

Exploring the impact of mental health-related mobile applications on people with a lived experience of mental illness

Yen-Chung Ho, Yung-Chieh Ching, Luke Molloy

Submitted to: JMIR Mental Health
on: October 24, 2025

Disclaimer: © The authors. All rights reserved. This is a privileged document currently under peer-review/community review. Authors have provided JMIR Publications with an exclusive license to publish this preprint on its website for review purposes only. While the final peer-reviewed paper may be licensed under a CC BY license on publication, at this stage authors and publisher expressly prohibit redistribution of this draft paper other than for review purposes.

Table of Contents

Original Manuscript..... 5

Supplementary Files..... 27

 Figures 28

 Figure 1..... 29

 Figure 2..... 30

Exploring the impact of mental health-related mobile applications on people with a lived experience of mental illness

Yen-Chung Ho^{1*} PhD; Yung-Chieh Ching^{1*} PhD; Luke Molloy^{2*} PhD

¹School of Nursing College of Nursing Asia University Taichung TW

²School of Nursing University of Wollongong New South Wales AU

*these authors contributed equally

Corresponding Author:

Yen-Chung Ho PhD

School of Nursing

College of Nursing

Asia University

No. 500, Liufeng Rd., Wufeng Dist., Taichung City 413305, Taiwan (R.O.C.)

Taichung

TW

Abstract

Background: Mental health apps are widely promoted to support assessment, self-management, and recovery. Yet their real-world value for people with lived experience depends on how apps are encountered, trusted, and sustained (or abandoned) in everyday life—contexts that quantitative trials alone rarely capture.

Objective: To synthesize qualitative evidence on how individuals with lived experience of mental illness use mental health-related mobile apps and to develop a line-of-argument model explaining variability in engagement, perceived benefit, and burden across settings.

Methods: We conducted a qualitative evidence synthesis using meta-ethnography (Noblit & Hare) and reported per eMERGe guidance. We searched CINAHL for English-language qualitative studies on mental health app use (2019–2024) and complemented this with backward/forward citation checking. Two reviewers independently screened records, extracted first-order (participant) and second-order (author) constructs, and appraised study quality using NICE qualitative standards. Through reciprocal translation and synthesis of translations, we generated third-order interpretations and an integrative line-of-argument.

Results: Six studies from the United States, England, and the Netherlands were included, spanning apps targeting depression/anxiety, bipolar disorder, serious mental illness, and suicide prevention. Four cross-cutting themes emerged. (1) Apps as adjuncts, not replacements: they scaffold self-regulation between clinical contacts but are often set aside during crises. (2) Self-management and empowerment: mood/symptom tracking, prompts, and psychoeducation can strengthen insight and agency when tailored and meaningful. (3) Privacy, data governance, and trust: opaque data flows, surveillance concerns, and uncertainty about escalation pathways constrain disclosure and sustained use. (4) Design, usability, and discontinuation: low cognitive load, reliability, and personalization facilitate integration into routines; glitches, advertising, and burdensome data entry drive attrition. These dynamics shaped whether app use translated into improved day-to-day functioning and therapeutic conversations.

Conclusions: Mental health apps can extend person-centered care when embedded within trusted therapeutic relationships and usable ecosystems. Implementation should prioritize co-design with people with lived experience, transparent and choice-rich data governance (eg, clear data routes, consent options, and review plans), and design choices that minimize cognitive load—especially during distress. Clinicians and services should agree on what to track, how to review app data, and when to escalate, treating apps as shared tools rather than stand-alone solutions. Further work should standardize reporting of privacy practices and engagement trajectories and evaluate models that integrate app data into routine care without increasing burden for users or clinicians.

(JMIR Preprints 24/10/2025:86434)

DOI: <https://doi.org/10.2196/preprints.86434>

Preprint Settings

1) Would you like to publish your submitted manuscript as preprint?

✓ **Please make my preprint PDF available to anyone at any time (recommended).**

Please make my preprint PDF available only to logged-in users; I understand that my title and abstract will remain visible to all users.

Only make the preprint title and abstract visible.

No, I do not wish to publish my submitted manuscript as a preprint.

2) If accepted for publication in a JMIR journal, would you like the PDF to be visible to the public?

✓ **Yes, please make my accepted manuscript PDF available to anyone at any time (Recommended).**

Yes, but please make my accepted manuscript PDF available only to logged-in users; I understand that the title and abstract will remain visible to all users.

Yes, but only make the title and abstract visible (see Important note, above). I understand that if I later pay to participate in <http://www.jmir.org/>

No. Please do not make my accepted manuscript PDF available to anyone. I understand that if I later pay to participate in <https://www.jmir.org/>

Original Manuscript

Exploring the impact of mental health-related mobile applications on people with a lived experience of mental illness

Background

Mental health apps are widely promoted to support assessment, self-management, and recovery. Yet their real-world value for people with lived experience depends on how apps are encountered, trusted, and sustained (or abandoned) in everyday life—contexts that quantitative trials alone rarely capture.

Objective

To synthesize qualitative evidence on how individuals with lived experience of mental illness use mental health-related mobile apps and to develop a line-of-argument model explaining variability in engagement, perceived benefit, and burden across settings.

Methods

We conducted a qualitative evidence synthesis using meta-ethnography (Noblit & Hare) and reported per eMERGe guidance. We searched CINAHL for English-language qualitative studies on mental health app use (2019–2024) and complemented this with backward/forward citation checking. Two reviewers independently screened records, extracted first-order (participant) and second-order (author) constructs, and appraised study quality using NICE qualitative standards. Through reciprocal translation and synthesis of translations, we generated third-order interpretations and an integrative line-of-argument.

