

Students' perspectives on digital psychotherapy - possible solutions for digital inpatient-like care concepts: a qualitative interview study

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Abstract

Background: The demand for mental health treatment is increasing, while the availability of treatment offered remains insufficient to meet rising demand. Alternative solutions need to be explored to enable access to care for patients who cannot participate in traditional psychotherapeutic settings due to common barriers like place of residence, professional obligations, or physical limitations.

Objective: This study aimed to investigate attitudes towards digital psychotherapy, specifically within a digital inpatient-like therapy setting, among psychology and medical students. These students represent the future generation of therapists and possess the educational background necessary to develop innovative ideas to benefit a digital psychotherapeutic setting.

Methods: We conducted qualitative, semi-structured interviews with 20 participants (10 psychology students and 10 medical students). The data were analyzed using an inductive, thematic analysis according to the methodology outlined by Braun and Clark.

Results: The thematic analysis led to a codebook including four overarching categories: (1) evolution of digitalisation in medical practice, (2) future directions for digital psychotherapy, (3) technical framework, and (4) artificial intelligence (AI)-based psychotherapy.

Conclusions: In the context of mental health, digital psychotherapy is accepted as a viable option when conventional face-to-face therapy is not possible. The primary concerns were potential impairments in the therapeutic relationship and interaction. AI was rejected as standalone therapy, but considered acceptable as a supplementary tool. Technical problems represent a major obstacle for the consistent and reliable implementation of digital psychotherapy. A successful digital psychotherapeutic concept for inpatient and outpatient settings need to enable a sufficient interpersonal therapeutic relationship situated in a reliable technical framework.

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Keywords: e-mental health; digital mental health; Artificial intelligence; AI psychotherapy; mental health care; psychiatric care; acceptance

Introduction

Mental illnesses are among the most common disorders worldwide. Current data indicate that over 12 percent of the global population lives with a mental health disorder.¹ Regarding the German population, a report from the Robert-Koch Institut² highlights the increasing prevalence of depressive and anxiety symptoms within the last years. Consistent with these findings, the German federal chamber of psychotherapists states that the need for psychotherapeutic treatment has increased in the last two decades.³ However, patients endure waiting times for outpatient therapy of weeks to several months.⁴⁻⁶ Severe cases or those with certain circumstances necessitate inpatient care.⁷⁻⁹ From an economic perspective, inpatient care is considerably more expensive. A report from the German psychotherapists association estimated 2019 costs of 25 billion euros for mental health inpatient care, making it the most expensive specialty of the inpatient treatment sector in Germany.¹⁰ In contrast, the costs for outpatient psychotherapy are significantly lower with expenses of around 2.7 billion euros annually.¹⁰

In response to the urgent need for psychotherapeutic treatment and simultaneously aiming to reduce costs for the healthcare system, the concept of inpatient-equivalent treatment (Stationsäquivalente Behandlung (StäB)) emerges as a realistic solution. This treatment model was implemented in 2018 in Germany¹¹. StäB aims to enable mental health treatment by a multidisciplinary team that provides care at the patient's home equivalent to an inpatient treatment in a hospital.¹² First results from specialties like psychiatry,¹³ geriatric psychiatry,¹⁴ and child and adolescent psychiatry¹⁵ appear promising. These studies report positive effects on quality of life,¹⁴ mental health status, as well as involvement of relatives, efficacy, acceptance of treatment¹⁵ and a reduction of inpatient readmissions.¹³ This leads to the conclusion that the StäB concept could be a viable solution for all therapeutic fields. Schwarz et al¹⁶ suggest that utilization of the StäB therapeutic model could be facilitated through digital mental health offerings. This combination could be a promising solution for the sector in general.

Rojas et al.¹⁷ suggest that internet-based interventions and digital technologies could help to address the shortage and unequal distribution of psychotherapy treatments. Digital options for the treatment of mental health issues were increasingly established during the Covid-19 pandemic because they were regardless of time or spatial conditions.¹⁸ In principle, the regulatory and financial framework in Germany is already set by the digital supply act (Digitale-Versorgungs-Gesetz (DVG)), which legally enables payment for certain digital health therapeutics by German health insurances.¹⁹ Numerous studies have demonstrated positive effects of digital mental health interventions,²⁰⁻²⁴ even being supportive to inpatient treatment settings.^{25,26}

Related studies confirm that remotely delivered psychotherapy is accessible, manageable, and cost-

effective,^{27,28} but there is less evidence for video-based psychotherapy than for app-based interventions via a smartphone or the web.²⁹ Nevertheless, there is some support for video-based therapy,³⁰ some even calling it comparable.^{27,31} Some authors go a step further and ask for the implementation of video-based therapy and digital interventions as an additional support³² like apps, web-based offerings, group therapy, and occasional psychiatric consults.²⁷

In response to the need for innovative approaches to digital psychotherapy settings, the aim of this study was to investigate the perspectives of medicine and psychology students on digital psychotherapy and their opinions on the feasibility of digital inpatient-like psychotherapy concepts. The median of age of German students in the last three semesters was a few months older than 23 years,³³ which makes most students so-called “digital natives”, defined as a generation who knows the use of media throughout their entire life.³⁴ This characteristic could lead to a more intuitive, unprejudiced perspective on the application of digital media and the possibility to better see the full potential of digital media compared to older generations. Braun et al.³⁵ recently conducted qualitative interviews with psychology and medical students, investigating their information needs and preferences on digital mental health services. They aimed to consider the perspective of students as future therapists.³⁵

This particular approach in which the authors focus on the students’ opinions remains underrepresented in psychotherapy research. Until now, students are often investigated as the end users of specific interventions like digital questionnaires,³⁶ online lessons,³⁷ or digital mental health programs.³⁸ Moreover there are also studies of the effect of digital intervention in general,^{22,23,39} which included several digital approaches at once. This discrepancy is concerning, when you consider the unique value of the students’ perspective. As young, sometimes self-affected individuals who are well-educated in relevant fields, they can provide a holistic perspective on the research question as potential future therapists. Recent findings indicate an open attitude towards the use of e-mental health apps.⁴⁰

In this study, semi-structured interviews were conducted to capture these unique perspectives regarding possible digital solutions to address the current unmet needs in psychotherapy treatment in Germany. Specifically, the study focused on the perspectives of psychology and medical students on digital inpatient-like psychotherapeutic concepts. Based on these insights, attitudes were examined, along with expected opportunities and barriers. Additionally, we examined attitudes toward the use of artificial intelligence (AI) in psychotherapy, which is emerging as the next advancement in the field.^{41,42} Gaining a deeper understanding of these aspects contributes to the development of realistic, patient-centered approaches to digital psychotherapy and the investigation of broader digital

treatment pathways.

Methods

Study design and ethics

To address our research objectives, we employed a qualitative interview study design to focus on the lived behavior and the perspective of each respondent.⁴³ This study method is an effective strategy for developing theories, exploring experiences of social situations and reasons for behavior.⁴⁴ Initially, ethical approval was obtained by the Ethic Committee of the Medical Faculty of the University of Duisburg-Essen (23-11642-BO). The study was conducted with informed consent by all participants. Privacy was safeguarded by pseudonymizing each interview. The auditory data is stored on a password-protected device and will be kept for the next 10 years, ensuring adequate confidentiality. Participation was voluntarily, study participant did not receive compensation.

