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Can experience sampling self-monitoring tools promote the activation of clients in mental healthcare? A qualitative study

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ABSTRACT

Background: Actively engaging clients in managing their health and care is crucial for person-centered mental healthcare. Self-monitoring tools such as the Experience Sampling Method (ESM) can help individuals collect information about their mental health and daily activities on their smartphones and share this with their clinicians.

Aims: This qualitative paper examines how ESM self-monitoring might enhance self-insight, self-management, self-efficacy, therapeutic alliance, and shared decision-making and this way facilitate the activation of clients in mental healthcare.

Methods: Twelve clinicians and 24 clients participated in the IMPROVE study. After using the IMPROVE ESM self-monitoring tool, seven clinicians and 11 clients were interviewed, and a thematic analysis examined participants' experiences of changes in processes related to client activation.

Results: Clients reported improvements in self-awareness, self-insight, and self-management. Only a few participants experienced enhanced self-efficacy, improved therapeutic alliances, and more client involvement. Self-awareness was mainly boosted via smartphone self-monitoring, while collaborative data interpretation between clients and clinicians was crucial for unlocking insights about clients' mental health and creating actionable therapy goals.

Conclusion: Our findings suggest that using ESM self-monitoring tools can help facilitate the activation of clients in mental healthcare. Future research should develop best practice guidelines for integrating these tools into clinical care.

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1. Introduction

While mental disorders have become the leading cause of disability worldwide, health systems struggle to meet the needs of the billions of people requiring mental healthcare (WHO, 2022). In particular, people with severe, chronic mental illness and their need for continuous care pose challenges for many healthcare systems (Nicaise et al., 2020). A person-centered care approach with a holistic focus on improving individuals' quality of life, as opposed to a narrow focus on symptom reduction, can help ensure that individuals with chronic mental illness receive appropriate care (Boardman & Dave, 2020). Person-centered care is responsive to clients' life circumstances, preferences, and values, and empowers them by offering choice and involvement in care decisions (Boardman & Dave, 2020). Therefore, an important component in achieving person-centered care is "patient activation" which aims to motivate care-seeking individuals and give them the skills and knowledge to become informed (co-)managers of their health and care (Hibbard et al., 2004; Hibbard & Gilbert, 2014).

The activation of clients can be promoted in several ways. From the person-centered mental healthcare literature, we identified five key facilitators of client activation; therapeutic alliance, shared decision-making, self-insight, self-management, and self-efficacy. The formation of a therapeutic alliance, in which clinicians and clients work together and share responsibility for the therapy, increases clients' agency. A stronger therapeutic alliance is associated with increased treatment effectiveness across a range of outcomes, including general functioning and symptom reduction (Baier et al., 2020; Dixon et al., 2016). Similarly, clients involved in *shared decision-making* concerning treatment choices report higher satisfaction with their care and show better compliance and adherence to therapy (Joosten et al., 2008). In addition, *self-insight*, which relates to the individual's understanding of their thoughts, feelings, and behaviors, is important for client activation as it helps individuals self-regulate and create desired behavioral changes (Grant et al., 2002). Increasing clients' *self-management* is another important activation and empowerment strategy. Self-management encompasses a person's daily actions to manage symptoms,

avoid relapse, and optimize well-being, which helps clients achieve better functioning and quality of life (Bodenheimer et al., 2002; Coulombe et al., 2015). Increased self-management can also positively influence clients' experiences of mastery and confidence in their ability to accomplish tasks and goals, known as *self-efficacy* (Bandura, 1977). Expectations of personal efficacy are important determinants of positive behavior change and sustainment of these in the face of obstacles and aversive experiences. Therefore, enhancing self-efficacy is important to achieve persistent improvements in clients' mental health (Bandura, 1977).

Strengthening the above components is pivotal for client activation and facilitating the context for person-centered care. Unfortunately, scarcity of time and resources can make it difficult for mental healthcare providers to sufficiently activate clients in their care (Gask & Coventry, 2012). In recent years, digital technologies have increasingly been developed and deployed into mental healthcare systems to facilitate care delivery and support more community-based person-centered care (Bond et al., 2023; Smith et al., 2023). The Experience Sampling Method (ESM; also termed ecological momentary assessment; (Myin-Germeys et al., 2018; Myin-Germeys & Kuppens, 2021)) is one digital tool that may have the potential to help facilitate community-based person-centered mental healthcare (Myin-Germeys, 2020; van Os et al., 2017). ESM is an intensive self-monitoring technique that enables individuals to collect detailed information about their mental health and daily activities by completing self-assessments on their smartphones multiple times daily. The self-monitoring data can then be summarized in visualizations that can be shared and reviewed in collaboration with clinicians (Myin-Germeys et al., 2024). ESM self-monitoring tools might promote the activation of clients by providing clients and their clinicians with better insights into how a client's mental states fluctuate over time and in different contexts and support them in working together to identify needs and therapy goals (Myin-Germeys, 2020; van Os et al., 2017).

