Patients' Perspectives on and Experiences of Home Exercise Programmes Delivered with a Mobile Application

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ABSTRACT

Purpose: We explored patients' perspectives on home exercise programmes (HEPs) and their experiences using a mobile application designed to facilitate home exercise. **Method:** Data were generated using qualitative, semi-structured, face-to-face interviews with 10 participants who were receiving outpatient physiotherapy. **Results:** Establishing a therapeutic partnership between physiotherapists and patients enabled therapists to customize the HEPs to the patients' lifestyles and preferences. Analysis suggests that using the mobile application improved participants' ability to integrate the HEP into their daily life and was overwhelmingly preferred to traditional paper handouts. **Conclusions:** The results suggest that efforts to engage patients in HEPs need to take their daily lives into account. To move in this direction, sample exercise prescription questions are offered. Mobile applications do not replace the clinical encounter, but they can be an effective tool and an extension of delivering personalized HEPs in an existing therapeutic partnership.

Key Words: exercise prescription; exercise therapy; mobile applications; outpatients.

RÉSUMÉ

Objectif : explorer les points de vue des patients sur les programmes d'exercices à la maison (PEM) et leurs expériences à l'égard d'une application mobile conçue pour faciliter ce type d'exercices. **Méthodologie :** les chercheurs ont obtenu des données qualitatives semi-structurées en interviewant dix participants qui recevaient des soins ambulatoires en physiothérapie. **Résultats :** en formant un partenariat thérapeutiques avec leurs patients, les physiothérapeutes pouvaient personnaliser les PEM en fonction du mode de vie et des préférences de leurs patients. Selon l'analyse, une application mobile aidait les participants à intégrer les PEM à leur quotidien. Ceux-ci la préféraient massivement aux feuilles de renseignements habituels. **Conclusions :** d'après les résultats, les mesures pour que les patients s'investissent dans leur PEM doivent tenir compte du quotidien. Pour aller en ce sens, des questions sur les modèles de prescription d'exercices sont proposées. Les applications mobiles ne remplacent pas la rencontre clinique, mais peuvent constituer un outil efficace et compléter le PEM personnalisé dans le cadre d'un partenariat thérapeutique établi.

In outpatient physiotherapy practice, exercise is considered to be an effective intervention for managing a variety of musculoskeletal conditions.¹ As part of their treatment plans, physiotherapists routinely prescribe exercise in the form of a home exercise programme (HEP). HEPs are typically long term, and their success often requires patients to adhere to them for several weeks, even months.^{2,3} Although it is widely recognized that adhering to a HEP facilitates effective treatment,^{4,5} the rate of non-adherence to physiotherapy HEPs is overwhelmingly high,

and it is not uncommon for it to be more than 65%.⁶ Non-adherence to a HEP, in turn, compromises the potential effectiveness of physiotherapy treatment. In this article, we use *adherence* rather than *compliance*, even though both terms are commonly used interchangeably in the literature. *Adherence* acknowledges that patients are actively engaged in making decisions about their own treatment,^{4,7} whereas *compliance* implies the paternalistic assumption that patients should submit to a health care provider's advice without question.^{7,8}

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Commonly cited challenges to HEP adherence include a discordant relationship between patient and therapist,^{4,9} patients' inability to fit exercise into their daily routine,⁹ the perceived effectiveness of the intervention,¹⁰ decreased social support,¹¹ and a low level of baseline physical activity.¹² In addition to these challenges, the method by which a HEP is prescribed and delivered may influence the degree to which a patient follows it.¹³

Traditionally, verbal communication, written instructions, or both have been the predominant methods used in prescribing a HEP, yet they have had varied success.^{14,15} However, emerging research from other health care fields such as medicine, chiropractic, and nursing has suggested that the use of technology can potentially improve patient outcomes.^{16–20} Mobile applications for prescribing exercise are emerging in the field of physiotherapy and are designed to offer new ways of influencing patient engagement in today's technologically advanced society.

