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Patient Satisfaction with Digital Health Solutions for Depression Treatment: A Scoping Review

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Abstract. Patients with chronic illnesses need innovative counseling strategies for better self-care throughout their condition. The effectiveness of digital health treatments for managing depression and treatment adherence remains unclear due to fragmented evidence. This scoping review investigates existing research on digital health treatments for depressive disorders, particularly focusing on patient satisfaction. A systematic search was conducted in PubMed, Scopus, and CINAHL for 386 studies published up to 2024, resulting in nine studies being analyzed. The findings suggest that digital health interventions generally improve patient satisfaction, though this was not a primary focus in most studies. Further research is needed to better integrate digital health solutions into depression treatment.

Keywords. Mental Health, Digital Health, Scoping Review.

1. Introduction

Depressive disorder, or depression, is a common mental illness marked by persistent sadness and a lack of interest in daily activities, significantly affecting one's ability to function. In severe cases, it can lead to suicidal thoughts and behaviors. Depression affects 3.8% of the global population, or about 280 million people, according to the WHO [1]. Despite effective treatments being available, over 75% of people with mental illness in low- and middle-income countries do not receive treatment, according to a 2017 WHO survey [2]. Given that depression can lead to suicide, which claims over 700,000 lives annually [3], and that up to 50% of suicide victims meet the criteria for Major Depressive Disorder [4], addressing this public health issue is crucial to prevent these deaths.

E-health can enhance treatment capacity by providing alternatives to traditional face-to-face interventions. Research indicates that e-health interventions are promising for treating depression [5]. A systematic review by Paalimäki-Paakki, Virtanen [6]. found positive effects of web-based interventions for patients with depression. While some systematic reviews have explored e-health for depression, few focus specifically on patient satisfaction.

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Therefore, this scoping review aims to identify current studies on patient satisfaction among patients with depression receiving e-health interventions. It addresses the research question: How do patients with depression experience digital health solutions as part of their treatment? This review seeks to understand how patient satisfaction is assessed and to identify patterns across the included studies.

2. Methods

2.1. Design

In this study, we employed an interpretative scoping study methodology guided by the framework established by [7]. This approach involves five key stages: formulating the research question(s), identifying relevant studies, selecting the studies, charting the data, and finally, collating, summarizing, and reporting the findings, including a consultation phase. The method aligns with a narrative synthesis approach, particularly suited for evaluating a diverse range of primarily qualitative studies. It utilizes an iterative, conceptual, and interpretative process that prioritizes the relevance, credibility, and contribution of evidence over rigid methodological criteria in analysis and synthesis.

2.2. Identifying research question and relevant studies

This review examines how previous research has addressed the experiences of patients with depression who have received digital treatments. It evaluates the scope, range, and methodologies of existing studies, focusing on how patients perceive digital health solutions as part of their treatment. Key areas of exploration include: 1) the types of e-health technologies used, 2) methods for measuring patient satisfaction, 3) intervention durations, 4) target populations, and 5) overall satisfaction levels. To identify relevant studies, we employed systematic search strategies across multiple data sources, using advanced techniques like Medical Subject Headings (MeSH) and Boolean logic to refine search terms: (depres* OR dysthymia OR "clinical depres*") AND (e-health OR mhealth OR "Digital health" OR "Digital Treatment" OR "Online Treatment" OR telehealth OR "health informatics") AND ("Patient experienc*" OR "patient satisfaction" OR "patient perspect*"). Searches were conducted in PubMed, CINAHL, and Scopus, adhering to Arksey and O'Malley's guidelines (7), and including peer-reviewed articles in English published since 2000.

2.3. Data screening, selection, and charting

All article titles and abstracts were screened to identify studies that investigated digital health solutions for treating depression and assessed patient satisfaction. *Studies were excluded if they lacked: 1) original empirical findings, 2) were not Randomized Controlled Trials (RCTs), or 3) did not evaluate patient satisfaction.* The selection process followed PRISMA guidelines [8], with no restrictions on outcomes related to children and youth, and it is shown in Figure 1. Nine papers met the inclusion criteria. These studies were fully reviewed, and data were extracted using a specially developed template, covering study purpose, methodology, outcomes, technology used, and patient satisfaction levels, as shown in Table 1.

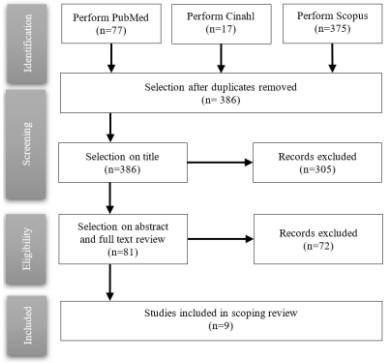

Figure 1. Data selection process based on PRISMA flowchart

3. Results and Discussion

The research identified nine papers, including eight RCT studies and one systematic literature review based on RCTs [9-17]. These studies compare various telehealth solutions to traditional consultations, measuring patient satisfaction through different methods. In the following section, studies involving similar technologies are grouped and discussed together.