Recruitment and Participants

A total of 20 interviews were conducted between March to May 2024, involving 10 students from each of the fields of interest: medicine and psychology. Inclusion criteria were fluent German language, adult age (>18 years), and therapeutic related study subject (human medicine or psychology).

Participants were recruited in different ways, including flyers distributed on the university campus, the clinic setting, on social media and direct communication verbally and via e-mail within the environment of the study team (professional and personal networks). Every interviewee completed the whole interview.

Semi-structured interview

The majority of qualitative interview formats are semi-structured interviews, conducted with individuals or groups.⁴⁵ A semi-structured interview contains a guide of questions, but allows an individual order of questions, wording and in-depth enquiry.⁴⁴ After reviewing current relevant literature, we developed an interview guide adapted to our target group. The semi-structured questionnaire can be found in the appendix (Table 3). An initial pilot testing ensured familiarity with the equipment and the interview process.

The interview was separated into four thematic sections. It started with questions about individual sociodemographic data and general and health-related media use. After that, we explored the perspectives regarding our digital inpatient-like psychotherapy (DIPT) concept. Finally, the fourth section addressed experiences and expectations on digitalisation in medical and psychotherapeutic contexts, including the possibility of AI-guided psychotherapy. Finally, we concluded with the opportunity for the participants to ask questions about the study or give feedback. The interview

guide, giving a detailed definition of our concept of a digital inpatient-like psychotherapy, is provided in the appendix (Table 3).

Data collection

After a detailed description of the study provided verbally and in written form, written informed consent was obtained and documented via signature. Interviews were conducted in person in the facilities of the LVR-University Hospital Essen, Clinic for Psychosomatic Medicine and Psychotherapy, Essen, Germany. Audio recordings were obtained with a voice recorder (Sony-ICD-PX470). We selected a sample of 20 interviews, each subgroup consisting of ten interviews, because recent studies indicate a saturation of themes with no more aspects emerging at this point.^{46,47} Saturation of comprehension requires approximately 20 interviews,⁴⁷ which is also provided in this study when subgroups are emerged. The interview guide was successfully applied, so all interviews yielded 20 comparable and complete datasets. Thereafter, audio data was transformed into written transcripts by using f4x 2024 software.⁴⁸ Finally, the data underwent a proof-reading process and was carefully collated with the audio recordings to ensure high dataset quality.

Data analysis and quality control

The average duration of an interview was approximately 29 minutes. Conducted interviews were transformed into pseudonymized transcripts. Data was analyzed semantically using MAXDQA 24 software, a tool that can be used for analyzing qualitative data.^{49,50} Three independent researchers analyzed the data in graded intensities, two of them coding all transcripts, and the third coder 25% of the transcripts described by Kukartz.⁵¹ Thereby, we ensured intercoder reliability.⁵²

We conducted a thematic analysis following the instructions established and revised by Braun and Clarke.^{53,54} This approach recognizes the active role of the researchers in identifying and interpreting patterns of meaning across the data. The six-phase-framework consist of (1) familiarizing with data, (2) initial coding, (3) searching themes, (4) reviewing themes, (5) determining themes, and (6) reporting the results. Themes were generated inductively through an iterative and reflective process, which was data-driven without the existence of a pre-established, potentially restrictive codebook.⁵³ The subjectivity and positionality of the research team (consisting of Ph.D. candidates, research assistants, post-doctoral researchers, and full-time professor) is considered as an integral to the analytic process. Thematic analysis is described as a three step approach of descriptive coding, interpretive coding, and the final definition of relevant themes.⁵⁵ After every step of this analysis, we applied a meeting of the three coders to guarantee the validation of the results.⁵² To underline sufficient data reporting quality, we applied the checklist for consolidated criteria for reporting qualitative research (COREQ) by Tong et al.⁵⁶ The checklist is provided in the appendix (Table 5).

Results

Participants' age ranged from 20 years to 54 years ($M=25.95$ years, $SD=6.91$ years). Eighty percent of the study participants identified as female ($N=16$), while 20% identified as male ($N=4$). Half of the interviewees reported about 3-6h of digital media use per day. Seventy percent had some psychotherapeutic experience in the context of their study program, and a relevant 45% had personal experiences in psychotherapy as patients. Most frequently used personal digital devices were smartphones (100%), and laptops (70%), followed by tablets (60%). Digital media was mentioned for various purposes, above all participation on social media (85%) and entertainment (80%). The use of digital health applications ranged between daily (35%) to none (30%). In this context, digital support was predominantly used for health tracking purposes (60%) or in relation to health insurance applications (50%). Further information is presented in Table 1.

Table 1: Sociodemographic Data of the Participants

Characteristics	Values	
	N	(%)
Age (in years)		
20-25	14	(70)
26-30	3	(15)
>30	3	(15)
Study subject		
Psychology	10	(50)
(Human) Medicine	10	(50)
Daily media use (in hours)		
1-3h	6	(30)
3-6h	10	(50)
>6h	4	(20)
Experiences with psychotherapy		
Voluntary social year	1	(5)
During study program	14	(70)
Personal experience as patient	9	(45)

Note. $N=20$

Furthermore, we obtained data regarding the individual use of digital devices in general and for health-related purposes. The data is provided in the appendix (Table 2). Results indicate a marked usage behavior and profound digital literacy.

The coding process resulted in the emerge of four overarching categories: (1) evolution of digitalisation in medical practice, (2) future directions for digital psychotherapy, (3) technical framework, and (4) AI-based psychotherapy. A comprehensive overview of the finalized codebook is provided in Figure 1. For transparency and to support a clear thematic interpretation, all participant quotations referenced in the results are included in the appendix (Table 4).