In prior work, we have explored the feasibility and practical implications of integrating ESM tools into mental healthcare, such as required user effort and time investment (de Thurah et al., 2025; Weermeijer et al., 2023). However, examining *how* ESM tools can help facilitate the activation of clients would provide a better understanding of how and when ESM self-monitoring tools might boost person-centered care. While earlier studies have mainly focused on the feasibility and acceptability of ESM tools and whether they reduce psychiatric symptoms (Bell et al., 2018; Bonnier et al., 2025; Kramer et al., 2014) few studies considered how ESM tools influence processes related to the activation of clients, such as self-insight and self-management (Bos et al., 2020; Moore et al., 2020). To address this knowledge gap, this paper examines how ESM self-monitoring tools influence clients' perceived self-insight, self-management, and self-efficacy, as well as, the therapeutic alliance and level of shared decision-making in mental healthcare. For this purpose, we used interview data from the IMPROVE implementation pilot, which aimed to inform the implementation of digital self-monitoring tools by involving clients and clinicians in

testing and evaluating the IMPROVE tool and allowing them to express their experiences, needs, and concerns.

2. Methods

2.1. Study design and recruitment

Based on sample sizes of prior mHealth pilot research the study aimed to enroll 12 clinicians (Bauer et al., 2018; Hilliard et al., 2014; Short et al., 2018). Invitations to participate were emailed to all psychiatrists and psychologists at the University Psychiatric Center KU Leuven ($n=142$) in Belgium. Enrolled clinicians were given training and received a manual containing practical instructions on how to utilize the tool and guidance on how to inform and brief clients. Clinicians were then requested to recruit a minimum of one client from their clinical practice. Inclusion criteria were kept broad to obtain a sample that resembled the diverse reality of clinical practice. To be eligible, clinicians had to be certified mental health professionals with Dutch language proficiency. Clients had to be 18 years or older, have Dutch language proficiency, and own a smartphone with at least 3G coverage. All participants provided written informed consent, and all procedures were approved by the medical ethics committee of KU Leuven (S64244).

The IMPROVE tool comprises personalizable ESM questionnaire templates and was run on a custom-made platform in m-Path (Mestdagh et al., 2023). This platform consists of a smartphone app that allows clients to self-monitor their mental health and an online dashboard in which clinicians can schedule self-monitoring interventions and review data summaries in collaboration with their clients. For more details on the design of the IMPROVE tool see elsewhere (Weermeijer et al., 2023). Clinicians and clients were requested to utilize IMPROVE following three steps. In the first step, clinicians introduced the tool and discussed options for personalizing the self-monitoring scheme to the client's specific situation with their clients (e.g. adding personalized questions or adapting the notification schedule). Hereafter, clients self-monitored their mental health for six consecutive days. They received 10 semi-random notifications throughout the day, asking them to fill out short self-assessments evaluating momentary mood and context. In addition, they received one questionnaire in the morning assessing their sleep and motivation, and one questionnaire in the evening evaluating their day. In the final and third step, clinicians and clients reviewed the clients' self-monitoring data, which covered summaries on mood variability, activity frequencies, mood-context interaction, and sleep patterns.

2.2. Data collection and analysis

After utilizing the tool clinicians and clients were invited to participate in a semi-structured interview. The interviews sought to openly examine participants' experiences with the tool and the potential changes it had brought about in the therapy, while also prompting changes in processes related to client activation (see interview guide Appendix I). Due to COVID-19 measures, interviews were conducted via Skype (Skype for Business, 2019), and demographic information was

collected remotely via online surveys in RedCap at study enrollment (Harris et al., 2019). Interviews were conducted by a trained research assistant, audio recorded, transcribed verbatim, and pseudonymized. To shed light on how IMPROVE might affect the activation of clients, a thematic coding framework was developed based on a review of the literature (Table 1). This framework was used for initial top-down content-coding, in which we categorized the entire interview transcripts and identified material relevant to the thematic analysis.