Two studies define e-health as digital communication via Skype [11] and telephone consultations [10]. Patient satisfaction with Skype was comparable to traditional care, while satisfaction increased with phone consultations. Both studies used questionnaires to measure satisfaction, with the telephone study also including follow-up interviews.

Three studies employed blended care models, integrating e-health components such as a self-management program [12], internet-based cognitive behavioral therapy (CBT) [13], and Healthlines Depression Service with regular phone calls [14]. Satisfaction was assessed through questionnaires for the self-management program and Healthlines service, while internet-based CBT used semi-structured interviews post-therapy. Overall, patient satisfaction was generally positive in [12] and [13], though face-to-face consultations were deemed essential for satisfaction in [14].

Three other studies focused on a smartphone app [9], a self-monitoring computer application [15], and an online program based on evidence-based CBT [16]. Patient satisfaction with the smartphone app and online program was similar to traditional clinical treatment, though participants in the online program remained skeptical about psychotherapy. In contrast, satisfaction with the computer application was high, with patients willing to use it themselves and recommend it to others. The studies employed different measurement methods: a sum of self-reported statements [9], semi-structured interviews [15], and a questionnaire [16].

The last paper is the systematic literature review which included 21 RCT studies having e-health as main component, and according to their secondary outcome the treatments are rated as satisfactory by the patients [17].

In summary, our finding indicates that most patients are generally satisfied with digital health solutions, though three studies reported similar satisfaction levels between digital interventions and traditional treatments [11,13,16]. The variability in measurement methods and technologies across the studies suggests that these findings

are influenced by methodological choices. This review, based on nine studies identified from three databases, may have benefited from a broader search including additional databases, potentially uncovering more relevant studies and clarifying trends in patient satisfaction.

Moreover, the search strategy could have been expanded with more synonyms related to digital treatment, which might have increased the number of relevant articles and impacted the results. The studies included in this review often examined multiple outcomes, with patient satisfaction being only a secondary focus, suggesting that there has not been extensive investigation into this aspect. As such, this review provides only a limited insight into patient satisfaction with digital health solutions.

Table 1. Extracted data from selected studies. Year of publication (YOP), Population (P)

Ref	YOP	P	Technology	Measurement	Duration	Founding
(9)	2000	302	Telehealth care plus peer support (Phone calls)	Questionnaire and interview	Interview: 6 weeks and 6 months	Incremental satisfaction for telehealth
(10)	2018	163	FOCUS Smartphone App	Sum of five self-reports (7-point scale)	Within 3 months post-intervention.	Generally, very satisfied with FOCUS treatment
(11)	2016	107	Video Conferencing - Skype	Web-based questionnaire	N/A	No significant difference between in-person and Skype
(12)	2017	N/A	Act and feel. Online self-management program blended with face-to-face or telephonic	Questionnaire	N/A	Overall satisfaction
(13)	2013	14	Blended care Internet-based cognitive behavioral therapy and short face-to-face consultants	Semi-structured interview	After ended therapy	Face-to-face was essential for participants satisfaction
(14)	2016	609	Healthlines Depression Service plus usual care and usual care alone.	Questionnaire	4, 8, and 12 months after randomization.	Greater satisfaction than usual care.
(15)	2016	28	Help4Mood: Interactive self-monitoring system application	Semi-structured interview	After intervention	Highly satisfied.
(16)	2013	210	Deprexis: Online program, (evidence based cognitive-behavioral techniques)	Questionnaire	After 8 weeks	No difference, still skepticism of psychotherapy
(17)	2018	21	eHealth as main component	Self-reported	N/A	Secondary outcomes: rated as satisfactory

4. Conclusions

This scoping review included nine studies, identified through a systematic screening of three academic databases, to explore patient experiences with digital health solutions as part of depression treatment. Overall, the findings suggest broad positive patient satisfaction with digital health interventions, although there is variability depending on the type of intervention. While blended care, combining digital solutions with traditional care, was generally well-received, one study highlighted the continued importance of face-to-face consultations. Different measurement methods, such as questionnaires and interviews, complicate direct comparisons across studies, underscoring the need for standardized assessment tools. Despite some mixed results, particularly with videoconferencing solutions like Skype, the potential of digital health tools, including self-monitoring applications, to enhance depression care is evident. Further research, ideally incorporating user-centered design and RCT, is recommended to better understand the relationship between digital interventions and patient satisfaction, particularly in conjunction with face-to-face care.

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