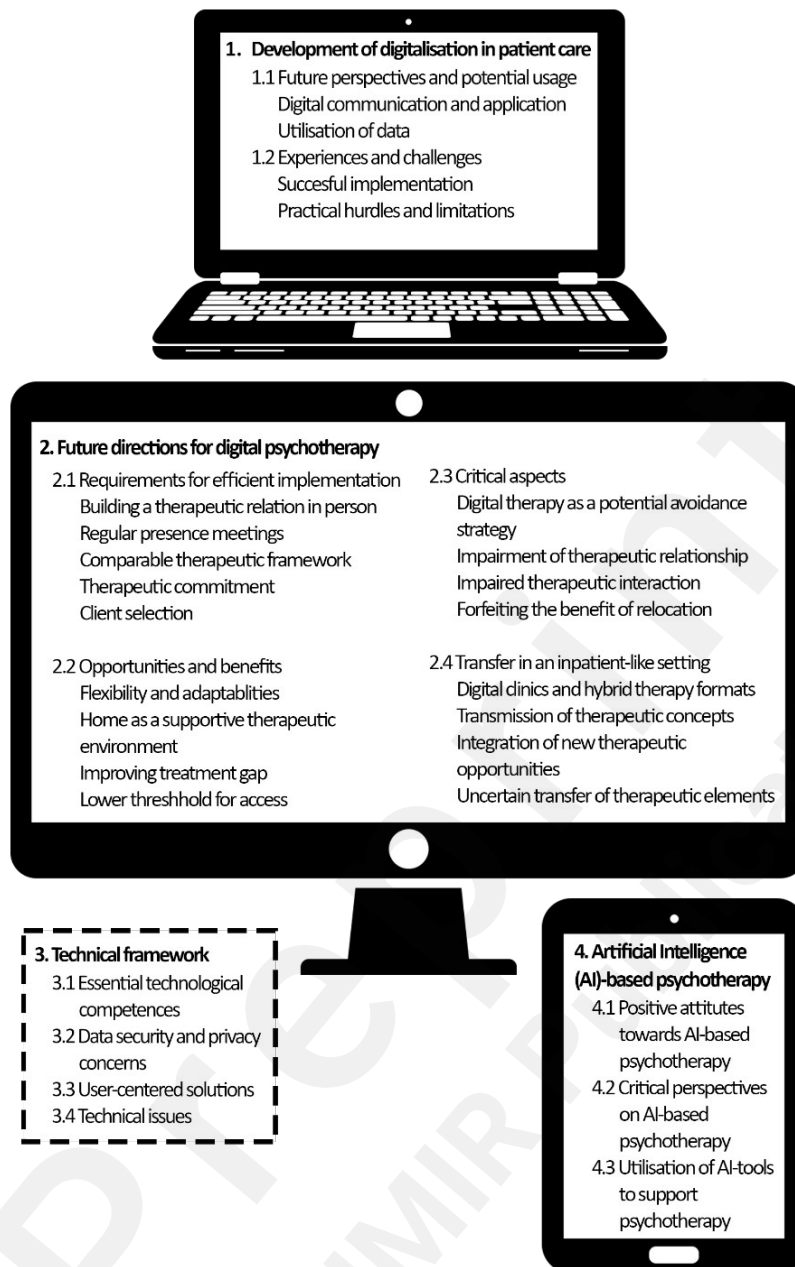


Figure 1: Elaborated codebook with categories, themes, and subthemes.

Category 1: Development of digitalisation in patient care

Theme 1.1 Future perspectives and potential usage

This theme included ideas for future options for digitalisation in the topic of somatic medicine. Half of the codes contained the wish to expand existing digital infrastructures like the opportunity to have a digital consultation with the general practitioner (7 of 18) or to make an appointment online (2 of 18). In addition, the handling and accessibility of digital data emerged as a central concern. Half of the interviewees emphasized the need for the broad implementation of digital medical records, allowing for easier access to patient data across practitioners, involved specialties, or the patients themselves (see quote [1]-[3]). Nineteen of 20 participants created ideas of digitalisation in a medical

context, which indicates a general openness for digital health opportunities.

Theme 1.2 Experiences and challenges

A clear positive example for successful digitalisation in the analyzed subgroup was the opportunity for digital somatic and psychotherapy treatments (16 of 60 codes; 27%), the use of apps for health purposes (25%), and digital prescriptions (12%). However, participants also reported challenges in the digitalisation process in different ways, for example the poor realization of concepts (see [4]) and an insufficient infrastructure in hospitals (see [5]). As Interviewee 17 summarized, “I wish for more digitalisation that functions and does not mean more work” [6]. Another concern was the fear of an overreached digitalisation which “should not somehow get out of hand in this way of course, that in the end you do not see the patient in real life at all” [7], voiced by 25% of the participants in total. Another aspect was that digital interventions could support some mental diseases in general [8] or concrete cases like tracking food while suffering from an eating disorder [9].

Category 2: Future directions for digital psychotherapy

Theme 2.1 Requirements for efficient implementation

The implementation of a digital psychotherapy setting appeared to be realizable under certain circumstances. The building of a therapeutic relationship in person prior to initiating digital therapy was a core requirement of the psychotherapeutic process for 15 of 20 study participants. All participants expressed a preference for some scheduled in-person meetings, rejecting the idea of a fully digital therapy. An aspect which was also highlighted by 14 participants was the need that other framework conditions should remain unchanged. They emphasized the need to work on the same therapeutic themes and “everything that you can do in therapy in person should also be realized well digitally” [10], in a calm environment [11], “That the therapy sessions have the same length” [12], and “there are still emergency addresses [...]. That it is clear, that there is always someone available, if it is necessary” [13]. As interviewee 10 expressed, the setting “should not get to be like a service hotline” [14]. Half of the interviewees voiced the importance of a prior commitment by patients to engage seriously with the digital format, seven participants were concerned about a lack of commitment towards the new concept. Another requirement mentioned was the recruitment of suitable patients for digital therapy. Fifty percent assumed that it is dependent on the individual patient characteristics. The age of the patients appeared to be a decisive factor for 55%, with older patients probably being less suitable than younger patients. In 16 interviews it was highlighted that the type of the individual mental disease should be considered in the decision whether a digital therapy is suitable. 30% of participants noted that digital therapy might be particularly beneficial for clients with limited physical mobility.

Theme 2.2 Opportunities and benefits

A clear advantage seemed to be the provided flexibility of the setting, mentioned by 85%. Many anticipated that this flexibility would enable an easier integration into everyday life (30%), especially for patients with employment obligations (30%). Participants viewed the digital concept as adaptable in situations that would typically result in therapy cancellations, such as problems with travel (see [15]), “In case of illness, or when you have to look after the children” [16] or a lack of access to therapists fluent in a client’s native language (see [17]). Another opportunity which was mentioned by 9 interviewees is the possibility to gain emotional support by receiving therapy from home. In total 14 interviewees expected that digital concepts could help to bridge existing treatment gaps by improving access in underserved regions. Furthermore, 65% of interviewees highlighted the lower threshold to access psychotherapy as a clear benefit.

Theme 2.3 Critical aspects

Regarding expected disadvantages, 25% of participants alerted that digital therapy might further the possible avoidance of going outside. However, the predominant concern was the expected impairment of interpersonal aspects, mainly concerning the therapeutic alliance between patient and therapist as well as the therapeutic interaction. Seventeen of 20 respondents believed that digital psychotherapy impairs the therapeutic relationship, making sessions feel less personal. It seems “that it is not quite that personal and maybe harder to build trust or to show empathy” [18], “that you have concerns or emotions, that only appear, when you are really sitting across from each other” [19] and it feels better when a therapist is there when you deal with strong upcoming emotions [20]. Participant 15 summarized this by stating “somehow you feel the atmosphere of the person or the chemistry [...]. Thus, sometimes I have the feeling, that the screen is more a wall” [21]. One factor mentioned as well by 17 participants was the reduced insight into nonverbal aspects such as body language, mimic, and gestures (see [22]), and the exclusion of aspects of arriving and leaving a therapy room. “Appearance, gait, how someone comes into the room? Of course, all of this is cancelled, because we only start the therapy at the moment when we turn on the screen” [23] and the picture reduced to an image that reaches only to the chest (see [24]). Sixteen of 20 interviewees also emphasized that the relocation to the therapist’s office itself provides supporting therapeutic value and would be lost in a digital setting.