Results

Six studies from the United States, England, and the Netherlands were included, spanning apps targeting depression/anxiety, bipolar disorder, serious mental illness, and suicide prevention. Four cross-cutting themes emerged. (1) Apps as adjuncts, not replacements: they scaffold self-regulation between clinical contacts but are often set aside during crises. (2) Self-management and empowerment: mood/symptom tracking, prompts, and psychoeducation can strengthen insight and

agency when tailored and meaningful. (3) Privacy, data governance, and trust: opaque data flows, surveillance concerns, and uncertainty about escalation pathways constrain disclosure and sustained use. (4) Design, usability, and discontinuation: low cognitive load, reliability, and personalization facilitate integration into routines; glitches, advertising, and burdensome data entry drive attrition. These dynamics shaped whether app use translated into improved day-to-day functioning and therapeutic conversations.

Conclusions

Mental health apps can extend person-centered care when embedded within trusted therapeutic relationships and usable ecosystems. Implementation should prioritize co-design with people with lived experience, transparent and choice-rich data governance (eg, clear data routes, consent options, and review plans), and design choices that minimize cognitive load—especially during distress. Clinicians and services should agree on what to track, how to review app data, and when to escalate, treating apps as shared tools rather than stand-alone solutions. Further work should standardize reporting of privacy practices and engagement trajectories and evaluate models that integrate app data into routine care without increasing burden for users or clinicians.

Keywords: mHealth; mobile applications; mental health; qualitative research; meta-ethnography; user engagement; privacy; digital therapeutic alliance

Introduction

Mental disorders remain a leading contributor to global disability and unmet need, despite decades of investment in prevention and treatment. The World Health Organization's 2022 World Mental Health Report underscores the persistence of treatment gaps and the urgency of system transformation,

while Global Burden of Disease analyses shows little reduction in the worldwide burden of mental disorders since 1990 [1, 2]. In parallel, mobile technologies have become ubiquitous and promise to extend access to self-management and support at scale. Thousands of mental health apps (mHealth apps) now offer assessments, psychoeducation, cognitive-behavioral and mindfulness exercises, peer support, and symptom tracking. Meta-analytic evidence indicates that app-based interventions can reduce depressive and anxiety symptoms with small-to-moderate effects [3-6]. Yet effectiveness at the population level hinges not only on clinical potency but also on meaningful, sustained engagement in real-world contexts and on users' perceptions of safety, trust, and fit with their lives. Real-world uptake and retention of mental health apps are highly variable and often low. Aggregated, independently collected usage data suggests that only a small fraction of downloaders continue to use an app over time, with median 15- and 30-day retention rates below 5% across popular apps [7]. Market volatility further complicates clinical recommendation and evaluation; longitudinal tracking has shown rapid turnover of app store search results and frequent disappearance or modification of apps, particularly for conditions such as depression, bipolar disorder, and suicidality [8]. These dynamics challenge traditional evidence pipelines and raise questions about how users make sense of, adopt, and sustain (or abandon) app-based support in daily life.

Ethical, legal, and governance concerns also shape lived experience with apps. Empirical analyses of mHealth apps document routine, opaque data sharing with third parties and inconsistent privacy protections, including limited transparency around tracking and purposes of use [9, 10]. In response, multiple evaluation and evidence frameworks have emerged. The UK National Institute for Health and Care Excellence (NICE) Evidence Standards Framework for Digital Health Technologies stratifies evidence expectations by function and risk, while the American Psychiatric Association's App Evaluation Model provides a pragmatic, modular approach that has been refined through stakeholder engagement, including people with lived experience [11-13]. These frameworks are vital, but they were designed primarily to standardize assessment; they cannot, by themselves, recover how

value, harm, and trust are constructed in the everyday, situated encounters between individuals and mHealth apps.

Against this backdrop, the authors have undertaken a synthesis of qualitative research studies focused on mHealth apps from the perspective of people with lived experience. The aim of this synthesis has been to explore how individuals encounter, interpret, and integrate mHealth app-based support in their lives; to develop a line-of-argument model that accounts for variability in engagement, benefit, and burden across contexts; and to derive implications for the design and governance of mental health apps, including how evaluation frameworks and clinical guidance can better incorporate experiential criteria central to recovery and person-centered care. By centering lived experience and employing a rigorous, theory-generating synthesis, we seek to bridge efficacy evidence, implementation realities, and ethical commitments so that mHealth apps can contribute meaningfully and safely to mental health care.

Methods

This synthesis followed Noblit and Hare's methodology, meta-ethnography, an inductive interpretative approach widely used to integrate qualitative evidence by highlighting analogies across studies (Noblit & Hare, 1988). The method proceeds through seven stages: (1) identifying the focus of the synthesis, (2) selecting relevant studies, (3) engaging in close reading and rereading to elicit central concepts, (4) examining the relationships between studies, (5) translating concepts across studies, (6) synthesising these translations, and (7) presenting the synthesis [14]. Reporting was structured according to the eMERGe guidelines for meta-ethnography [15]. Step 1 is outlined in the aims and rationale section of this review.

In step 2, we sought qualitative studies that explored the impact of mHealth apps on people with a lived experience of mental illness. Eligible studies were published in English between November

2019 and November 2024. Excluded were studies that did not specifically address the focus area, or that lacked sufficient qualitative data for synthesis. A focused search was undertaken in CINAHL because of its strong coverage of qualitative research, particularly studies centred on the lived experiences of mental illness. As meta-ethnography is an interpretive synthesis methodology rather than a comprehensive mapping of all possible studies, a focused, time-limited search strategy of this kind was sufficient to meet the review's aims [14]. Search terms included: *patient* or client* or individual* or service user* or consumer* and mental health or mental illness or mental disorder or psychiatric illness and app or mobile app or apps or mobile device applications or mobile apps or smartphone.*

Initial title and abstract screening were undertaken by LM and YCH, followed by full-text review conducted by LM, and YCH. Forward and backward citation tracking was also performed. Ultimately, five studies met inclusion criteria and shared sufficient similarity to allow for reciprocal translation synthesis [16]. These studies provided rich qualitative accounts that illuminated the experiences of emergency nurses in this context. Reciprocal translation involves iteratively mapping the findings of each study onto others to generate interpretative metaphors that capture cross-study connections in line with the review aims [14, 16]. Figure 1 illustrates the search process, while Table 1 summarises the included studies in chronological order of data collection.