Although extensive research has been conducted regarding adherence to a HEP in physiotherapy,^{1,4–7,9–14} much of it has used quantitative methodologies and approached the topic from the professionals' point of view.^{1,6,8–11} As a result, little is known about patients' perspectives regarding adherence to a HEP and how a physiotherapy HEP may fit into their daily lives. Moreover, although the use of mobile technology as a treatment tool has been investigated in various health care domains,^{16–20} there is a dearth of physiotherapy-specific research and no previous qualitative research with respect to its use for physiotherapy HEPs. For example, the research on using technology to increase patient engagement with physiotherapy programmes is very limited,²¹ and there is no research on the use of mobile applications to deliver physiotherapy HEPs. This knowledge gap prompts the need to investigate the role of mobile applications in physiotherapy HEPs. In this article, we describe a qualitative study designed to address this gap by (1) exploring the experiences and perspectives of physiotherapy outpatients with respect to their HEP and (2) examining how using a mobile application to deliver a HEP affects how it is integrated into a patient's daily life.

METHODS

Study design

We used a descriptive qualitative methodology²² to explore, in depth, patients' experiences with and perspectives regarding mobile application use for physiotherapy HEPs. Descriptive qualitative research is a form of interpretive research in which researchers "stay close to their data"^{22(p.336)} to interpret the life experiences of a group of individuals.²³ Interpretive research holds that reality is fluid, multiple, subjective, and contingent on the meanings (ontological relativism) ascribed to "objects, events and practices."^{24 (p.12)} Thus, knowledge is socially con-

Table 1 Participant Characteristics

Pseudonym	Age	Gender	Occupation
Blue	45	Female	Acupuncturist, business owner
Claire	29	Female	Librarian
Sarah	32	Female	Programme manager, special projects
Pipetto	53	Male	Director
Melissa	36	Female	Administrative assistant
Sandra	54	Female	Maintenance staff
Jodi	36	Female	Acupuncturist
Scott	30	Male	Power line technician
Celine	32	Female	Marketing and public relations specialist
Charlie	27	Male	Dancer/choreographer

structed through people's interactions with others who are situated in their social and cultural environments²⁵ (epistemological subjectivism). Ethics approval to conduct this study was obtained from the University of Toronto Office of Research Ethics. All participants provided written, informed consent.

Participants and setting

This study was conducted with 10 participants (7 women, 3 men) who received acute and chronic treatment between December 2015 and May 2016 from two physiotherapists at one outpatient private practice clinic. (Their demographic characteristics are set out in Table 1.) All participants met the following inclusion criteria: They were aged 25–55 years, had received an orthopaedic diagnosis,²⁶ were able to provide consent, were willing and able to participate in a face-to-face interview in English, and had at least 1 month's experience using the mobile application Embodia (developed in part by MB, an orthopaedic physiotherapist; features include exercise notification reminders, ability to track symptoms, video-based exercises and education, and instant messaging with the physiotherapist). Participants varied in their orthopaedic diagnosis, frequency of physiotherapy treatment sessions, previous experience with physiotherapy, and occupation.

Given that the patients were at the clinic receiving treatment, a convenience sampling framework²⁷ was used whereby all individuals who met the study inclusion criteria in the specified time frame were invited to participate. We anticipated that the homogeneous sample in our study would be large enough to generate consistent themes, while at the same time we recognized that saturation might not be achieved across the study findings. All interviews were conducted between December 2015 and June 2016. Seven interviews were conducted in a private space at the clinic, two were conducted at the participants' workplace, and one was conducted at the participant's home.