Theme 2.4 Transfer of digital psychotherapy in an inpatient-like setting

The practical transfer of digital psychotherapy to a day-clinic format was imagined by 40% of the participants as a fully digital setting, while 30% favored hybrid models with different grades of digitalisation. Three interviewees (15%) could imagine both. Half of the study participants developed

ideas for translating existing therapy content in digital form. Moreover, across the interviews, new ideas for the digital psychotherapy concept emerged. Most frequently, participants envisioned a mobile application with supportive additional therapeutic content (55%), particularly to create a successful transfer of therapeutic elements into patients' everyday lives (40%), also with regard to the time after clinic (see [25]). Nevertheless, 40% expressed uncertainties or open questions regarding the implementation of the digital model.

Category 3: Technical framework

Theme 3.1 User-centered solutions

The subtheme contains aspects that the technical platform for digital therapy should provide. 70% of the interviewees imagined therapy via video conferencing. Concerning digital devices, six participants underlined the importance of a camera, three participants considered a smartphone as an inappropriate device for conducting therapy. In six interviews, participants described an app as an imaginable platform, half of them highlighted the importance of a user-friendly design and handling.

Theme 3.2 Essential technological competences

In 11 interviews, the need for technological competences to gain access to digital psychotherapy was a topic. Nine emphasized patients' age as an important factor, with older patients probably having more problems with the use of technology, consistent with the concerns about the right client selection (see below). Interviewee 13 described the situation as follows: "I think, you have to be open to the therapy and also have to bring the technical know-how with you. Otherwise, you cannot benefit from it or less, when you are somehow totally overwhelmed with the technology." [26]

Theme 3.3 Data security and privacy concerns

The secure and confidential transmission of medical data, including psychotherapy sessions, was a recurrent concern. 40% pointed out the importance of a technical platform with provided data security. Two participants stated that patients may fear a recording from the therapist's side. Data privacy concerns also extended to practitioners, accordingly "vice versa there has to be a protection for the therapist, that there is no software on the other side, which enables a recording of the sessions" [27]. Privacy concerns also arose from the fact that neither participant of an online meeting can see the entire room of the other person (see [28] and [29]). Privacy concerns also appeared in connection to shared patients' surroundings, "When I think about the shared flat and I do not know if that is the safe space for a profound therapy" [30].

Theme 3.4 Technical issues

Technical issues emerged in nearly every interview. Seventeen of 20 interviewees mentioned the importance of a reliable working technological framework. It became clear that various adverse

events are expected to interfere with the therapy dialogue. The technological side should be “reliably, that the patients can rely on it, that it really takes place every week” [31]. Different concerns showed the vulnerability of a digital therapy session regarding problems with the microphone and internet connection [32], the quality of the picture of each other [33], the tone [34], the dependence on a working device [35] or synchronization problems between audio and video [36]. A more fundamental issue was the availability of a working infrastructure. Seven interviewees pointed out that patients might not provide the infrastructure (hardware or software), four of them stated that also the clinic might not provide it.

Category 4: AI-based psychotherapy

Theme 4.1 Positive attitudes towards AI-based psychotherapy

It became clear that few participants had a positive attitude toward the replacement of a therapist with an AI program. Overall, only seven codes could be generated over 20 interviews. Expected advantages were a significantly “lower threshold [...], because you can do it 24/7” [37], with regards to social anxiety “there is nobody who judges you” [38] and it seemed to be an option when there is no therapist available locally [39].

Theme 4.2 Critical perspectives on AI-based psychotherapy

A skeptical, if not even rejecting attitude was more prevalent. In 80% of the interviews, participants emphasized the essential value of an interaction with a human within therapy. The importance of an interpersonal relationship was clearly highlighted (see [40] and [41]). In conclusion, “I would have a problem with accepting AI-generated answers [...] for my requests” [42]. Beyond this, distrust in general (35%) and concerns appeared, that the technical side is not developed enough to enable a sufficient therapeutic intervention (35%).

Theme 4.3 Utilization of AI-tools to support psychotherapy

In contrast to this, the use of AI to support making a mental health diagnosis was accepted by 70% of the participants. Some even preferred this approach, because “you have to be honest, that an AI could maybe reduce something. These two, three sessions diagnostics are never or almost never actually made, especially in the hospital setting, also in the outpatient practice” [43] and the large data volume could enable an exact diagnosis, the patient could “maybe feel in better hands, because [...] there is a greater data volume to compare” [44]. Furthermore, 75% of participants advocated for the use of supportive therapeutic elements like imagination techniques, physical activity and relaxation instructions or therapeutic diaries.

Discussion

This study explored medical and psychology students’ perspectives on digitalisation in medicine and psychotherapy, with a particular focus on digital inpatient-like settings.

Participants provided concrete suggestions for supporting digitalisation, especially through the expansion of existing structures like teleconsultations, digital appointment scheduling, and digital files. Compared to the existing literature, our findings reflect a more nuanced perspective, containing both enthusiasm and reservation. In recent studies, students' attitudes appear less focused, claiming a general positive^{57,58} or skeptical attitude.⁵⁹ Positive experiences with telemedicine consultations, as reported by our participants, align with previous literature about patients and providers.^{60,61} In a similar setting of integrative medicine during the Covid-19 pandemic, Barth et al.⁶² report in particular good working alliance between therapists and patients, which raises hope for the psychotherapeutic sector. Nevertheless, the experience of technical problems was reported repeatedly,^{60,62} consistent with concerns expressed in our interviews.

The most extensive thematic focus of this study pertained to students' opinions towards digital psychotherapy and digital psychotherapy in the context of a possible inpatient setting. We noticed clear support for the general idea of digital psychotherapy but at the same time a marked hesitation towards a fully digital psychotherapy setting. This ambivalence is echoed in current research. In several studies students show an open attitude towards digital mental health interventions.^{40,63-65} Regarding digital psychotherapy, Braun et al.⁶⁶ reported positive experiences of digital psychotherapy in combination with digital mental health applications. Studies about students' opinions of digital psychotherapy remain overall relatively scarce. However, a survey from Gbollie et al.⁶⁷ revealed that only 12.6% of the students preferred digital solutions over a traditional face-to-face therapy. In another survey that accompanied a group therapy setting, students' opinions on therapeutic effects were divided.⁶⁸ The specific requirements for digital psychotherapy voiced by our participants are consistent with the literature. Building a therapeutic relationship in person prior to digital sessions seems to be favorable.^{28,69} Caution regarding changes beyond therapy location seems warranted. Leukhardt et al.⁶⁹ found that change of location causes a feeling of uncertainty in the psychotherapeutic process. The idea of specific patient suitability seems valid considering studies on factors that influence engagement in digital mental health interventions: older age,⁷⁰ severe mental health issues,^{71,72} or even the lack of knowledge of the existence of this type of care seem to be barriers.⁷³ Conversely, social affiliation⁷² or digital literacy⁷⁴ facilitate engagement. Stated chances of digital therapy were in line with prior studies. Digital psychotherapy options are valued for their low threshold, greater flexibility, and reduced travel.⁷⁵ Nevertheless, important concerns regarding impaired interpersonal and interactional aspects remain significant. Feasibility studies confirm these concerns: patients experienced digital psychotherapy as less personal²⁸ and with more superficial interaction.⁶⁹ Frittgen and Haltaufderheide⁷⁶ highlight changes in sensory and embodied aspects of

communication. Given both important critical and beneficial aspects, recommendations for a hybrid therapeutic setting, recommended by several of the participants, emerge as the next logical step. Corresponding data seems promising⁷⁷ or appear even better than traditional therapy.⁷⁸