As part of step 3, repeated readings of the included studies were undertaken to identify core metaphors (LM). Data extraction was conducted in NVivo 12 Plus, capturing participants' quotations as first-order constructs and authors' interpretations as second-order constructs. Reviewer reflections were also recorded, which informed the development of third-order constructs representing this meta-ethnography's interpretation (LM, YCH). A conceptual map of this analytic process is provided in Figure 2.

Methodological quality of included studies was appraised using the National Institute for Health and Care Excellence [11] criteria for qualitative research. Studies were rated as meeting all (++), some

(+), or few (-) of the quality standards. Appraisal outcomes are presented in Table 1

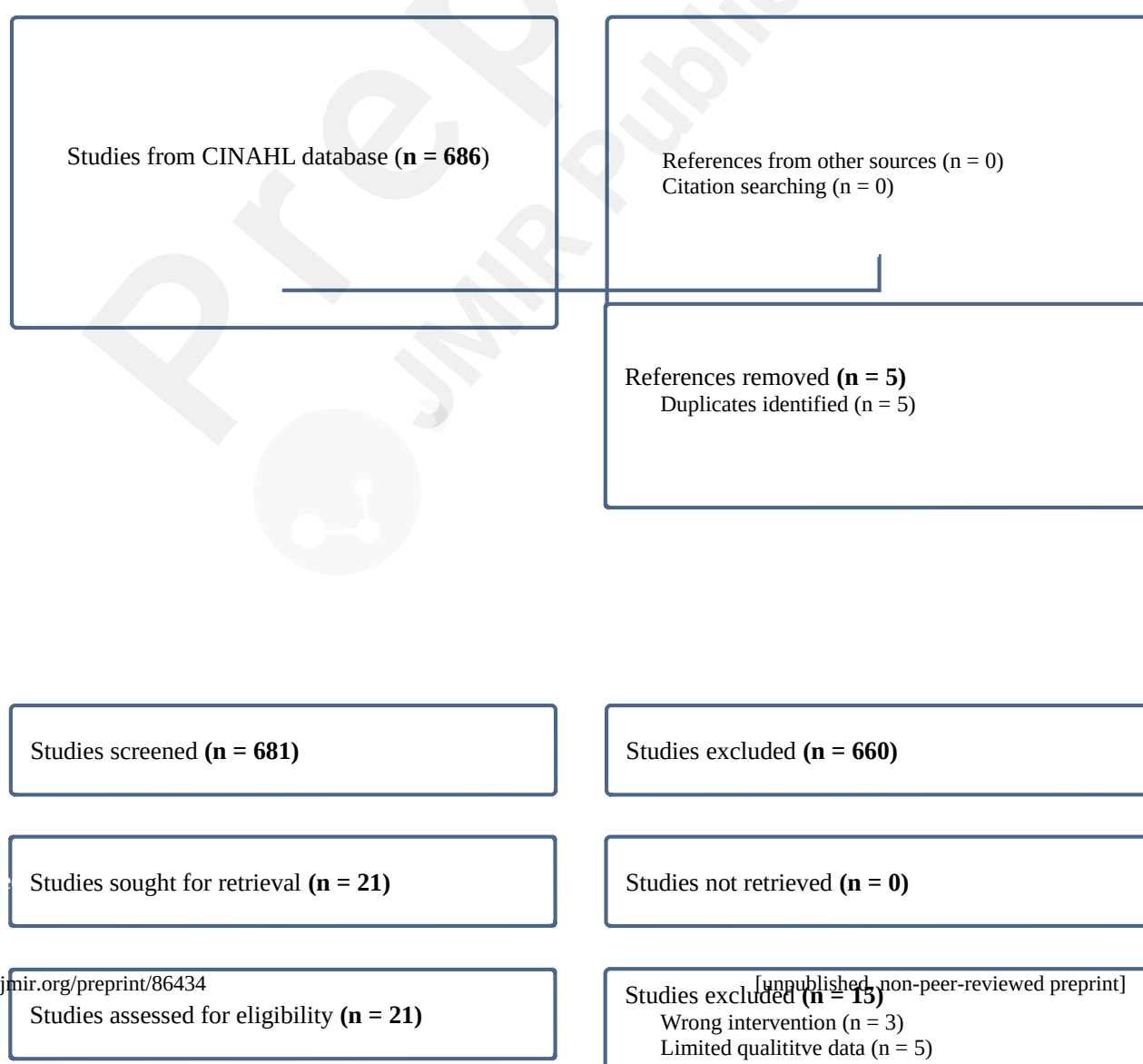


Figure 1. The PRISMA 2020 flow diagram showing the study selection process [17].