Following this, the initial framework was refined by performing additional inductive in-vivo coding within each theme. Pattern and focused coding were used to create labels for the in-vivo codes, compile meaningful sub-themes, and reorganize and rename the original themes to better represent the findings (Saldana, 2012). To identify potential differences in clinicians' and clients' experiences, clinician and client interviews were analyzed separately. All coding was done using NVivo 14 (NVivo, 2020), and quotes to illustrate findings were translated into English. Finally, to uncover the underlying mechanisms through which ESM self-monitoring tools can drive the activation of clients, the results of the thematic analysis were mapped out in an operational model diagram. This diagram helps clarify relationships between themes in the analysis and presents results in a coherent form (Saldana, 2012). The first author led the analysis, which was refined in collaboration with co-authors during peer debriefing sessions (Nowell et al., 2017).

2.3. Patient and public involvement

This study is one of several user consultations aiming to inform and guide best practices on implementing digital

self-monitoring tools in mental healthcare from the perspective of individuals seeking mental healthcare and clinicians working in mental healthcare centers. By engaging clients and clinicians in the testing and evaluation of digital self-monitoring tools, we wish to present the voices and experiences of the users and allow them to express their goals, needs, and concerns. To improve the quality of our research, we worked with a lived-experience advisory board. While the board was only established after the initial design of the study, the board's members provided valuable feedback on the interpretation of the study's results.

3. Results

3.1. Participants demographic

Nineteen clinicians expressed interest in participating in the study, of whom 12 were enrolled. At least 29 clients were approached by clinicians, of which 24 agreed to participate. Eight clinicians and 17 clients completed the intervention, and among these seven clinicians and 11 clients subsequently participated in an interview. A demographic summary of interview participants is displayed in Table 2.

3.2. Thematic analysis

Changes in the activation of clients identified in the thematic analysis were compiled into five overall themes; (1) *self-assessments and self-awareness*, (2) *data review and (new) insights*, (3) *self-management and self-efficacy in daily life*, (4) *clients involvement and collaborative data interpretation*, and (5) *therapeutic alliance*. The main findings of each theme are depicted in Figure 1. Quotes illustrating these main findings are displayed in Table 3.

Table 1. Initial top-down framework for content-coding of interviews.

Theme	Description
Self-insight	Participants talk about how using IMPROVE has influenced clients' self-awareness. This includes any new insight they got about themselves, their mental or physical health, their context, or relationships while using IMPROVE.
Self-management	Participants talk about how clients manage their mental or overall health, and how this might have been influenced by using IMPROVE. E.g. taking medication, getting more sleep, or seeking more social interaction.
Self-efficacy	Participants talk about clients' ability to deal with challenges or tasks in their lives in general and how this might have been influenced by using IMPROVE. E.g. "Although it is difficult, I believe I will be able to find a job soon".
Therapeutic alliance	Participants talk about the relationship between them and their clinician/client and how this might have been influenced by using IMPROVE. E.g.; how do they work together, how do they perceive each other, how well do they know each other?
Shared decision making	Participants talk about how decisions about the care that clients receive are being made (collaboratively or less so), and how this might have been influenced by using IMPROVE.
Other changes	Participants talk about other changes they experienced as a consequence of using IMPROVE that do not fall under any of the other pre-defined themes

Table 2. Demographic summary of interview participants.

	Clinicians (n=7)	Clients (n=11)
Age, mean (range)	45 years (34–51)	37 years (19–58)
Gender, n (%)		
	• Female 6 (86%)	8 (73%)
	• Male 1 (14%)	3 (27%)
Profession, n (%)		
	• Psychologist 4 (57%)	
	• Nurse 2 (29%)	
	• Other health profession 1 (14%)	
Work experience in mental health care, mean [range]	14 years [5–26]	
Self-reported diagnosis, n (%) (multiple answers possible)		
	• Anxiety	4 (36%)
	• Depression	4 (36%)
	• Eating disorder	4 (36%)
	• ADHD	2 (18%)
	• Burnout	2 (18%)
	• Psychosis	2 (18%)
	• OCD	2 (18%)
	• Addiction	1 (9%)
	• Bipolar disorder	1 (9%)
	• Other	1 (9%)
	• None	2 (18%)
Duration of current therapy, n (%)		
	• Less than 6 months	5 (45%)
	• 6 months to 2 years	1 (9%)
	• More than 2 years	5 (45%)

3.2.1. Self-assessments and self-awareness

Many clients experienced that the self-assessments trained their emotional self-awareness by stimulating self-reflection. While several clients found it difficult to identify and label their emotions, many explained that using the IMPROVE tool made them spend more time reflecting on their emotions and that this helped them to better understand and “check in” with how they were feeling (Quote 1). At the same time, a number of clients also experienced the self-assessments as burdensome because they confronted them with negative emotions they were experiencing (Quote 2). Interestingly, clients who reported negative emotional experiences in response to the self-assessments still also reported experiencing benefits related to their self-awareness and self-management after using the tool.