Data generation

Qualitative data were generated by conducting semi-structured, face-to-face interviews with each participant. A flexible interview guide was developed based on the literature and the research goals to elicit discussion with participants about their previous and current experiences with physiotherapy, HEPs, and Embodia. Given the iterative nature of qualitative research,²⁸ the interview guide was modified whenever new information emerged from successive interviews. Two researchers conducted alternating interviews, which were 30–60 minutes long. Interviews were digitally audio-recorded, transcribed verbatim, and uploaded to NVivo, version 10 (QSR International Pty Ltd, Doncaster, VIC, Australia) to manage the data and support our analysis. Transcripts were de-identified, and each participant was assigned a pseudonym to ensure confidentiality. The interviewers took reflexive notes immediately after each interview to record observations, tone of language, comments made off tape, and initial impressions of the encounter.²⁹ Data generation and analysis were conducted concurrently to allow us to explore the co-constructed findings in subsequent interviews.

Analysis procedures

Data analysis procedures were based on the thematic approach described by Dierckx de Casterle and colleagues³⁰ as follows. The audio recordings were transcribed verbatim by two researchers, and the original interviewer reviewed the transcript to ensure its accuracy. The analysis began with an interviewer writing down his or her initial impressions and potential codes in a reflexive diary after each interview. The research team consisted of five physiotherapy students, two researchers with qualitative expertise, and MB. Everyone except MB independently reviewed the transcripts and notes and recorded their initial impressions and analyses. (Besides co-creating Embodia, MB was the treating physiotherapist for some of the participants. To maintain confidentiality, she did not know who was participating in the study and did not review the transcripts.)

After reviewing the first three transcripts, the team met as a group to discuss their impressions, revise the interview guide, and engage in line-by-line coding to develop an initial coding scheme for the remaining data. All team members reviewed the summary coding reports independently and attended five subsequent meetings to map out the categories and their thematic relationships.³¹ Analysis was complete once the main findings of the study had been established and all inconsistencies had been recognized and resolved.³² Several strategies contributed to the methodological rigour of the research: the varied expertise of the research team; the use of multiple coders and analysts; the review of transcript accuracy by the original interviewer; the use of reflexive dialogue, analytical memos, and a consistent interpretivist approach; and the constant comparative group-analysis meetings.³²

RESULTS

In what follows, we discuss the participants' perspectives on and experiences with physiotherapy HEPs and their use of the mobile application. The discussion is organized into three themes: (1) collaboration and negotiation, which describes the factors that fostered an environment for collaborative decision making; (2) customization, which summarizes the noteworthy individual mediators of exercise adherence; and (3) mobile technology, which explores the participants' experiences with using the mobile application as an adjunct to receiving a HEP and which emphasizes that the participants considered the application not as a replacement for but rather as an extension of their physiotherapist. These three themes support our main finding: that developing and modifying a HEP is a process that requires ongoing collaboration and negotiation between patient and physiotherapist.

Collaboration and negotiation: a therapeutic partnership

All participants described how establishing a therapeutic partnership during the first few clinical encounters created a foundation for an ongoing collaborative and iterative approach to treatment. This partnership was vital to both providing the patients with a positive physiotherapy experience and facilitating their ability to take an active role in the development, completion, and modification of their HEPs. Patient education was a vehicle used by the physiotherapists to construct a therapeutic partnership with the patients. As Blue expressed, patients preferred education that was tailored to their personal knowledge level, experience, learning style, and level of understanding: "If [my physiotherapist is] explaining something, she really does it in plain language, which is brilliant ... she's very good at meeting people right where they are ... she'll match what's needed, and that's actually quite an unusual quality."

Participants appreciated having the opportunity to ask their physiotherapist questions to clarify their understanding. Praising her physiotherapist's ability to provide her with a sound rationale for how her exercises related to her injury, Melissa stated,

There's nothing worse to me than someone saying, "Just do this exercise," and you really don't know what you're supposed to be working [on] ... and if you don't know what you're supposed to be working on, you can be doing it for 3 weeks, and it makes no difference, right? Unless you know what the goal of it is, why you're doing it ... it really doesn't come with the impact if you're not understanding.

Although education was an integral component of building therapeutic partnerships to enhance patients' engagement with their HEP, participants equally emphasized that adhering to their HEP was hindered when their physiotherapist did not educate them in a manner that was specific to their needs. For participants such as Charlie, education that was not tailored to his level of understanding detracted from the opportunity to develop

rapport and trust between patient and therapist; as a result, it negatively shaped the physiotherapy experience.