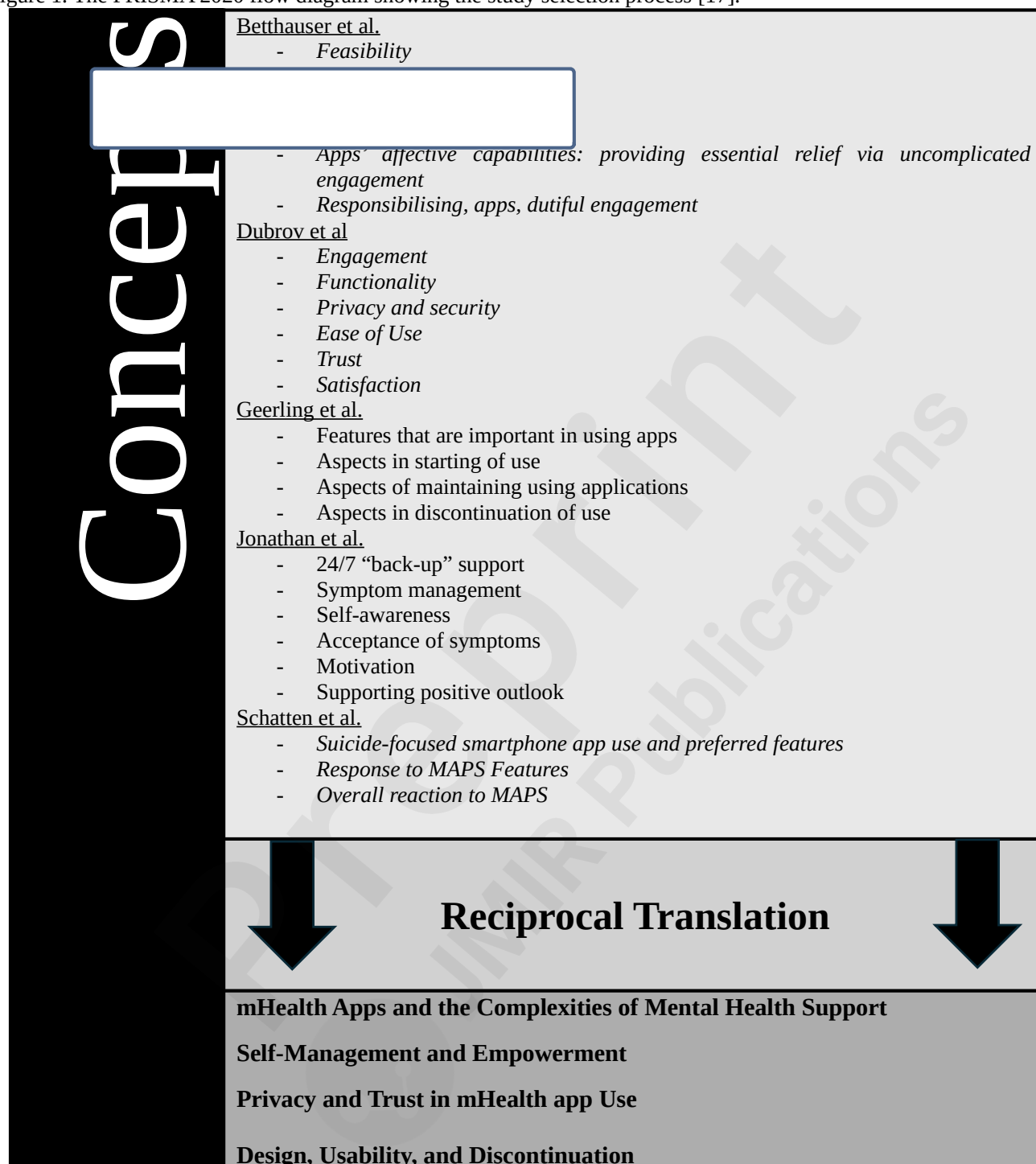


Figure 2. Conceptual map of the reciprocal translation synthesis

Author	Year	Country	Methodology/ qualitative methods	Aim	mHealth app	Qualitative sample	NICE quality score
Jonathan et	2019	United	Qualitative/	To explore how	Focus	30	++

al.		States	interviews	people integrate a mHealth intervention into their lives			
Betthausen et al.	2020	United States	Mixed methods/ interviews	To explore the feasibility and acceptability of an mHealth app.	Cogito Companion	67	++
<u>Crosby & Bonnington</u>	2020	England	Qualitative/ interviews	To better understand why people with depression or anxiety use mHealth apps.	Multiple publicly available smart phone apps, including Headspace, InsightTime, MoodJuice and Woebot.	14	++
<u>Dubrov et al</u>	2021	United States	Qualitative explorative/ interviews	To beta test the usability of a mHealth suicide prevention app.	TransLife	16	++
<u>Geerling et al.</u>	2023	Netherlands	Mixed methods/ interviews	To understand why patients with bipolar disorder start, continue, or stop using mHealth apps.	Not identified by name; several publicly available apps used by participants	11	++
<u>Schatten et al.</u>	2024	United States	Qualitative/ interviews	To explore preferences regarding a mHealth app	Mobile Application to Prevent Suicide (MAPS)	10	++

Table1. Descriptive details of studies and NICE quality scores.

Results

The six studies within this meta-ethnography explore the experiences of people using mHealth apps for mental health support using diverse app designs. The research examined mHealth apps developed for suicide prevention, depression, anxiety, bipolar disorder, and serious mental illness. Participants included individuals with a lived experience of mental illness and included focused

studies on veterans and transgender individuals. The studies employed qualitative and mixed-method approaches to investigate user engagement, acceptability, and perceived impact (see Table 1). Across the studies, mHealth apps were identified as tools for self-management, symptom monitoring, emotional regulation, and crisis support. They were often valued for their accessibility, immediacy, and personalization. However, their findings also highlight limitations such as reduced long-term engagement, technological barriers, and concerns about privacy. The studies qualitative data offered rich insights into how mHealth apps are integrated into everyday life and recovery processes.

mHealth Apps and the Complexities of Mental Health Support

People with a lived experience of mental illness identified that mobile apps were used as both a supplement to and substitute for face-to-face mental health care. For some users, their interactions with mental health services were complex and were characterized by strained relationships with providers. These circumstances shaped their engagement with mHealth apps. App use was often precipitated by perceived failures in formal mental health supports. One individual described turning to apps out of “desperation”:

“I had to take it into my own hands, quite literally.” (Crosby & Bonnington, 2020, p.929) [18].

This sense of shortcomings in care was compounded by long waiting times and a perceived over-reliance on medication within treatment approaches. Apps were positioned as filling a gap in people’s lives caused by limitations in their mental health support. One participant reflected:

“The pressure on the system... is so demanding... the quality of care you’re receiving is kind of almost diminished. Whereas an app, you have the same quality throughout.” (Crosby & Bonnington,

2020, p.929)[18].