3.2.2. Data review and (new) insights

Both clinicians and clients found that reviewing clients’ self-monitoring data was interesting and useful. Many clients experienced that their data confirmed existing beliefs and knowledge they held about their mental health, that the visualizations provided greater clarity and made the information more tangible, and that this supported them in conveying their experiences (e.g. of mood swings). At the same time, clients also experienced that the data gave them new insights into their mental health because it

allowed them to discover connections and patterns in their mental states and daily context. Reviewing the data, for example, made it clear which situations and contexts were experienced as more challenging or pleasant for clients, and also helped identify unhealthy behaviors such as irregular sleep patterns. Other important insights came from seeing how clients’ moods fluctuated over time. For example, some clients were surprised to see that they experienced negative emotions less frequently than they thought (Quote 3), or that their emotional states fluctuated less or more than they expected. In this way, the data review session created opportunities to correct clients’ negative thinking. Clinicians similarly mentioned that the data provided more details and new information about clients’ mental health, gave a useful overview of a client’s current functioning, and helped reveal dynamics and patterns in clients’ mental health in their daily lives. Several clinicians also mentioned that reviewing the data helped correct clients’ negative beliefs about themselves and how often they were feeling unwell (Quote 4). Furthermore, some clients and clinicians experienced that new insights from the data review session allowed them to identify important points that clients wanted to “work on”, which clients and clinicians could focus on going forward. This also enabled them to set specific goals and discuss concrete actional steps that could be taken to achieve them (Quote 5).