It [the HEP] was explained as if I knew the exercise itself, which I guess I should appreciate that 'cause it's really awesome that the physiotherapist thinks I'm smart, but I'm not when it comes to those exercises. So I would have loved if it was explained to me as if I was a toddler. ... And that might be why I don't fully understand them; however, when [I] asked for clarification it was still not explained, ... which made me question what was the purpose of the exercise and are you just doing this so that I come back to you? ... I guess it impacted me in doing them less.

Participants valued instances in which their physiotherapist collaborated with them to both develop and modify their HEP as needed to meet their individual needs. As Melissa remarked, working in partnership with her therapist was a tremendous impetus to continue with the HEP. "I'm glad that she's modified my exercises to what my actual experience of them is. And if it's something I don't like to do ... she'll cut it out and replace it with something else instead."

This collaborative, two-way communication approach to prescribing HEPs was not only essential to facilitating adherence but also fostered and maintained the integrity of the therapeutic partnership. This collaborative approach was established during the initial assessment and, also important, continued throughout later encounters. Claire noted,

I do discuss what's on my programme with [my physiotherapist] so that it's achievable 'cause I have trouble getting 100% on my daily activities.... [The physiotherapist] would follow up on how much I'm doing them, if they're good timing for me, if they're working for me.... Keeping it relatively fresh just to keep things a little more interesting.

As these excerpts show, participants valued the opportunity to negotiate customizing their HEP, and thorough discussions about using a HEP were necessary at each follow-up visit to ensure that patient and therapist continued their collaboration and that the HEP remained feasible. Study participants said that by engaging in open discussions, their physiotherapist could gain insight into their life, which in turn increased the likelihood that they would continue with their HEP. We now turn to a discussion of the most pervasive contextual factors that were identified in the participants' accounts.

Customization: mediators of adherence

Patients emphasized that it was important for their physiotherapist to take into account their activities of daily living and preferences so that together they could create a sustainable HEP. One of the most important mediators of adherence was time. Across the accounts, a busy schedule was a common barrier to consistently

carrying out a HEP. For example, Scott said, "I'm consistent [with my exercises] when my life is consistent; let's put it that way."

Although temporal mediators constrained completing a HEP, participants were more likely to complete it when they had a routine in place. As Melissa remarked, designating certain times of day to do her HEP helped her maintain this consistency. "Some things that make it easier are having a dedicated time.... I get up that extra hour early so I can get everything done, and it's planned into my day." Notably, however, when their routine was disrupted, participants expressed difficulty fitting their exercises into their day. As Blue said, "If I can do it first thing, it gets done; if I can't do it first thing, it actually very often doesn't.... So there's times when I'm just like, yup, no time for the exercises."

Although participants remarked that time significantly shaped their ability to complete their HEP, participants also discussed the importance of the physical environment. The way in which participants were, or were not, able to complete their exercises at their workplace depended on both the environment and the individual. Melissa, who worked as an administrative assistant, stated that completing her HEP at work was fraught with privacy issues because she worked in an open-concept area. Other study participants expressed concern that by frequently setting aside time to do their exercises, colleagues presumed that they were not prioritizing their work responsibilities. Despite initially being fearful of her colleagues observing her at work, Sandra noted that the benefits of following her HEP outweighed her apprehensions. She remarked, "I'd never do exercises at work 'cause I was afraid somebody would see me. Now I don't care.... It makes me feel good; I don't care."

For participants in this study, completing their HEP was a deeply nuanced process—even the complexity of the exercises shaped where and how often they were able to do them. When exercises required specific equipment or a particular set-up, participants remarked that they were less likely to do them in a particular workspace. Sarah noted,

If it's kind of a simple exercise where I just have to, like, stretch, I find it's easier to do. But if I have to, like, get out the yoga mat, get my ball, go lie on the ground, you know—get my iPhone to time the things—that might be a bit more involved.