“It’s always there to help.” (Jonathan et al., 2019, p.185) [19].

For some, their app use reduced their need for professional input, helping them resolve minor concerns and offering guidance in moments of distress.

“I would prefer [the app] to take the place of doctors... instead of having to go to appointments all the time.” (Jonathan et al., 2019, p.185) [19].

However, this substitution was not universally endorsed by participants. Some people experienced limitations from app-based support, noting that in-person care provided more nuanced assistance and interpersonal connection. For these users, apps were viewed as an adjunct for formal mental health care, not an alternative. Within a professional engagement, apps could serve as tools to enhance existing relationships with mental health care providers. One participant described using an app’s feature to communicate more effectively with their therapist:

“Now I can bring my diary and just show it to him.” (Dubov et al., 2021, p.6) [20].

People described experiences of using mHealth apps which revealed limitations of app-based support alone, particularly with the complex experiences of acute mental health issues. At times of severe anxiety, for example, smartphones in themselves could contribute to feelings of being overwhelmed, undermining the potential benefits of the apps they contained. This created a paradoxical situation, where apps that were designed to be readily available to support people’s mental health, were avoided at the time when support was most needed. As one participant explained:

“Just looking at my phone, opening it and seeing stuff that was pinging, it would just raise my anxiety levels off the scale.” (Crosby & Bonnington, 2020) [18].

Participants could also reach the limits of the supports that apps could have to offer. While many found benefits in self-help techniques, they felt that apps were not equipped with strategies that could address the broader social and environmental conditions that shaped their distress. One participant reflected on this sense of reaching an endpoint:

“I got to the stage where... I felt I can't really go any further on here... I'd reached the limit.” (Crosby & Bonnington, 2020) [18].

Self-Management and Empowerment

Participants identified that mHealth apps were useful tools that support self-management within their lived experience of mental illness. Many users positioned apps as a way to take control of their personal recovery. One participant reflected:

“I think before [using mobile apps] I thought it was somebody else's job, and they weren't doing their job. But now I think – no, actually it's my job” (Crosby & Bonnington, 2020) [18].

mHealth apps provided users with a sense of control through promoting insights in their mental health. Features such as mood monitoring, reminders, and psychoeducational content helped people to track their symptoms, regulate their emotions, and reflect on their experiences.

“Monitoring my mood has helped me regain control over my mood states” (Dubrov et al., 2021) [20].

Design features that enabled choice and personalisation reinforced a sense of autonomy. Users could decide when and how to engage with an app, adjust notifications, select preferred voices, or focus on the features most relevant to them. With their ability to provide a personalized experience, mHealth apps could support self- management.

“Most participants had a clear self-management purpose when using a health-related app, such as goal setting, collecting knowledge and insight about the illness, and finding exercises for planning and relaxation” (Geerling et al., 2021) [21].

App use could provide people hope about the possibility of recovery, helping them recognise their strengths.

“[The app] made me realize that you can help yourself if you want to, or you can take suggestions to make the situation better.” (Jonathan et al., 2021) [19].

mHealth apps supported people to gain further insight into their mental health. Apps were described as tools that could facilitate introspection, enable people to understand fluctuations in their emotional state, and prompt shifts in people’s perspective. These processes were often framed as empowering, enabling individuals to better understand their experiences and take informed action towards ensuring their wellbeing.

Participants consistently highlighted the value of mood tracking features in helping them observe changes in their mood and to identify triggers.

“Even on good days I’d say ‘hey, it was a good day!’ Cool you can have good days.” Schatten et al., [22]

“Mood logging made me more aware of my feelings, the way my mood changes over a period of time, and how to deal with mood changes.” (Dubov et al.,2021,) [20].

App use enabled users’ capacity to monitor and reflect on their emotional states, promoting deeper

insights into this domain of mental health. For example, people described how tracking their mood helped them recognise connections between their mood state and their lifestyle. These insights were not only informative but also motivational, prompting behavioural changes.

“There seems to be a correlation between my low moods and unhealthy food choices... I definitely feel better when I am more active.” (Dubov et al., 2021, p.) [20].

“Having an external measure like that really does help me, and helps me to self-manage better.” (Crosby & Bonnington, 2020) [18].

People described how app use prompted a sense of responsibility for their recovery journey. mHealth app use helped them move from rumination to action, and from passive observation to active self-management. users to engage in self-care, social interaction, and goal-directed activity. Across studies, participants described how app features prompted reflection, encouraged action, and helped sustain momentum during periods of emotional distress.

“[Being able to use the app has] made me more aware of my mental health. And more aware that I need to take action, not expect other people to take action.” (Jonathan et al., 2019.) [19].

“It makes you think if you haven’t gone out with your friends or socialized in a week or two... maybe I should go out and do something.” (Betthausen et al., 2020, p.4) [23].

Privacy and Trust in mHealth app Use

mHealth apps were often described as providing a discreet form of support, enabling individuals to engage with their mental health with a feeling of psychological security. However, for some people app use brought concerns about surveillance and the potential impact of self-disclosure within apps could have. The discreet nature of smartphone use was central to its appeal as a support for mental health. Apps offered a protected space which allowed people to engage in mental health care without drawing attention to themselves.

“No-one [knows] what you’re doing.” (Crosby & Bonnington, 2020, p.) [18].

This sense of privacy created conditions where people could access support in an unobtrusive way. Trust was a decisive factor in shaping people’s willingness to use apps. Knowing who was behind an app provided reassurance, with one person noting that transparency around company ownership made them feel their data was “*in good hands*” (Geerling et al., 2023) [21]. This trust was reinforced through consistent engagement, with some users choosing to write personal notes or use unprompted features, signalling confidence in the app’s integrity.