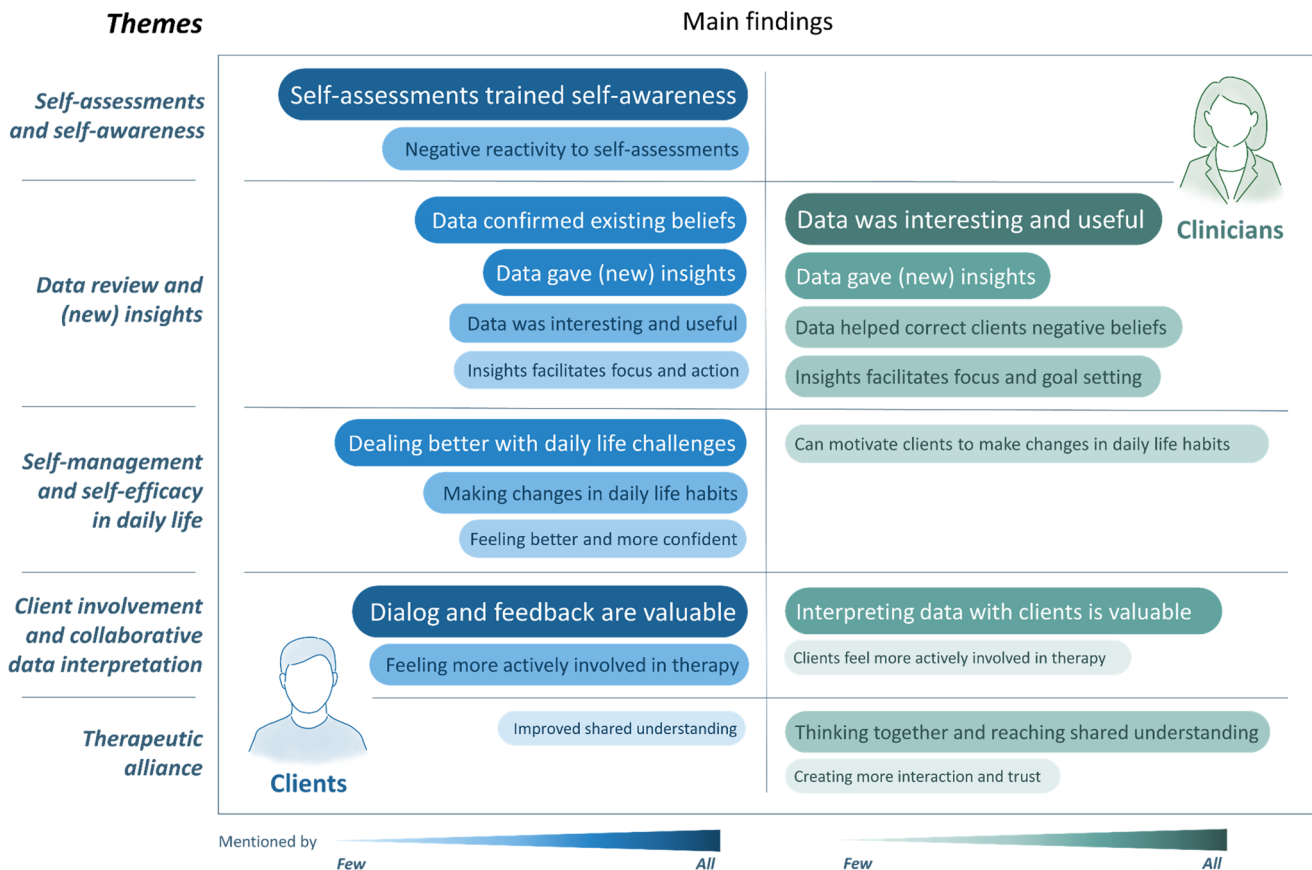


Figure 1. Overview of final themes and main findings of the thematic analysis indicating the proportion of clients and clinicians who experienced changes in therapy after using IMPROVE.

Table 3. Illustrative quotes from interviews.

Number	Quote
<i>Self-assessments and self-awareness</i>	
1	Client, female (20): "I have had a bit of an issue with my feelings. Like how to name my feelings, and I think the app helped me learn how to name them. Even if no concrete goals or anything were set during the therapy session, I was able to better identify what was going on with me. [...] also without the app, you stop more often to reflect on how you feel. To not suppress or avoid emotions, but to really be aware of them."
2	Client, female (age unknown): "Because that [negative emotions] is often something that you would rather not think too much about because it is difficult and confronting. Also because I used it [the app] in a context in which I was experiencing a lot of tension and intense emotions. Then you sometimes try to find distractions to reduce that tension, and then you suddenly get such a questionnaire and you then have to go back to the feeling you have. While you are actually trying, not to get rid of it, but just to make it tolerable. And at times like that, I did find it difficult."
<i>Data review and (new) insights</i>	
3	Client, female (41): "Up until last year I had a feeling that I was chronically depressed. I was always feeling bad. And my psychologist suggested I do that [self-monitoring] and I saw that actually there are also good moments. And I took that with me to my therapist at the mental health center, because it's not always bad."
4	Clinician, male (44): "That was the case with that client [data corrected her beliefs], and the corrective input actually came from the visualizations that we could view with shared screen. Actually, the client in general assessed her functioning as more negatively compared to when she would assess herself from moment to moment."
5	Client, female (45): "When you see it [your data] in black and white, it has an impact. More than just having someone telling you 'You have mood swings', or me saying, 'I have mood swings', or, 'I sleep irregularly'. If you really see it in black and white, it has more impact, and it might also make it easier for you to do something about it, I think."
<i>Self-management and self-efficacy in daily life</i>	
6	Client, female (25): "When IMPROVE then makes it clear, 'yes, it is difficult for you at those moments', then you know 'ah yes, oh nice, I know this, and I can tackle the problems and carry on' [...] ...for me that was more of a relief. You know which moments are difficult for you, and you can carry on, and you know, 'Ah yes, when that moment presents itself, IMPROVE has shown you, step out of it, or do this, or think for a moment, or just keep quiet, or carry on', and... I found that was easier"
7	Client, female (45): "I feel much better. I feel more in control of myself. I really feel as if I have the reins in my hands. Of my life, of my condition, of my illness. And that I can actually do something about it, that I am not just a plaything of my emotions, but that I can manage it. [...] I have become calmer and more in control and more self-confident. Because I also have more control over those mood swings. That is really good for your self-confidence."
<i>Client involvement and collaborative data interpretation</i>	
8	Client, female (age unknown): "I think the follow-up discussion [of self-monitoring data] with the clinician is really important. [...] I think it is just very important to make the correct interpretations of the data. And then also to get confirmation from someone else, or someone who can correct your misconceptions. [...] Or [someone] can think with you about; "Yes look, this is what came of it [the self-monitoring]. What can we do with it now?"
9	Clinician, female (34): "It was actually easier [to interpret data] in consultation with the client because they then very quickly linked the story to it. 'That was when this and that happened', and then you understand together 'ah okay that's why it looks like this'" "It's interesting to see what conclusions they [the clients] draw from it [the data] [...] I can say; well, you spend a lot of time alone. But it is much more interesting if someone sees it for themselves; I have been at home for days on end, alone, mostly sitting still, and my mood was bad. [...] So that they can discover those connections themselves."
<i>Therapeutic relationship</i>	
10	Clinician, female (34): "I think that when you use it [IMPROVE], you are really in a collaborative position. So you definitely review it [the data] together and thinking about it together really makes you work together. And think together. And then you get on the same page, I think, or we were on the same page in terms of conclusions. So in that sense, it was positive for the work relationship."