As can be seen, the complexity of a HEP includes not only the mechanics of the exercise but also the wider social-contextual factors that shape a patient's life to ensure that the HEP is feasible. Thus, to customize a HEP effectively, a physiotherapist must coordinate a multitude of mediators to help patients incorporate therapeutic exercises into their lives.

Mobile technology: patients' experiences with a mobile application

Because it had the potential to enhance their engagement, participants were generally positive about their experiences with using the mobile application; they noted that they preferred the application's format to paper-based handouts because it was accessible and practical. When asked to compare the two methods of delivery, Blue said that there was "no comparison.... This is one of the situations where we're lucky to have the technology that I sometimes resent a little bit." This statement reflects the positive impact that the mobile application had on participants' HEP experiences, even for those who were not avid technology users. In addition, participants stated that they disliked traditional exercise handouts because they did not reinforce the correct technique they had learned in the clinic. For example, Celine stated,

[Before] I had handouts with stick figures, and sometimes I actually didn't have anything. They would just show me the exercise and say, "Okay, you have to do this, this many times at home." [That] was hard because ... I would see it and then say, "Okay, got it," and then I'd go home and be like, wait, I don't know what I'm doing. I'd question if I was doing it properly, and ... are you actually getting the benefit of the exercise if you're not doing it right?

Similarly, nine participants found that the mobile application's videos helped them when they were unsure how to complete the exercises properly. For example, Claire remarked, "I do find the videos very helpful.... I'll want a refresher on it even though it has been shown to me in person and I have done it a few times.... Making sure I'm getting the proper technique ... is very valuable."

The participants had different things to say about other features of the mobile application. Some found that the reminders feature acted as an external motivator, in part transferring the responsibility of remembering to do the exercises from the patient to the application. Celine noted how this helped improve her adherence.

I also really enjoy having all of the reminders because, that way, I don't have to use my own brain and I can just set it and then make sure that I get things done.... So for me, I find it to be so much easier, and it's just helped me sort of organize and be more compliant with my exercises.

Half of the participants said that the reminders were useful, but only if they had been customized to fit into the participants' daily routines. For instance, Charlie, who worked as a dancer and choreographer, chose to turn off the reminders because he "found it very disruptive.... My day-to-day changes, so I might be in the studio, and my phone's going off, which is super-unprofessional.... So, yeah, not for me." Thus, to benefit from

this feature, the patients and physiotherapists needed to discuss what would likely work, or not, in each patient's daily life and set up the reminders according to the patient's preferences. As a result, the participants considered the application to be valuable when its features represented an already existing, co-created HEP that was feasible and achievable for them.

Participants noted that using a mobile application to deliver a HEP had the potential to enhance the therapeutic relationship by creating an interactive and ongoing connection between them and their physiotherapist. Some participants described how the mobile application was an extension of their therapist once they left the clinical setting, but that it did not replace the therapist. For example, Charlie said, "So in a perfect world, I'm seeing my physiotherapist ... doing home exercises, but not looking at this app as a replacement service." Other participants echoed these comments, suggesting that the face-to-face interaction was an important aspect of the therapeutic partnership. Blue put it succinctly. "Embodia is great, but I think it's really that [my physiotherapist] is so great." Thus, when a co-created, customized HEP reflected a patient's daily life, the mobile application acted as a valuable tool for augmenting, but not replacing, the patient-therapist encounter.

DISCUSSION

In this study, we examined patients' perspectives on HEPs and their experiences with using a mobile application designed to facilitate their engaging in exercise. We found that integrating the application into the delivery of HEPs enhanced this engagement. However, the mobile application was solely a method for delivering HEPs; it did not replace the critical components of a clinical encounter between patient and practitioner. Our findings suggest that establishing a therapeutic partnership between patient and physiotherapist was of utmost importance in customizing HEPs to patients' everyday lives. Through a process of collaboration and negotiation, the physiotherapists and participants determined what mediators would facilitate the participants successfully carrying out the HEP. This process was critical to developing the HEPs, and it increased the likelihood that the participants would complete them. We found that when principles of personalization guided the development of the HEPs, the mobile application could improve their integration into the patients' daily lives.