Yet the experience of privacy was not experienced by everyone. For some, features that tracked behaviour created an unease.

“I feel like I’m being spied on, but I know I’m not.” (Betthauser et al., 2020, p.4) [23].

Concerns about self-disclosure also shaped people’s engagement. While some people expressed little worry about data security, others described a reluctance to share personal details. For these individuals, boundaries around privacy were less about distrust and more about maintaining personal comfort in how much they revealed about themselves.

“I don’t like putting too much information about myself out there.” (Dubrov et al., 2021, p.6) [20].

Some people also feared their interactions within apps could lead to a loss of their autonomy. This included worrying that by endorsing suicidal intent, it might trigger emergency services.

“Some reservations around having emergency services called on them...” (Schatten et al., 2024, p.7) [22].

Design, Usability, and Discontinuation

The experiences of users of mHealth apps underscored the importance of their design and usability in shaping both engagement and the likelihood of discontinuation. The ease of navigation, visual appeal, and the reliability of functions all influenced whether apps were viewed as a helpful mental

health support. When these design elements aligned with user needs, apps were integrated into daily routines and when they fell short, people often disengaged. Simplicity was repeatedly emphasised as a key feature for use.

“If there’s too many components to it, like measuring things, filling out things, then I get a bit bored. I like to keep it simple because I know I’m in a hurry, so [I like to] know I can do something quickly.” (Crosby & Bonnington, 2020, p.930) [18].

App users wanted intuitive functionality, with clarity and speed being viewed as essential, particularly during periods of distress when a person’s cognitive process could be challenged. Aesthetic design also played an important role, not just in engagement but in shaping how people felt while using the app. Calming visuals and soothing sounds were described as offering an immediate therapeutic benefit for people. These design elements made apps feel less like a clinical tool and more like a supportive environment.

“It’s important for me that it’s a good experience to use the apps... if it’s aesthetically pleasing then it’s gonna help smooth me using them and lower any barriers to me using them because if I’m not well it can be a struggle.” (Crosby & Bonnington, 2020, p.931) [18].

Technical glitches were a major source of frustration and frequently precipitated people discontinuing app use. People also reported quitting apps when faced with broken links or long navigation steps. Unwanted advertisements added to frustrations, and were viewed as disruptive and distracting, and for some, a definitive reason to stop using an app.

“Well, it just annoys me when it doesn’t work... when an app doesn’t run or is very difficult, that you really have to take 20 or 30 steps before you get what you’re looking for. Then I think, yes, I do mind that.” (Geerling et al., 2023, p.7) [21].

Freedom of choice was valued, with users appreciating options such as muting notifications, selecting preferred voices, or adjusting content to suit their needs. These features enabled people to

shape their engagement on their own terms, which was seen as important in the context of mental health support.

I like the idea of being able to customize alerts and reminders from the get-go. It is so useful that the app can remind you about your meds. We used to do it with my friends, reminding each other about our meds. The mood logging reminders are also customizable, and I like that. (Dubrov et al., 2021, p.6) [20].

Discussion

This meta-ethnography indicates that mHealth apps can occupy an ambivalent yet consequential position in the everyday lives of people with lived experience of mental illness. Across the studies, mHealth apps most often served as adjuncts to supportive relationships with health professionals and scaffolded self-regulation between visits [18, 19]. They rarely replaced interpersonal mental health care. Participants described meaningful gains from use, including heightened awareness, timely coping, and a restored sense of control. However, they recognized limitations, especially during crises, when interpersonal support was favored. Integrating apps into therapeutic routines has the potential to enhance adherence and usefulness, while complimenting interpersonal mental health care. Mental health clinicians should encourage people to co-set goals for what data to track and how to use it in-session, such as reviewing weekly mood or sleep trends [19, 24].

Engagement with mHealth apps was shaped by interface design challenges and the volatility of the app ecosystem, eroding trust and accelerating discontinuation. Privacy and data-use opacity emerged as concerns that shaped people's willingness to disclose pertinent information about themselves and their help-seeking decisions [20, 21]. The trust and governance concerns voiced by participants also resonate with recent syntheses of privacy, confidentiality, and security in mHealth. A 2024 systematic review shows that patients' willingness to use mHealth apps is linked to perceived trustworthiness,

clarity about data flows, and confidence in their safeguards, with wide variability in awareness and expectations across populations [25]. Empirical audits of mHealth apps document routine third-party data sharing and inconsistent protections, underscoring the need to make privacy a key part of the clinical conversations that occur around their use [10]. Taken together, the findings identify that engagement could be supported by reliable, intuitive designs embedded within trustworthy social or institutional networks, rather than on app features alone. The findings link with other research that highlight low retention rates and rapid app-store churn for mHealth apps, which make sustained engagement difficult, even for motivated users [7, 8].

Interpreted alongside recent evidence, these findings foreground the centrality of a digital therapeutic alliance (DTA) [26]. This feeling of alliance develops from the perceived “humanness,” validation, shared goals, and flexibility that make automated tools feel supportive rather than instrumental [27]. A 2024 qualitative study of fully automated apps specifies concrete levers for strengthening DTA including human-voice elements, validating statements, personalizable paths, which align closely with participants’ preferences in this synthesis [28]. At the same time, engagement is heterogeneous; beyond non-starters, there appear to be “superusers” who sustain intensive use, suggesting that outcome-relevant engagement should be defined by “optimal enough” patterns rather than uniform adherence thresholds [29, 30]. Our findings reinforce that for DTA to be meaningful, co-design must be extended across the full development process, not just in late-stage usability tests, so that the lived priorities of users’ shape product decisions from inception [31].