3.2.3. Self-management and self-efficacy in daily life

Many clients reported that they had become better at dealing with certain aspects of their daily lives after using the IMPROVE tool. For example, some experienced that they could manage stressful situations better as they had become more aware of when these would occur and how they reacted to them. Others experienced that they could deal with emotions in more constructive ways and could, for example, counteract mood swings (Quote 6). A few clients also mentioned that they had gotten better at reaching out and asking for help when they noticed they were not doing well. Furthermore, more than half of the clients reported that they intended to or had attempted to change their daily life habits based on insights from the IMPROVE tool. Examples of this were improving sleeping patterns, being more proactive in making social contact, creating more structure in their daily life, exercising more, improving eating habits, and practicing interoception. Some clinicians also mentioned that the tool could be used actively to motivate clients to make changes in their daily lives. Clients who did not experience improvements in self-management often reported that the self-monitoring data mostly confirmed their existing beliefs. Therefore, these clients might not have

felt the need to make any changes in how they managed their mental health. For some clients, the awareness and added insight about their mental health were also accompanied by feeling more confident about managing their mental health (Quote 7).

3.2.4. Client involvement and collaborative data interpretation

While most clients did not experience any direct change in the level of involvement in therapy, some mentioned that completing the self-assessments made them feel more engaged outside of the therapy room. A few clients also mentioned that the review session was interactive which they considered positive as it allowed them to give their interpretation of the data. Interestingly, many clients emphasized that the dialogue with their clinician was crucial for making sense of their data, and reported that the review session was the primary source of new insights. Furthermore, some clients experienced that it was valuable to have someone who could guide them on how to use the data and help them translate it into actional plans and follow up on these (Quote 8).

Similarly, most clinicians emphasized that they already focused on actively involving clients in their therapy, while a few also believed that the IMPROVE tool made their clients feel more involved. Clinicians would often take the lead in interpreting clients' data. Still, most clinicians found it valuable to interpret the data jointly with their clients because it allowed clients to provide additional information and elaborate on events and situations. Furthermore, clinicians found it important to encourage clients to interpret their data themselves, as this allowed them to point out things that they found important and tell their own stories (Quote 9).

3.2.5. Therapeutic relationship

Clients did not experience that the tool brought significant change in the relationship between them and their clinicians, but a few recognized that the review sessions had helped improve the shared understanding of their problems and needs. Several clinicians, on the other hand, found that the tool helped develop a shared understanding of the client's problems and situation by creating a collaborative atmosphere in which the clients and clinicians could think and work together. A few clinicians also mentioned that the tool generated more interaction between clients and clinicians, and improved clients' trust in the therapy (Quote 10).

3.3. Mechanisms driving changes in client activation

The changes experienced most often by participants were increases in clients' self-awareness, gaining useful and new insights, and improvements in clients' self-management. Our analysis suggests that two main mechanisms related to the IMPROVE tool were responsible for driving these changes (Figure 2). The first was the self-assessments that clients filled out on their phones, which encouraged self-reflection and increased clients' self-awareness of their emotions and behaviors. The second component concerned the collaborative interpretation of clients' data in the therapy room, which seemed

key to unlocking new insights about clients' mental health, identifying points of interest, and creating actionable goals. In addition, collaborative data interpretation also helped correct negative beliefs that some clients held about themselves and their situations. Together, the increased awareness and new insight enabled clients to manage their mental health better and deal with challenging daily life situations in a more constructive way, which also, in some cases, influenced clients' perceived control and self-efficacy. For some, the self-assessments and collaborative interpretation increased clients' experience of active involvement in the therapy and supported the formation of a shared understanding of the client's problems.