Students also identified the technical framework underlying digital care as a central issue. Studies about digital interventions emphasize the importance of an easy usability^{64,66} and a user-centered design.⁷⁹ These features are also mentioned by the participants in the present study. Important problems highlighted by the current findings are lack of technical competences or issues with the digital hardware and software infrastructure. These arguments cannot be dismissed out of hand, repeatedly reported as a relevant implementation hurdle for digital interventions or digital psychotherapy.^{71,72,78,80} Another aspect in this theme was data awareness considering the handling of sensitive information, which is reflected by previous research.^{64,70,74,79}

Considering the latest developments in digital care, AI was also addressed. In our study it became clear that AI-guided psychotherapy is largely rejected as a standalone psychotherapeutic agent, whereas AI-guided aid is widely supported. In recent literature, the use of AI in psychotherapeutic settings appears promising in effect⁸¹⁻⁸³ and low threshold.⁸⁴ Critical evidence that states the lack of emotional depth⁸⁵ align with our participants' skepticism. Kolding et al.⁸² states that recent studies about AI need to be interpreted with caution, because they often lack quality and have limited clinical relevance.

Despite the insights gained, we still have limitations. The qualitative nature of this interview study can only give results that reflect the outlook and lived experience of the selected study participants. It enables to understand investigated themes and develop theories, but the study findings are not generalizable.⁴⁴ Nevertheless, we gained valuable knowledge of important factors for mental health treatment and how future mental health professionals want to experience digital psychotherapy, grounded on their life experiences.⁴⁵ In a few cases, study participants were unfamiliar with the concept of a digital inpatient-like psychotherapy concept, and we noticed that this influenced their possibility to envision such a concept. Consequently, discussions often shifted toward digital psychotherapy more broadly. A logical next step would be a feasibility study of a real-life digital inpatient-like psychotherapy. With the insights gained here, a more successful concept can be developed, expected hurdles can be evaded, and provided opportunities realized.

Conclusion

The results of this interview study lead to the conclusion that students are open to more digitalisation in healthcare. Concerning digital psychotherapy, their support is more conditional. Hybrid settings were favored that incorporate establishing a therapeutic alliance in person and/or continuing it via in-

person meetings during the therapeutic process. A fully AI-guided psychotherapy was rejected, whereas therapeutic supportive tools were welcomed. Technical problems appear to be a relevant hurdle for committing to a digital setting. The obtained aspects can help implementing an adequate digital therapeutic care in an digital inpatient-like or outpatient setting.

Declarations

Data availability statement: The analyzed data is available from the corresponding author upon reasonable request.

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References

1. World Health Organization: Mental disorders. Accessed 19.06.25. <https://www.who.int/news-room/fact-sheets/detail/mental-disorders>
2. Robert-Koch-Institut. *Ergebnisse Zur Entwicklung Verschiedener Gesundheitsindikatoren in Der Erwachsenen Bevölkerung Bei Hochfrequenter Beobachtung*; Stand 2024. Accessed June 19, 2025. https://www.rki.de/DE/Themen/Nichtuebertragbare-Krankheiten/Studien-und-Surveillance/Studien/MHS/NCD-Surveillance-Bericht.pdf?__blob=publicationFile&v=2.
3. Bundespsychotherapeutenkammer. *Krankenkassen Blockieren Sachgerechte Reform Der Bedarfsplanung BptK: Ländliche Regionen Weiterhin Massiv Benachteiligt*; 2019. Accessed June 19, 2025. <https://www.bptk.de/pressemitteilungen/krankenkassen-blockieren-sachgerechte-reform-der-bedarfsplanung/>.
4. Wissenschaftliche Dienste - Deutscher Bundestag. *Dokumentation: Wartezeiten Auf Eine Psychotherapie - Studien Und Umfragen*; 2022; WD 9 - 3000 - 059/22. Accessed June 19, 2025. <https://www.bundestag.de/resource/blob/916578/53724d526490deea69f736b1fda83e76/WD-9-059-22-pdf-data.pdf>.
5. Springer Medizin Verlag GmbH. Reaktion auf Regierungsangaben: Psychotherapeuten beklagen „schwer erträglichen“ Versorgungszustand. Published January 13, 2023. Accessed June 19, 2025.

- <https://www.aerztezeitung.de/Politik/Psychotherapeuten-beklagen-schwer-ertraeglichen-Versorgungszustand-435767.html>
6. GKV-Spitzenverband. *Fokus: Ambulante Psychotherapie*; 2025. Accessed June 19, 2025. https://www.gkv-spitzenverband.de/gkv_spitzenverband/presse/fokus/psychotherapie.jsp.
 7. Schuld A. Psychosomatik: Argumente für die stationäre Psychotherapie: Entscheidungshilfen. *MMW Fortschritte der Medizin*. 2021;163(6). doi:10.1007/s15006-021-9668-2
 8. Doering S, Herpertz S, Hofmann T, et al. What Kind of Patients Receive Inpatient and Day-Hospital Treatment in Departments of Psychosomatic Medicine and Psychotherapy in Germany? *Psychother Psychosom*. 2023;92(1). doi:10.1159/000527881
 9. Loch AA. Discharged from a mental health admission ward: is it safe to go home? A review on the negative outcomes of psychiatric hospitalization. *Psychol Res Behav Manag*. 2014;7. doi:10.2147/PRBM.S35061
 10. DPtV Deutsche Psychotherapeuten Vereinigung e.V. *Report Psychotherapie 2021*; 2021. Accessed June 20, 2025. <https://www.dptv.de/im-fokus/wissenschaft-und-forschung/report-psychotherapie/>.
 11. Deutsche Krankenhausgesellschaft. Stationsäquivalente psychiatrische Behandlung. Accessed June 20, 2025. <https://www.dkgev.de/themen/versorgung-struktur/psychiatrie-psychosomatik/stationsaequivalente-psychiatriische-behandlung/>
 12. Bramesfeld A. Die Versorgung von Menschen mit psychischen Erkrankungen in Deutschland aus Perspektive des Gesundheits- und Sozialsystems: Aktuelle Entwicklungsbedarfe. *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*. 2023;66(4). doi:10.1007/s00103-023-03671-x
 13. Nikolaidis K, Weinmann S, Döring S, et al. Stationsäquivalente Behandlung (StäB) im Vergleich mit vollstationärer Behandlung: 12-Monats-Follow-up Ergebnisse einer mittels Propensity-Score gematchten retrospektiven Kohortenstudie. *Psychiatr Prax*. 2024;51(2). doi:10.1055/a-2177-6113
 14. Spannhorst S, Weller S, Thomas C. Stationsäquivalente Behandlung: Eine neue Versorgungsform auch in der Gerontopsychiatrie. *Z Gerontol Geriatr*. 2020;53(8). doi:10.1007/s00391-020-01823-1
 15. Boege I, Schepker R, Fegert JM. Vom Hometreatment zur stationsäquivalenten Behandlung (StäB): Ein systematischer Review aufsuchender Behandlung in Deutschland. *Z Kinder Jugendpsychiatr Psychother*. 2020;48(5). doi:10.1024/1422-4917/a000710
 16. Schwarz J, Hemmerling J, Kabisch N, et al. Equal access to outreach mental health care? Exploring how the place of residence influences the use of intensive home treatment in a rural catchment area in Germany. *BMC Psychiatry*. 2022;22(1). doi:10.1186/s12888-022-04477-y
 17. Rojas G, Martínez V, Martínez P, Franco P, Jiménez-Molina Á. Improving Mental Health Care in Developing Countries Through Digital Technologies: A Mini Narrative Review of the Chilean Case. *Front Public Health*. 2019;7. doi:10.3389/fpubh.2019.00391
 18. Witteveen AB, Young S, Cuijpers P, et al. Remote mental health care interventions during the COVID-19 pandemic: An umbrella review. *Behav Res Ther*. 2022;159. doi:10.1016/j.brat.2022.104226
 19. Weitzel EC, Quittschalle J, Welzel FD, Löbner M, Hauth I, Riedel-Heller SG. E-Mental-Health und digitale Gesundheitsanwendungen in Deutschland. *Nervenarzt*. 2021;92(11). doi:10.1007/s00115-021-01196-9
 20. Sifat MS, Tasnim N, Stoebenau K, Green KM. A qualitative exploration of university student perspectives on mindfulness-based stress reduction exercises via smartphone app in Bangladesh. *Int J Qual Stud Health Well-being*. 2022;17(1). doi:10.1080/17482631.2022.2113015
 21. Sasseville M, LeBlanc A, Boucher M, et al. Digital health interventions for the management of mental health in people with chronic diseases: a rapid review. *BMJ Open*. 2021;11(4). doi:10.1136/bmjopen-2020-044437
 22. Lattie EG, Adkins EC, Winkquist N, Stiles-Shields C, Wafford QE, Graham AK. Digital Mental