Previous research has suggested several common barriers to HEP completion: busy work schedules,^{7,11} lack of time,^{6,7,11} convenience challenges,^{7,11} forgetting,^{4,6,7,11} an inability to integrate exercises into daily routines,⁶ and complexity of the exercises,^{9,10} but our findings reveal that non-adherence to the HEPs was embedded in more complex processes. For instance, we found that the ability to exercise in the work environment was influenced not only by time and potential equipment challenges but

also by social forces, such as the fear of being judged by colleagues.

Furthermore, although it has been recognized that perceived comfort, equipment, and environment are mediators that can influence a patient's adherence to a particular exercise in a HEP,⁹ our findings suggest that socio-contextual factors such as time of day (carving out a specific time for exercises) and lifestyle (incorporating the exercises into day-to-day activities) also encourage adherence. To this end, our research suggests that mediators of adherence do not exist in monolithic and static isolation from one another, as has been described in the literature. Rather, they often intersect and overlap, are specific to an individual, and need to be considered by physiotherapists when working with patients to prescribe effective and sustainable HEPs.

One way to account for these socio-contextual mediators is for physiotherapists to build a therapeutic partnership with patients. Consistent with Pinto and colleagues, our study findings suggest that if a physiotherapist's approach to communication meets each patient's knowledge level and learning style,^{2,4} it can foster a positive relationship with the patient. In our study, when education about a HEP was not tailored to participants' knowledge level or did not reflect the circumstances of their daily life, they reported negative perceptions of the physiotherapy experience and were less likely to complete their HEP.

Building on Jensen and Lorishe's³³ process model for patient-practitioner collaboration, our findings suggest that physiotherapists should establish an environment that encourages ongoing dialogue with their patients so that they can enjoy meaningful negotiation. Thus, we suggest that physiotherapists and patients work in partnership, with the goal of creating a mutually agreed-on treatment regimen that fits into, and reflects, a patient's life. Moving beyond traditional methods of autocratic (top-down) and didactic exercise prescription can ensure that patients are satisfied with the experience of integrating the HEP into their lives and that they are successful. To move in this direction, in the Appendix we offer sample exercise prescription questions that physiotherapists can ask.

In addition to establishing a therapeutic partnership to meet patients' individualized needs, the findings suggest that the integration of mobile technology in physiotherapy can improve how patients integrate HEPs into their daily activities. Although we set out in this study to investigate whether and how a mobile application shaped participants' engagement with their HEP, we found that a strong therapeutic partnership between the participants and their physiotherapist, one that considered each patient's daily activities in developing his or her HEP, was the most important indicator of experience and engagement. A secondary finding was that a mobile

application can function as an extension of this relationship, but only if its features are customized according to the principles discussed earlier. The extant research regarding methods of HEP delivery has reported that patient adherence may increase when verbal instructions and demonstrations are used to reinforce traditional forms of HEP delivery (such as written and illustrated paper-based instructions).¹⁴ The majority of our participants expressed a preference for mobile technology as a tool for delivering their HEP; this suggests that mobile applications can provide a new, effective alternative to prescribing HEPs.

Although mobile HEP applications can be a valuable resource, we acknowledge that it is important to remain cautious regarding wholeheartedly extolling the virtues of rehabilitation delivered using technology. Such an effort may be helpful in many ways, but it can have ramifications beyond the intended outcomes. For example, although receiving feedback about one's performance can be motivational for some, it can have the opposite effect for others: Patients can feel like failures if they do not perform a particular exercise correctly or if they do not follow or complete the HEP within the given parameters. Furthermore, because electronic tools can facilitate tracking and completion of a HEP and reminders to complete one, uncritically promulgating technology in HEPs risks potentially (re)producing guilt-producing moral imperatives.

