defined features and functionalities (see sec. 3.1) into an engaging form of "storytelling". Figure 1 depicts sequences from the explainer video, following the story of a fictional patient.

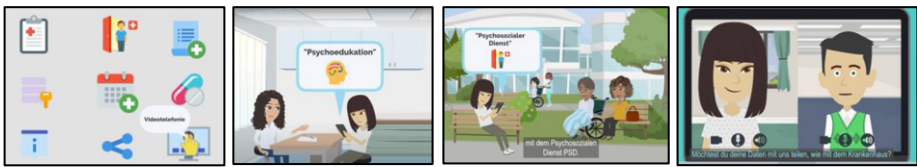


Figure 1. Sequences from the explainer video. From left to right, first: icons depicting different features; second: illustration of a therapist explaining the exemplary feature "psychoeducation"; third: patient arranges an appointment for aftercare via the DMHT; fourth: videocall with outpatient psycho-social services.

Audiovisual knowledge communication, i.e. storytelling, not only served as a way to reduce complexity (science communication), it also reenacts the DMHT-related processes. The video clearly conveys the essential characteristics and specifics of the proposed framework, such as the necessity of the patient giving active consent to psycho-social services to access their records (see Figure 1, fourth sequence).

3.3. Learnings and Recommendations for Future Research: On Patient Engagement

3.3.1. Engage with Specific Regional and Local Contexts

Stigma, shame, and fear of consequences and stigmatization inhibit seeking help for mental illness, particularly in rural areas where social and spatial factors such as tight-knit communities and patient mobility further contribute to delays. Digital mental health services could help lower inhibition thresholds by addressing these barriers.

3.3.2. Gain Knowledge of What Prospective Users Know

Researchers should stay vigilant that their expert knowledge and research (focus) expectations might differ from patients' everyday experiences and relevance ratings. The patients' vernacular perspectives should be key to understand what matches their needs.

These perspectives might fundamentally differ from the expectations of technology-literate or healthcare system-literate people regarding requirements and needs.

3.3.3. Identify Issues Technology Will Not Solve

Patients often feel rejected when struggling to find accessible help and must personally negotiate to overcome fears. Long waiting times and lack of financing for psychotherapy are recurring issues that require attention from health policymakers. Digital solutions can help to lower thresholds to seek help and improve continuity of care. Structural issues such as financing and availability of services are challenges technology will not solve.

3.3.4. Understand the Patients' Common Struggles

Patients described the repeatedly encumbering process of retelling their whole story, diagnoses, patient and medication history as stressful. A psychological patient summary report within the DMHT could ease patients' struggles, and support continuity of care, as there currently is no formalized cross-organisational or institutional exchange of health records.

3.3.5. Think Beyond and Integrate

When consolidating data records, health and treatment history, the opportunity to embed other digital mental health resources should not be missed. These are to be sensitively screened and chosen. The DMHT should provide personalized content, specifically targeting the individual patients' needs. In terms of self-determination, this could include guidelines for self-help analysis, mood-monitoring or bespoke features such as "skills tools" and other therapeutical elements tailored to the individual's need.

3.3.6. Do Not Seek to Replace, Seek to Support

Face-to-face interaction is considered essential, both by patients as by professionals alike, and non-replaceable through digitally mediated presence. Digital tools should be seen as support, not aimed at substituting essential face-to-face doctor/therapist/expert-patient relations. Emphasizing and addressing concerns about data safety, data security and general reservations regarding technology is crucial to establish trust in DMHTs and to ensure successful communication and implementation strategies in the future.

3.4. Learnings and Recommendations for Future Research: On the Involvement and Engagement of Healthcare Professionals

3.4.1. Establish a Collaborative, Participatory Research Environment

Cooperation among professionals from different health occupations is crucial for the successful implementation of a DMHT. Trust can be gained through collaborative research which includes the perspectives and needs of professionals. Multi-disciplinary clinical teams should be emphasized during research and practice, and differences in professional self-conceptions should be openly addressed in a future R&D design.

3.4.2. *Emphasize and Involve Nursing Staff*

Being the professional group with the most patient contact, nurses have more apprehensions towards digitalization than other staff members. Nursing staff should be made into active research and development participants in future R&D projects, so as to establish trust as well as to thoroughly meet their specific work-related needs.

3.4.3. *Transparency in Communication and Information Is Key During the Research Process*

A coherent communication plan for transdisciplinary R&D projects should address the internal processes, involving all participants as well as public communications. Researchers should be mindful of their expert language, in instances of communicating scientific content within a multidisciplinary consortium and when working with patients. Finding common ground on terminologies and consensus is highly recommended in the initial phase of the project, as well as repeatedly during the whole research process.

3.4.4. *How To Face Disorientation and Mistrust*

When researchers enter hospital operations to introduce change, staff may feel uneasy or mistrustful towards the agenda of the project or researchers. The scientist can appear as an outsider interrupting standard operation and introducing change that may not be deemed necessary or desirable. It is important to address staff disorientation and mistrust through research design, communication strategies, transparency, workshops, and time budgets. Including an external mediator may also be advisable.