- Health Interventions for Depression, Anxiety, and Enhancement of Psychological Well-Being Among College Students: Systematic Review. *J Med Internet Res.* 2019;21(7). doi:10.2196/12869
23. Ferrari M, Allan S, Arnold C, et al. Digital Interventions for Psychological Well-being in University Students: Systematic Review and Meta-analysis. *J Med Internet Res.* 2022;24(9). doi:10.2196/39686
24. Petrovic M, Gaggioli A. Digital Mental Health Tools for Caregivers of Older Adults-A Scoping Review. *Front Public Health.* 2020;8. doi:10.3389/fpubh.2020.00128
25. Zwerenz R, Becker J, Knickenberg RJ, Siepmann M, Hagen K, Beutel ME. Online Self-Help as an Add-On to Inpatient Psychotherapy: Efficacy of a New Blended Treatment Approach. *Psychother Psychosom.* 2017;86(6). doi:10.1159/000481177
26. Diel A, Schröter IC, Frewer A-L, et al. A systematic review and meta analysis on digital mental health interventions in inpatient settings. *NPJ Digit Med.* 2024;7. doi:10.1038/s41746-024-01252-z
27. Fletcher TL, Hogan JB, Keegan F, et al. Recent Advances in Delivering Mental Health Treatment via Video to Home. *Curr Psychiatry Rep.* 2018;20(8). doi:10.1007/s11920-018-0922-y
28. Moeller AM, Hansen JP, Andersen PT. Patients' experiences of home-based psychotherapy via videoconference: A qualitative study. *Arch Psychiatr Nurs.* 2022;39. doi:10.1016/j.apnu.2022.03.004
29. Lamb T, Pachana NA, Dissanayaka N. Update of Recent Literature on Remotely Delivered Psychotherapy Interventions for Anxiety and Depression. *Telemed J E Health.* 2019;25(8). doi:10.1089/tmj.2018.0079
30. Markowitz JC, Milrod B, Heckman TG, et al. Psychotherapy at a Distance. *Am J Psychiatry.* 2021;178(3). doi:10.1176/appi.ajp.2020.20050557
31. Weightman M. Digital psychotherapy as an effective and timely treatment option for depression and anxiety disorders: Implications for rural and remote practice. *J Int Med Res.* 2020;48(6). doi:10.1177/0300060520928686
32. Smith KA, Blease C, Faurholt-Jepsen M, et al. Digital mental health: challenges and next steps. *BMJ mental health.* 2023;26(1). doi:10.1136/bmjment-2023-300670
33. Statistisches Bundesamt. Hochschulen: Studierende nach Bundesländern. Published August 9, 2024. Accessed September 23, 2024. <https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Tabellen/studierende-insgesamt-bundeslaender.html>
34. Cambridge University Press & Assessment. digital native. Published September 23, 2024. Accessed September 23, 2024. <https://dictionary.cambridge.org/de/worterbuch/englisch/digital-native>
35. Braun P, Schwientek A-K, Angerer P, et al. Investigating information needs and preferences regarding digital mental health services among medical and psychology students in Germany: A qualitative study. *Digit Health.* 2023;9. doi:10.1177/20552076231173568
36. Heesacker M, Perez C, Quinn MS, Benton S. Computer-assisted psychological assessment and psychotherapy for collegians. *J Clin Psychol.* 2019;76(6). doi:10.1002/jclp.22854
37. Keis O, Grab C, Schneider A, Öchsner W. Online or face-to-face instruction? A qualitative study on the electrocardiogram course at the University of Ulm to examine why students choose a particular format. *BMC Med Educ.* 2017;17(1). doi:10.1186/s12909-017-1053-6
38. Harrer M, Adam SH, Baumeister H, et al. Internet interventions for mental health in university students: A systematic review and meta-analysis. *Int J Methods Psychiatr Res.* 2019;28(2). doi:10.1002/mpr.1759
39. Harith S, Backhaus I, Mohbin N, Ngo HT, Khoo S. Effectiveness of digital mental health interventions for university students: an umbrella review. *PeerJ.* 2022;10. doi:10.7717/peerj.13111
40. Grüneberg C, Bäuerle A, Karunakaran S, et al. Medical Students' Acceptance of Tailored e-