Given that self-tracking practices and technologies are reductive and selective but also productive in instrumentalizing exercise as a particular kind of medicine,³⁴⁻³⁶ using only technology in rehabilitation can limit other elements of exercise such as pleasure, spontaneity, freedom, and creativity. In this sense, applications can be an extension of a therapist in both positive and negative ways, and these may vary among patients or have both effects on the same patient. However, they are not a replacement for face-to-face interaction with a therapist; instead, they are an adjunct tool that can be an extension of the physiotherapist-patient encounter.

Despite the many strengths of this research, this study has limitations that present opportunities for future research. This study recruited a small number of participants from a single Canadian clinic and a single city; further research with a larger, more diverse sample is warranted. Further research is also needed to capture the perspectives of individuals across jurisdictions, age groups, diagnoses, socio-economic backgrounds, and cultures. Investigations into physiotherapists' experiences with and perspectives on using technology to deliver HEPs would be particularly enlightening. We hope that the results of this study stimulate discussion about how physiotherapists can continue to meet the needs and abilities of their patients by creating specific, meaningful, achievable, and modifiable HEPs.

CONCLUSIONS

This qualitative study examined patients' perspectives on HEPs and their experiences with a mobile application designed to facilitate them. Our research suggests that such technology is most effective when it is an extension of a therapist's treatment rather than a replacement for in-person interaction. Thus, it is important that the discussion include the patient's preferences, experiences, and daily activities. Our research speaks to the need for continual, face-to-face contact, and developing a therapeutic partnership between patient and physiotherapist, to achieve this goal. Although a mobile application is a potentially powerful and positive tool to enhance patients' experience with HEPs, we suggest using caution in integrating these tools into practice because they cannot function effectively in isolation.

KEY MESSAGES

What is already known on this topic

Adherence levels to physiotherapy home exercise programmes (HEPs) in outpatient practice are reportedly low. Although there are commonly cited barriers to adherence, there is a dearth of physiotherapy-specific research and no previous qualitative research into the unique factors that shape a patient's engagement with physiotherapy HEPs. In physiotherapy, novel mobile applications are being developed to influence patient engagement; however, little is known about how they apply to HEPs, including what patients think about them.

What this study adds

This study is the first to explore the influence of mobile technology on HEP delivery from the patient's perspective. Although a mobile application is a potential tool for enhancing a patient's experience of HEPs, the collaboration that occurs between therapist and patient to create a customized HEP cannot be carried out with an application alone. This study reveals the need for continual, face-to-face contact and development of a therapeutic partnership between patient and physiotherapist to create a feasible HEP that fits into patients' daily lives.

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APPENDIX SAMPLE EXERCISE PRESCRIPTION QUESTIONS

Initial Visit

1. How much time within your day do you think you can dedicate to a HEP?
2. What times of day are most convenient for you to do your exercises and why?
 - For example, some patients wake up an extra 10 minutes early in the morning, others do them before bedtime, and some patients do them multiple times throughout the day. What do you think would work best for you?
3. What is your work environment like? Could you see yourself completing all or a portion of your exercises during your workday?
4. What equipment can you regularly access at home or at a gym? Would you prefer exercises that incorporate this equipment or not?

Follow-Up

Preamble: Let’s discuss your exercise program and see what we have to tweak in terms of what you liked and did not like and how it fit with your life.

1. Were you able to find enough time to fit the exercises into your day? Why or why not?
2. What were some challenges you had with incorporating your HEP into your daily life?
3. How feasible is it for you to complete the exercises as prescribed? Would you like to change anything? The repetitions or sets?
4. Were you unsure of how to perform any of the exercises? Would you like to review them together?
5. How did you find the exercises in terms of difficulty or simplicity?
6. Do you find you are still engaged in your HEP? Would you like to change/add things to keep it interesting?
7. If using Embodia: How have you been finding the app? Are you having any difficulty accessing your HEP through the app? Have you set up the reminders? Are they notifying you at the correct times, or do you find them to be inconvenient? Would you like me to review the features and how to use them?