4. Discussion

Understanding how and when digital self-monitoring tools can help facilitate the activation of clients and support person-centered care is crucial for their meaningful application in mental healthcare. To this end, the present study provides new insights into how ESM self-monitoring tools might influence processes facilitating the activation of clients seeking mental healthcare. Three main findings require further comment. First, ESM self-monitoring tools promote self-awareness, self-insight, and self-management through two different mechanisms: repeated self-assessments in daily life and the collaborative interpretation of clients' data within the therapy setting. Second, using ESM self-monitoring did not lead to perceived changes in the client-clinician relationship, but for some, it helped develop a shared understanding of the client's situation. Finally, our findings suggest that collaborative data interpretation is a crucial, often overlooked, mechanism for enhancing client activation through ESM self-monitoring tools.

Clients in our study experienced that using an ESM self-monitoring tool improved their self-awareness, self-insight, and daily life self-management. Clients found that the self-assessments made them more aware of their mental states and that reviewing the data provided them with a better

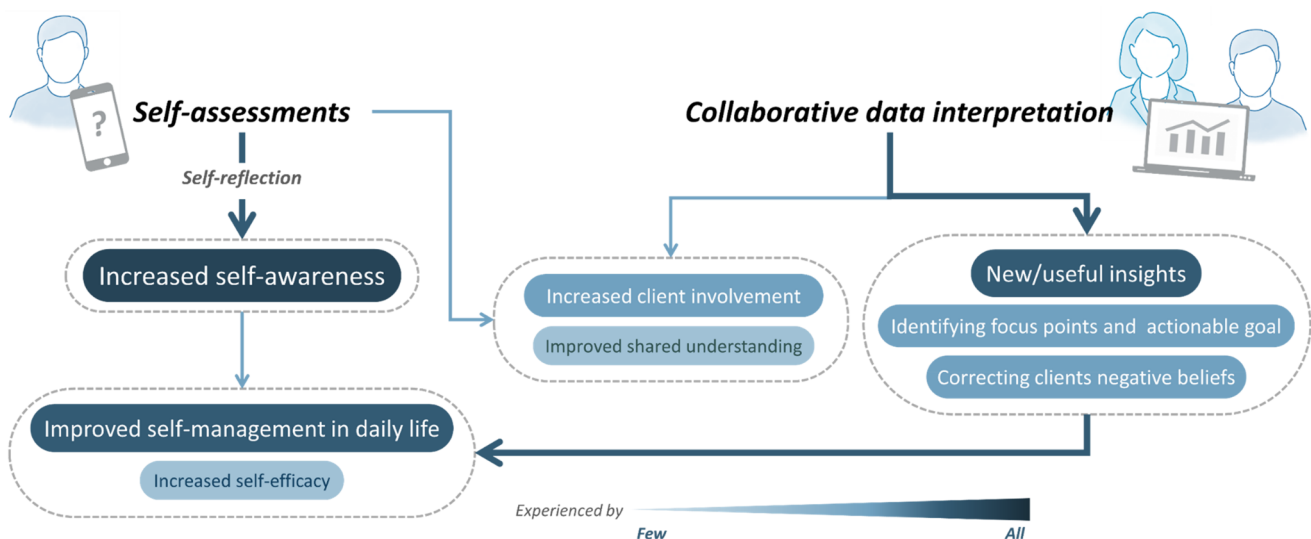


Figure 2. Operational Model Diagram, mapping the findings of the thematic analysis regarding clients' and clinicians' experiences and how these relate to each other.

understanding of how different daily life factors influenced their mental health. Even when clients were already aware of issues reflected in their data, converting these experiences into measurable parameters made the proportions of the experiences and the factors influencing them clearer. This increased intrapersonal awareness of emotions and behaviors, enabled clients to better deal with difficult situations, and apply appropriate coping strategies. These findings align with the findings of previous ESM studies in individuals with bipolar disorder and psychosis (Bos et al., 2020; Moitra et al., 2017). In addition, some clients experienced increased self-confidence when using the tool, aligning with self-monitoring research that showed that experiencing improved self-knowledge, also increases individuals' general sense of control (Lupton, 2013). At the same time, several clients experienced the self-assessments and data review as confronting. Other ESM studies have similarly found that clients may find the confrontation with their negative emotions distressing (Bos et al., 2020; Palmier-Claus et al., 2013). Interestingly, this discomfort did not prevent clients in our study from also experiencing benefits from using the IMPROVE tool. Negative emotional reactions to self-monitoring can, however, demotivate clients to engage with self-monitoring tools (de Thurah et al., 2025; Lupton, 2013). It is therefore important that clinicians support their clients in understanding and dealing with negative emotions they might experience related to the self-assessments. This could for example be addressed in pre- and post-monitoring briefings with clients.