- Mental Health Apps to Foster Their Mental Health: Cross-Sectional Study. *JMIR Med Educ.* 2025;11. doi:10.2196/58183
41. Bhatt S. Digital Mental Health: Role of Artificial Intelligence in Psychotherapy. *Ann Neurosci.* 2024;32(2). doi:10.1177/09727531231221612
 42. Dehbozorgi R, Zangeneh S, Khooshab E, et al. The application of artificial intelligence in the field of mental health: a systematic review. *BMC Psychiatry.* 2025;25(1). doi:10.1186/s12888-025-06483-2
 43. Kuper A, Reeves S, Levinson W. An introduction to reading and appraising qualitative research. *BMJ.* 2008;337. doi:10.1136/bmj.a288
 44. Bullock A. Conduct one-to-one qualitative interviews for research. *Education for Primary Care.* 2016;27(4). doi:10.1080/14739879.2016.1176874
 45. Diccico-Bloom B, Crabtree BF. The qualitative research interview. *Med Educ.* 2006;40(4). doi:10.1111/j.1365-2929.2006.02418.x
 46. Weller SC, Vickers B, Bernard HR, et al. Open-ended interview questions and saturation. *PLoS One.* 2018;13(6). doi:10.1371/journal.pone.0198606
 47. Hennink MM, Kaiser BN, Marconi VC. Code Saturation Versus Meaning Saturation: How Many Interviews Are Enough? *Qual Health Res.* 2017;27(4). doi:10.1177/1049732316665344
 48. dr.dresing & pehl GmbH. f4x automatische Transkription 2024. Published March 16, 2025. Accessed March 16, 2025. <https://f4x.audiotranskription.de/anmelden>
 49. Rädiker S, Kuckartz U. *Focused Analysis of Qualitative Interviews with MAXQDA: Step by Step;* 2020. Accessed June 20, 2025.
 50. VERBI GmbH. MAXQDA | Die #1 Software für Qualitative & Mixed-Methods-Forschung. Published March 5, 2025. Accessed June 20, 2025. <https://www.maxqda.com/de/>
 51. Kuckartz U. *Qualitative Inhaltsanalyse. Methoden, Praxis, Computerunterstützung.* 4th edition. Beltz Verlagsgruppe; 2018.
 52. Ryan GW, Bernard HR. Techniques to Identify Themes. *Field Methods.* 2003;15(1). doi:10.1177/1525822X02239569
 53. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology.* 2006;3(2). doi:10.1191/1478088706qp063oa
 54. Braun V, Clarke V. Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health.* 2019;11(4). doi:10.1080/2159676X.2019.1628806
 55. Bennett D, Barrett A, Helmich E. How to...analyse qualitative data in different ways. *Clin Teach.* 2019;16(1). doi:10.1111/tct.12973
 56. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care.* 2007;19(6). doi:10.1093/intqhc/mzm042
 57. Veikkolainen P, Tuovinen T, Jarva E, et al. eHealth competence building for future doctors and nurses - Attitudes and capabilities. *Int J Med Inform.* 2023;169. doi:10.1016/j.ijmedinf.2022.104912
 58. Thapa S, Nielsen JB, Aldahmash AM, Qadri FR, Leppin A. Willingness to Use Digital Health Tools in Patient Care Among Health Care Professionals and Students at a University Hospital in Saudi Arabia: Quantitative Cross-sectional Survey. *JMIR Med Educ.* 2021;7(1). doi:10.2196/18590
 59. Baumgartner M, Sauer C, Blagec K, Dorffner G. Digital health understanding and preparedness of medical students: a cross-sectional study. *Medical education online.* 2022;27(1). doi:10.1080/10872981.2022.2114851
 60. Barkai G, Gadot M, Amir H, Menashe M, Shvimer-Rothschild L, Zimlichman E. Patient and clinician experience with a rapidly implemented large-scale video consultation program during COVID-19. *Int J Qual Health Care.* 2021;33(1). doi:10.1093/intqhc/mzaa165
 61. Garcia-Huidobro D, Rivera S, Valderrama Chang S, Bravo P, Capurro D. System-Wide

- Accelerated Implementation of Telemedicine in Response to COVID-19: Mixed Methods Evaluation. *J Med Internet Res.* 2020;22(10). doi:10.2196/22146
62. Barth J, Canella C, Oehler M, Witt CM. Digital Consultations During COVID-19: A Multiperspective Mixed-Methods Study in an Integrative Medicine Setting in Switzerland. *J Altern Complement Med.* 2021;27(7). doi:10.1089/acm.2020.0539
63. Topooco N, Fowler LA, Fitzsimmons-Craft EE, et al. Digital interventions to address mental health needs in colleges: Perspectives of student stakeholders. *Internet Interv.* 2022;28. doi:10.1016/j.invent.2022.100528
64. Dederichs M, Weber J, Pischke CR, Angerer P, Apolinário-Hagen J. Exploring medical students' views on digital mental health interventions: A qualitative study. *Internet Interv.* 2021;25. doi:10.1016/j.invent.2021.100398
65. Poll R van der, Coetzee B, Bantjes J. Willing and unwilling digital cyborg assemblages: University students talk about mental health apps. *Digit Health.* 2023;9. doi:10.1177/20552076231210658
66. Braun P, Atik E, Guthardt L, Apolinário-Hagen J, Schückes M. Barriers to and Facilitators of a Blended Cognitive Behavioral Therapy Program for Depression and Anxiety Based on Experiences of University Students: Qualitative Interview Study. *JMIR Form Res.* 2023;7. doi:10.2196/45970
67. Gbollie EF, Bantjes J, Jarvis L, et al. Intention to use digital mental health solutions: A cross-sectional survey of university students attitudes and perceptions toward online therapy, mental health apps, and chatbots. *Digit Health.* 2023;9. doi:10.1177/20552076231216559
68. Hunt X, Jivan DC, Naslund JA, Breet E, Bantjes J. South African university students' experiences of online group cognitive behavioural therapy: Implications for delivering digital mental health interventions to young people. *Glob Ment Health (Camb).* 2023;10. doi:10.1017/gmh.2023.39
69. Leukhardt A, Heider M, Reboly K, Franzen G, Eichenberg C. Videobasierte Behandlungen in der psychodynamischen Psychotherapie in Zeiten der COVID-19-Pandemie: Interviewstudie mit Psychotherapeut*innen und Patient*innen. *Psychotherapeut (Berl).* 2021;66(5). doi:10.1007/s00278-021-00532-3
70. Mayer G, Gronewold N, Alvarez S, Bruns B, Hilbel T, Schultz J-H. Acceptance and Expectations of Medical Experts, Students, and Patients Toward Electronic Mental Health Apps: Cross-Sectional Quantitative and Qualitative Survey Study. *JMIR Ment Health.* 2019;6(11). doi:10.2196/14018
71. Assche E van, Bonroy B, Mertens M, et al. E-mental health implementation in inpatient care: Exploring its potential and future challenges. *Front Digit Health.* 2022;4. doi:10.3389/fdgth.2022.1027864
72. Borghouts J, Eikay E, Mark G, et al. Barriers to and Facilitators of User Engagement With Digital Mental Health Interventions: Systematic Review. *J Med Internet Res.* 2021;23(3). doi:10.2196/24387
73. Weitzel EC, Schwenke M, Schomerus G, et al. E-mental health in Germany - what is the current use and what are experiences of different types of health care providers for patients with mental illnesses? *Arch Public Health.* 2023;81(1). doi:10.1186/s13690-023-01150-y
74. Özer Ö, Köksal B, Altinok A. Understanding university students' attitudes and preferences for internet-based mental health interventions. *Internet Interv.* 2024;35. doi:10.1016/j.invent.2024.100722
75. Meier JV, Noel JA, Kaspar K. Understanding psychology students' perspective on video psychotherapy and their intention to offer it after graduation: a mixed-methods study. *Front Psychol.* 2023;14. doi:10.3389/fpsyg.2023.1234167
76. Frittgen E-M, Haltaufderheide J. 'Can you hear me?': communication, relationship and ethics in video-based telepsychiatric consultations. *J Med Ethics.* 2022;48. doi:10.1136/medethics-2021-107434