4. Discussion: Empowerment, ownership, trust and self-determination

The idea of a DMHT supporting self-determination was scrutinized by some professionals. One of the main findings was, that trust of digital tools in the psychiatric context can only be established if a sense of “empowerment” and “ownership” on side of the patients can be induced. The considerable number of opt-outs from the electronic health record ELGA by psychiatric patients is one of many indicators, that trust in and knowledge on data sovereignty, storage and access rights are key for electronic health applications to be broadly accepted by users. Whereas commercial “mental health apps” generally aim at providing “virtual alternatives” for conventional therapy or treatment, this research project was not to assume that any digital tool could substitute for in-person care. The idea was to find ways to strengthen self-determination, by ways of digital support. The premises being that in consequence of a betterment of processes, documentation and continuity of care experience, recovery rates and adherence to treatment plans can be improved. This could possibly be seen and measured in the future in terms of reduction in readmission numbers, efficiency in continuity of care, patient satisfaction and easing the burden on medical staff, as well as on families and care givers.

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Reference

- [1] G. S. Duden et al., Global impact of the COVID-19 pandemic on mental health services: A systematic review, *Journal of Psychiatric Research* **154** (2022), 354–377.
- [2] P. Yellowlees, Climate Change Impacts on Mental Health Will Lead to Increased Digitization of Mental Health Care, *Current Psychiatry Reports* **24**(11) (2022), 723–730.
- [3] T. Niederkrotenthaler et al., Mental health over nine months during the SARS-CoV2 pandemic: Representative cross-sectional survey in twelve waves between April and December 2020 in Austria, *Journal of Affective Disorders* **296** (2022), 49–58.
- [4] M. R. Haque and S. Rubya, 'For an App Supposed to Make Its Users Feel Better, It Sure is a Joke' - An Analysis of User Reviews of Mobile Mental Health Applications, *Proceedings of the ACM on Human-Computer Interaction* **6**(CSCW2) (2022), 421:1-421:29.
- [5] M. Van Ameringen et al., There is an app for that! The current state of mobile applications (apps) for DSM-5 obsessive-compulsive disorder, posttraumatic stress disorder, anxiety and mood disorders, *Depression and Anxiety* **34**(6) (2017), 526–539.
- [6] S. Chan et al., Review of Use and Integration of Mobile Apps Into Psychiatric Treatments, *Current Psychiatry Reports* **19**(12) (2017), 96.
- [7] S. Hanft-Robert et al., Mental health mobile apps for patients: Psychiatrists' concerns, *European Psychiatry* **64**(S1) (2021), S346–S346.
- [8] S. Genovese et al., The European Health Data Space: a step towards digital and integrated care systems, *Journal of integrated care (Brighton, England)* **30**(4) (2022), 363–372.
- [9] C. G. Fairburn and V. Patel, The impact of digital technology on psychological treatments and their dissemination, *Behaviour Research and Therapy* **88** (2017), 19–25.
- [10] J. A. Himle et al., Digital Mental Health Interventions for Depression, *Cognitive and Behavioral Practice* **29**(1) (2022), 50–59.
- [11] S. Lagan et al., Assessing Mental Health Apps Marketplaces with Objective Metrics from 29,190 Data Points from 278 Apps, *Acta Psychiatrica Scandinavica* **144** (2021),
- [12] E. M. Boucher et al., Artificially intelligent chatbots in digital mental health interventions: a review, *Expert Review of Medical Devices* **18**(sup1) (2021), 37–49.
- [13] F. Wickson et al., Transdisciplinary research: characteristics, quandaries and quality, *Futures* **38**(9) (2006), 1046–1059.
- [14] R. Lawrence and C. Despres, Futures of Transdisciplinarity, *Futures* **36** (2004), 397–405.
- [15] H. McLaughlin, What's in a name: 'client', 'patient', 'customer', 'consumer', 'expert by experience', 'service user' - what's next?, *The British Journal of Social Work* **39**(6) (2009), 1101–1117.
- [16] A. Przyborski and M. Wohlrab-Sahr, *Qualitative Sozialforschung: Ein Arbeitsbuch*. Oldenbourg Wissenschaftsverlag, (2021),.
- [17] U. Froschauer and M. Lueger, *Das qualitative Interview - Zur Praxis interpretativer Analyse sozialer Systeme*. Wien: WUV-Universitätsverlag, (2003),. Accessed: Jan. 17, 2023. [Online]. Available: https://www.facultas.at/item/Das_qualitative_Interview/Ulrike_Froschauer/Manfred_Lueger/34158968
- [18] P. Hummel et al., Data sovereignty: A review, *Big Data & Society* **8**(1) (2021), 2053951720982012.
- [19] P. Breyer, European Health Data Space: Threat to self-determination and privacy, *Patrick Breyer*, (2022),. <https://www.patrick-breyer.de/en/european-health-data-space-threat-to-self-determination-and-privacy/> (accessed Jan. 17, 2023).
- [20] C. European, A European Health Data Space for people and science, *European Commission - European Commission*. https://ec.europa.eu/commission/presscorner/detail/en/ip_22_2711 (accessed Jan. 17, 2023).