Limitations

This meta-ethnography brought together findings from six qualitative studies conducted over a five-year period. Although this number was adequate to support a reciprocal translation synthesis, it nonetheless reflects a limited diversity of perspectives. Such constraints are characteristic of qualitative inquiry, which aims to generate rich, context-specific understandings that inform practice

rather than produce universally generalizable outcomes [32]. Therefore, the interpretations presented should be viewed in light of the specific contexts and populations represented in the included studies. While meta-ethnography offers a robust framework for integrating qualitative research, it remains an inherently interpretive method [14]. As such, the synthesis has been shaped by the analytical perspectives of the authors, who are nurses with established expertise and interest in this area of practice.

Conclusion

This meta-ethnography highlights that mHealth apps are experienced not as replacements for interpersonal mental health care, but as tools that mediate and extend support across peoples' daily life. Their value lies in immediacy, discretion, and a sense of control. These qualities enable users to navigate periods of vulnerability and sustain self-management between clinical encounters. However, the benefits of these tools are contingent on design and governance features that foster trust, protect privacy, and reduce cognitive effort, particularly during distress.

The synthesis identified mHealth apps as useful components within a broader ecology of mental health care, where human relationships, therapeutic alliance, and technological design interact to shape engagement. To realize their potential, development and implementation need to be guided by principles of co-design, transparency, and personalization, ensuring that users' lived experiences directly inform how safety, usability, and meaning are constructed. Integrating explicit privacy discussions and shared decision-making about app use into clinical practice can strengthen trust and sustain engagement.

Ultimately, the findings suggest that the promise of mHealth apps in mental health care depends less on technological sophistication and more on how they uphold the values of person-centered, ethical practice. By embedding these principles into design, policy, and everyday use, mHealth apps can evolve from experimental adjuncts into credible partners in personal recovery.

References

1. World Health, O., *World mental health report: Transforming mental health for all*. 2022, World Health Organization: Geneva.
2. Charlson, F.J., et al., *Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990-2019*. *The Lancet Psychiatry*, 2022. **9**(2): p. 137-150.
3. Firth, J., et al., *The efficacy of smartphone-based mental health interventions for depressive symptoms: A meta-analysis*. *World Psychiatry*, 2017. **16**(3): p. 287-298.
4. Weisel, K.K., et al., *Standalone smartphone apps for mental health: Systematic review and meta-analysis*. *NPJ Digital Medicine*, 2019. **2**: p. 118.
5. Lecomte, T., et al., *Mobile apps for mental health issues: Meta-review of meta-analyses*. *JMIR mHealth and uHealth*, 2020. **8**(5): p. e17458.
6. Serrano-Ripoll, M.J., et al., *Impact of smartphone app-based psychological interventions on depressive symptoms: Systematic review and meta-analysis*. *JMIR mHealth and uHealth*, 2022. **10**(1): p. e29621.
7. Baumel, A., et al., *Objective user engagement with mental health apps: Systematic search and panel-based usage analysis*. *Journal of Medical Internet Research*, 2019. **21**(9): p. e14567.
8. Larsen, M.E., J. Nicholas, and H. Christensen, *Quantifying app-store dynamics: Longitudinal tracking of mental-health apps*. *JMIR mHealth and uHealth*, 2016. **4**(3): p. e96.
9. Grundy, Q., et al., *Data sharing practices of medicines-related apps and the mobile ecosystem: Traffic, content, and network analysis*. *BMJ*, 2019. **364**: p. 1920.
10. Iwaya, L.H., et al., *On the privacy of mental health apps: An empirical investigation and its implications for app development*. *Empirical Software Engineering*, 2023. **28**(1): p. 2.
11. National Institute for, H. and E. Care, *Evidence standards framework for digital health technologies*. 2019, NICE: London.
12. Lagan, S., et al., *Mental health app evaluation: Updating the American Psychiatric Association's framework through a stakeholder-engaged workshop*. *Psychiatric Services*, 2021. **72**(9): p. 1095-1098.
13. Rickard, N.S., P. Kurt, and T. Meade, *Systematic assessment of the quality*