77. Ehrh-Schäfer Y, Rusmir M, Vetter J, Seifritz E, Müller M, Kleim B. Feasibility, Adherence, and Effectiveness of Blended Psychotherapy for Severe Mental Illnesses: Scoping Review. *JMIR Ment Health*. 2023;10. doi:10.2196/43882
78. Omylinska-Thurston J, Aithal S, Liverpool S, et al. Digital Psychotherapies for Adults Experiencing Depressive Symptoms: Systematic Review and Meta-Analysis. *JMIR Ment Health*. 2024;11. doi:10.2196/55500
79. Oti O, Pitt I. Online mental health interventions designed for students in higher education: A user-centered perspective. *Internet Interv*. 2021;26. doi:10.1016/j.invent.2021.100468
80. Ramos G, Hernandez-Ramos R, Taylor M, Schueller SM. State of the Science: Using Digital Mental Health Interventions to Extend the Impact of Psychological Services. *Behavior Therapy*. 2024;55(6). doi:10.1016/j.beth.2024.04.004
81. He Y, Yang L, Zhu X, et al. Mental Health Chatbot for Young Adults With Depressive Symptoms During the COVID-19 Pandemic: Single-Blind, Three-Arm Randomized Controlled Trial. *J Med Internet Res*. 2022;24(11). doi:10.2196/40719
82. Kolding S, Lundin RM, Hansen L, Østergaard SD. Use of generative artificial intelligence (AI) in psychiatry and mental health care: a systematic review. *Acta Neuropsychiatr*. 2024;37. doi:10.1017/neu.2024.50
83. Zhong W, Luo J, Zhang H. The therapeutic effectiveness of artificial intelligence-based chatbots in alleviation of depressive and anxiety symptoms in short-course treatments: A systematic review and meta-analysis. *J Affect Disord*. 2024;356. doi:10.1016/j.jad.2024.04.057
84. Jurblum M, Selzer R. Potential promises and perils of artificial intelligence in psychotherapy - The AI Psychotherapist (APT). *Australas Psychiatry*. 2025;33(1). doi:10.1177/10398562241286312
85. Spytska L. The use of artificial intelligence in psychotherapy: development of intelligent therapeutic systems. *BMC Psychol*. 2025;13(1). doi:10.1186/s40359-025-02491-9

Appendix

Multimedia Appendix_Table S2

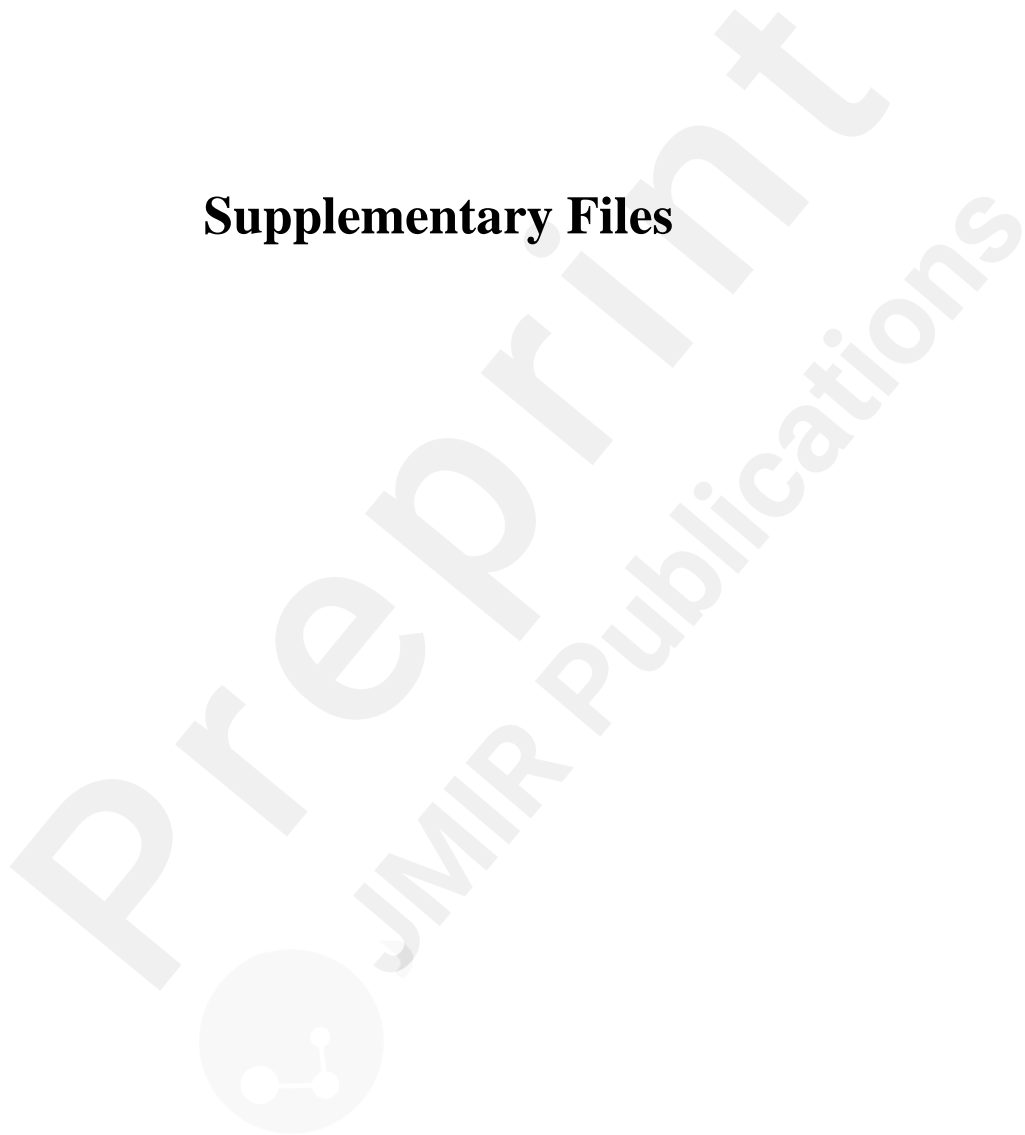
Multimedia Appendix _Table S3

Multimedia Appendix 4_ Table S4

Multimedia Appendix 4_ Table S5



Supplementary Files



Multimedia Appendixes

Participants' use of digital media.

URL: <http://asset.jmir.pub/assets/a2ac8b093ebd45d382f051048ea84fa2.docx>

Semi-structured interview guide: Translated for publication purpose only (originally in German).

URL: <http://asset.jmir.pub/assets/29f8c99f0d607ab6b5167c2e3bb9dd18.docx>

Quotes for themes and subthemes: Translated for publication (originally in German).

URL: <http://asset.jmir.pub/assets/31ba6b5d5621fb7b090f5cf0c056a300.docx>

CONSORT (or other) checklists

Consolidated criteria for reporting qualitative research (COREQ).

URL: <http://asset.jmir.pub/assets/9221d6b2aed145e346387d7050cb93dc.pdf>