Previous studies have found that ESM tools can positively impact client-clinician communication and the therapeutic relationship (Bos et al., 2020; Moore et al., 2020; Palmier-Claus et al., 2013), and similar findings have been observed for patient-generated data use in somatic healthcare (Lordon et al., 2020). However, in our study, only a smaller proportion of participants, mostly clinicians, experienced that using the ESM tool fostered more collaboration between clients and clinicians and involvement of clients in the therapy. This might be explained by many individuals voicing that they already had good relationships with their clients or clinicians and that clinicians already actively involved clients in the therapy. Moreover, it has been shown that the strength of therapeutic alliances often remains stable after the initial relationship has been established and that changes in therapeutic alliances occur very slowly (del Río Olvera et al., 2022; Frank & Gunderson, 1990). Therefore, the short duration of the present study (i.e., 6 d of ESM and one data review session) is likely insufficient to yield meaningful changes. However, we found that it facilitated a context in which a shared understanding of the client's problems could be developed between clients and clinicians. To understand how ESM self-monitoring tools might help strengthen a therapeutic alliance, further studies are needed with longer intervention and follow-up periods, including client-clinician dyads at the start of therapy.

In summary, our findings add to the body of research indicating that ESM self-monitoring tools strengthen processes that facilitate client activation. In particular, they enhance intra-personal processes such as self-awareness, self-insight, and self-management. Furthermore, our findings

indicate that collaborative data interpretation is an important driver for unlocking the benefits of digital self-monitoring tools in mental healthcare. Many clients and clinicians in our study reported how engaging in dialogue and reviewing the data together increased the perceived added value of self-monitoring tools. These findings are consistent with research on patient-generated health data, which shows that interpreting data collaboratively helps patients and clinicians make sense of patient's situations and improve treatment (Lordon et al., 2020; West et al., 2018). In our study, clients' were not able to review their data on their own. Although it might be convenient for clients to review their data themselves, other research has found that individuals who use self-monitoring tools on their own can find it difficult to interpret the information and lack suggestions on actions to take (Li et al., 2010). Collaborative data interpretation thus appears to be crucial for clients to understand data and convert this understanding into meaningful actions. In addition, research has shown that relying purely on "expert analysis" of ESM data does not necessarily provide meaningful clinical information as different experts can interpret the same data differently (Bastiaansen et al., 2020). This emphasizes that meaningful clinical data interpretation is not just about having statistics and data summaries available, but also about understanding an individual's situation. This suggests that how clients and clinicians integrate self-monitoring tools into existing care approaches is crucial for enabling person-centered care. Therefore, future research should focus more on understanding how ESM tools can be used effectively and under what circumstances their implementation may be beneficial. More qualitative field research, including clinical case studies across different contexts, could help develop this understanding from a pragmatic and realist viewpoint and inform the formation of evidence-practice guidelines (Jagosh, 2019).

4.1. Limitations

The findings of this study should be interpreted considering the following limitations. First, the duration of this pilot implementation was short, making it difficult to capture interpersonal processes that may take more time to unfold within therapy. Second, the study might have an overrepresentation of people who believe digital tools are useful and, therefore, also be more likely to experience the benefits of using them. None of the clients and clinicians who dropped out of the intervention agreed to participate in the interviews, while these individuals might have experienced fewer benefits from using the tool. Inspections of informal notes from participant contact records, revealed that the most commonly reported reasons for not completing the intervention were lack of time, difficulties complying with assessments, notification stress, and clients generally feeling too unwell to complete the study. Finally, this study was conducted in a psychiatric referral center in Belgium. It is possible that clients and clinicians with different demographics or within different types of healthcare settings would have somewhat different experiences of using digital self-monitoring tools than the ones identified in our study.

5. Conclusion

This study provides a better understanding of how digital self-monitoring tools might promote the activation of individuals seeking mental healthcare. Clients experienced that self-monitoring increased their self-awareness and that reviewing their data with their clinicians helped improve mental health self-insight and self-management. Collaborative data interpretation between clients and clinicians thus appears to be a key mechanism for unlocking the benefits of ESM self-monitoring tools in therapy. Building upon these findings, future research should investigate how extended use of ESM self-monitoring tools might influence the activation of clients and work towards developing best practice guidelines on how to utilize these tools to support person-centered care.

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Authors contributions

LT, GK, JW, MW, and IMG were involved in designing the study and setting up the data collection. Data analysis was undertaken in a collaboration between LT and LU. The first manuscript draft was written by LT with the support of GK. All authors contributed to the critical review of the manuscript and approved the final version.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Data availability statement

To protect study participants from potential identification the complete interview transcripts will not be made publicly available.

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