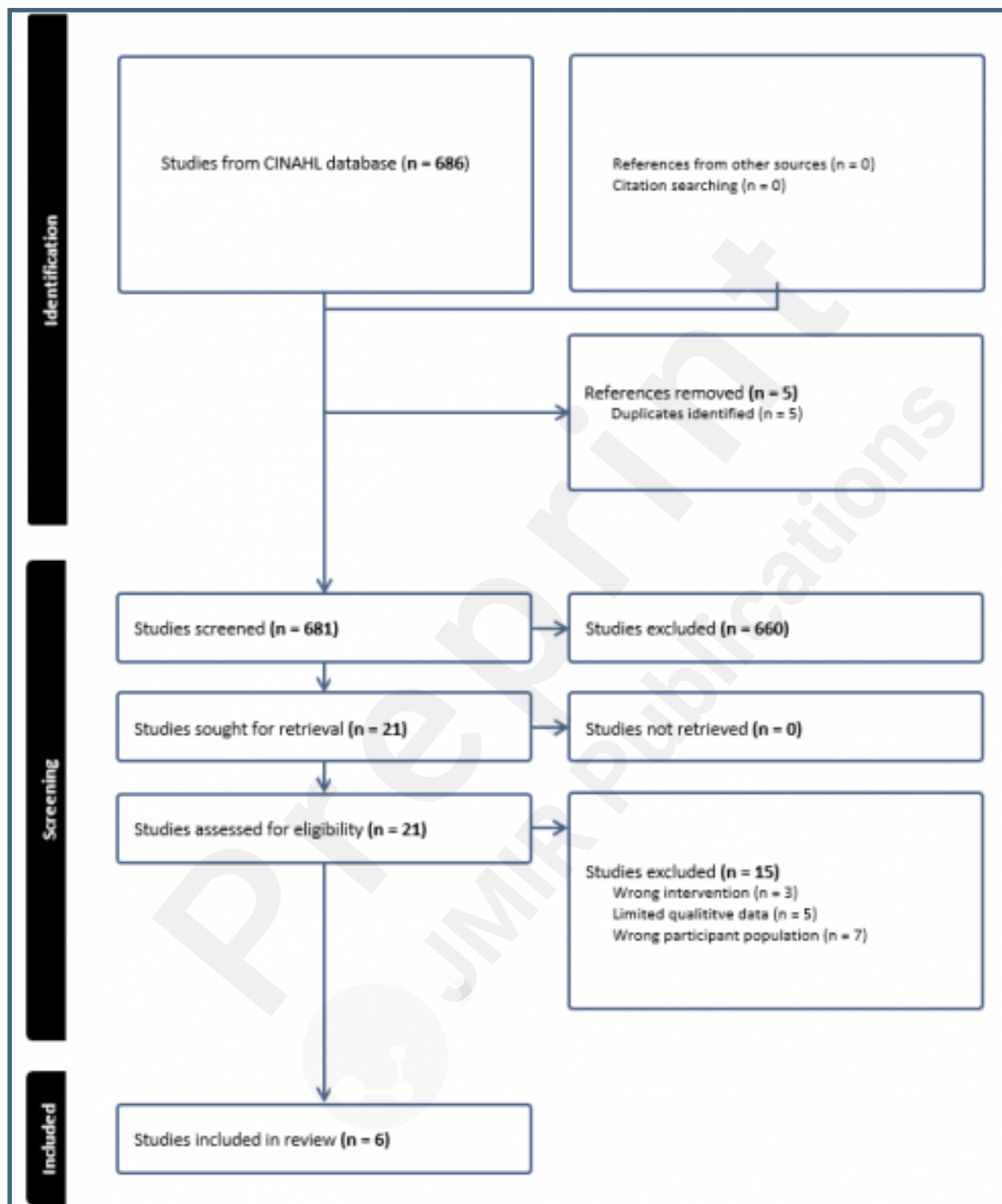
- and integrity of popular mental health smartphone apps using the APA's app evaluation model.* *Frontiers in Digital Health*, 2022. **4**: p. 1003181.
14. Noblit, G.W. and R.D. Hare, *Meta-ethnography: Synthesizing qualitative studies*. 1988, Newbury Park, CA: SAGE.
 15. France, E.F., et al., *Improving reporting of meta-ethnography: The eMERGe reporting guidance.* *BMC Medical Research Methodology*, 2019. **19**: p. 25.
 16. Sattar, R., et al., *Meta-ethnography in healthcare research: A guide to using reciprocal translation.* *BMC Health Services Research*, 2021. **21**: p. 736.
 17. Tricco, A.C., et al., *PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation.* *Annals of Internal Medicine*, 2018. **169**(7): p. 467-473.
 18. Crosby, L. and O. Bonnington, *Experiences and implications of smartphone apps for depression and anxiety.* *Sociology of Health & Illness*, 2020. **42**(4): p. 925-942.
 19. Jonathan, G., et al., *Life with FOCUS: A qualitative evaluation of the impact of a smartphone-based intervention on people with serious mental illness.* *Psychiatric Rehabilitation Journal*, 2019. **42**(2): p. 182-189.
 20. Dubov, A., et al., *Development of a smartphone app to predict and improve the rates of suicidal ideation among transgender persons (TransLife): Qualitative study.* *Journal of Medical Internet Research*, 2021. **23**(3): p. e24023.
 21. Geerling, B., et al., *Why patients diagnosed with bipolar disorder start, continue or discontinue health-related apps supporting their self-management.* *Journal of Psychiatric and Mental Health Nursing*, 2023. **30**(3): p. 537-546.
 22. Schatten, H.T., et al., *Development of the Mobile Application to Prevent Suicide (MAPS), a personalized smartphone app for suicide prevention: Feedback from individual interviews.* *Journal of Technology in Human Services*, 2024. **42**(2): p. 156-172.
 23. Betthausen, L.M., et al., *Mobile App for Mental Health Monitoring and Clinical Outreach in Veterans: Mixed Methods Feasibility and Acceptability Study.* *J Med Internet Res*, 2020. **22**(8): p. e15506.
 24. Tremain, H., et al., *The therapeutic alliance in digital mental health interventions for serious mental illnesses: Narrative review.* *JMIR Mental Health*, 2020. **7**(8): p. e17204.
 25. Alhammad, N., et al., *Patients' perspectives on the data confidentiality, privacy, and security of mHealth apps: Systematic review.* *Journal of Medical Internet Research*, 2024. **26**: p. e50715.
 26. Tong, F., et al., *Digital therapeutic alliance with fully automated mental health apps: Integrative review and qualitative explorations.* *Frontiers in Psychiatry*, 2022. **13**: p. 819623.
 27. Malouin-Lachance, A., et al., *Does the Digital Therapeutic Alliance Exist? Integrative Review.* *JMIR Mental Health*, 2025. **12**: p. e69294.
 28. Brotherdale, R., K. Berry, and S. Bucci, *A qualitative study exploring the digital therapeutic alliance with fully automated smartphone apps.* *Digital Health*, 2024. **10**: p. 20552076241277712.
 29. Lipschitz, J.M., et al., *The engagement problem: A review of engagement with digital mental health interventions and recommendations for a path*

- forward*. Current Treatment Options in Psychiatry, 2023. **10**(2): p. 119-135.
30. Boucher, E.M. and J.S. Raiker, *Engagement and retention in digital mental health interventions: A narrative review*. BMC Digital Health, 2024. **2**: p. 52.
 31. Veldmeijer, L., et al., *The involvement of service users and people with lived experience in mental health care innovation through design: Systematic review*. JMIR Mental Health, 2023. **10**: p. e46590.
 32. Polit, D.F. and C.T. Beck, *Nursing research : generating and assessing evidence for nursing practice*. 8th ed. ed. 2008, Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Supplementary Files

Figures

The PRISMA 2020 flow diagram showing the study selection process.



Conceptual map of the reciprocal translation synthesis.

