

# The Promise of Personalized Care: Patients' Experiences of a Technology-Supported Lifestyle Change Program

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## Abstract

Technology-supported lifestyle change programs are increasingly integrated into preventive health strategies. In the context of atrial fibrillation (AFib), a condition marked by fluctuating symptoms, fatigue and co-morbidities, patients face unique challenges in navigating lifestyle change before ablation surgery. Drawing on interviews with 12 patients enrolled in a nurse-led, technology-supported lifestyle change program, we explore how they experience care. Through reflexive thematic analysis, we surface patients' high expectations for personalized support and reveal how meaningful personalization was most often enacted by healthcare professionals—not digital systems. We critically reflect on how personalization is operationalized in hybrid care pathways, and how digital tools can fall short in addressing the relational and contextual dimensions of care. We contribute insights into the tensions between scalable personalization and relational care, and invite rethinking the role of technology in supporting nuanced, patient-centered experiences.

## CCS Concepts

• **Human-centered computing** → **User studies**; **User studies**.

## Keywords

Health, Lifestyle Change, Cardiology, Patient Experience, Personalized Care, Qualitative

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## 1 Introduction

Technology-supported lifestyle change programs are gaining traction as part of preventative care [10, 17]. Lifestyle change programs

such as cardiac pre- and re-habilitation address various lifestyle-related health factors [1, 4] (e.g., physical activity, healthy nutrition, smoking cessation) and often combine in-person care with interactive technologies—such as digital platforms—to monitor, educate, and communicate with patients along their lifestyle change journey [17].

Human-Computer Interaction (HCI) plays an increasingly central role in shaping these programs, both in the design of end-to-end lifestyle change care pathways [11] and in the development and implementation of digital care platforms and technologies [2, 8, 9]. In the domain of atrial fibrillation (AFib)—a cardiac illness characterized by irregular heartbeats [16] and often treated with catheter ablation surgery [6]—improving lifestyle related health factors before surgery can improve outcomes and reduce repeat procedures [5, 15]. AFib patients experience unique challenges in the context of lifestyle change care. Many AFib patients experience chronic fatigue, shortness of breath, and fluctuating symptoms [14], as well as increased stress and anxiety [13] and multiple co-existing health conditions [7]. These factors shape how AFib patients participate in lifestyle change programs, and make them a unique patient group to design for. Yet, little is known about how AFib patients experience technology-supported care prior to ablation.

To surface patients' experiences and make them available to inform future iterations of technology-supported lifestyle change care programs, we share a section of qualitative findings from interviews with 12 AFib patients participating in an ongoing nurse-led, technology-supported, lifestyle change program [15] (10 male, 2 female. See Table 1). Through reflexive thematic analysis [3], our findings reveal high expectations from patients regarding personalized care, and highlight how much of the personalization that patients experience as meaningful was often enacted by health care professionals (HCP's) rather than digital tools. We close with reflections on aligning expectations of personalized care, maintaining meaningful care relationships through technology, and challenges for personalized care at scale, as well as open questions we would like to discuss further with other workshop attendees.

## 1.1 Project Context

This work is conducted as part of an ongoing collaboration between Eindhoven University of Technology, the design team of Philips Experience Design, and the Catharina Hospital in Eindhoven, The Netherlands. The project focuses on the design and

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Patient Identifier	Sex	Age Group
P1	Male	60-64
P2	Male	45-49
P3	Female	65-69
P4	Male	60-64
P5	Female	60-64
P6	Male	70-74
P7	Male	60-64
P8	Male	65-69
P9	Male	60-64
P10	Male	50-54
P11	Male	60-64
P12	Male	70-74

**Table 1: Interview Participant Demographics**

delivery of a nurse-led lifestyle change program for patients with AFib before catheter ablation surgery, supported by a digital care platform. The care program is currently being tested in an ongoing clinical trial (N=150) for clinical efficacy [15]. In addition to collecting qualitative patient experience data, the design team's role includes co-designing the new care pathway with HCPs, delivering the digital platform for patients and staff, developing patient-facing educational content, and providing continuous support for the trial based on patient experience data.

## 2 The Promise of Personalized, Technology-Supported Care

When patients were initially invited to join the technology-supported lifestyle change program, care was presented as highly personalized, offering a comprehensive program that would address multiple aspects of patients' lives. This set high expectations for personalization for many patients. While some patients were highly satisfied with the degree of personalization offered, it became clear that for others the clinic did not meet their expectations (despite considering the program successful overall). P9 shared:

*"The picture that was painted in the beginning was that you would be offered a fully guided program—with a medical specialist, a dietitian, and even a sports psychologist if needed—we were going to do it all. I did indeed have a few conversations at the beginning, and then I never saw anyone again after that. For the rest of the program, the app was basically the only guiding element... but my expectation was different."*

P9's reflection highlights a disconnect between what patients understand as *personalized care* and what the clinic defines as *personalized care*. This highlights the importance of setting realistic and transparent expectations with patients around technology-supported personalized care.

### 2.1 Personalized Care via the Digital Platform

Through the interviews, we found that patients appreciated being able to access relevant, accurate, and centralized health guidance via the digital care platform. The platform contained 10 protocols (see Figure 1), each tailored to different lifestyle-related factors. Only

those relevant to a patients were activated in the digital platform ensuring that patients received only information relevant to their specific needs. This selective activation of protocols was a form of personalization, preventing patients from being overwhelmed with irrelevant content. P2 described how this made the platform feel more personal to them, sharing:

*"I assume that my healthcare provider selects the education that applies to me and forwards it accordingly. I trust that they determine what is relevant for me and what isn't."*

Other patients appreciated that the platform provided accurate information they could trust, as P2 shared:

*"Look, once you've received a diagnosis, nowadays we all become doctors because Google is our best friend. but since we are directed to the right sources to obtain that information—not just Google, but also hospital web-sites—you can get pretty far."*

Beyond access to trustworthy information, patients valued having relevant information centralized in one place, with some patients such as P1 making use of the "library" function to re-visit previously received material:

*"You can also read it back again if you want, like if you think, 'Oh, I want to go over it one more time...' You've already read it once, but you can take another look to remind yourself of exactly how it was."*

P1's quote underscores the importance of designing for longitudinal patient engagement on digital care platforms rather than one time interactions, allowing patients to engage with health information repeatedly when it suits them.

Patients also described how having access to information about their care enables them to ask more informed questions, demonstrating the role of digital platforms in supporting patient autonomy. As P8 reflected:

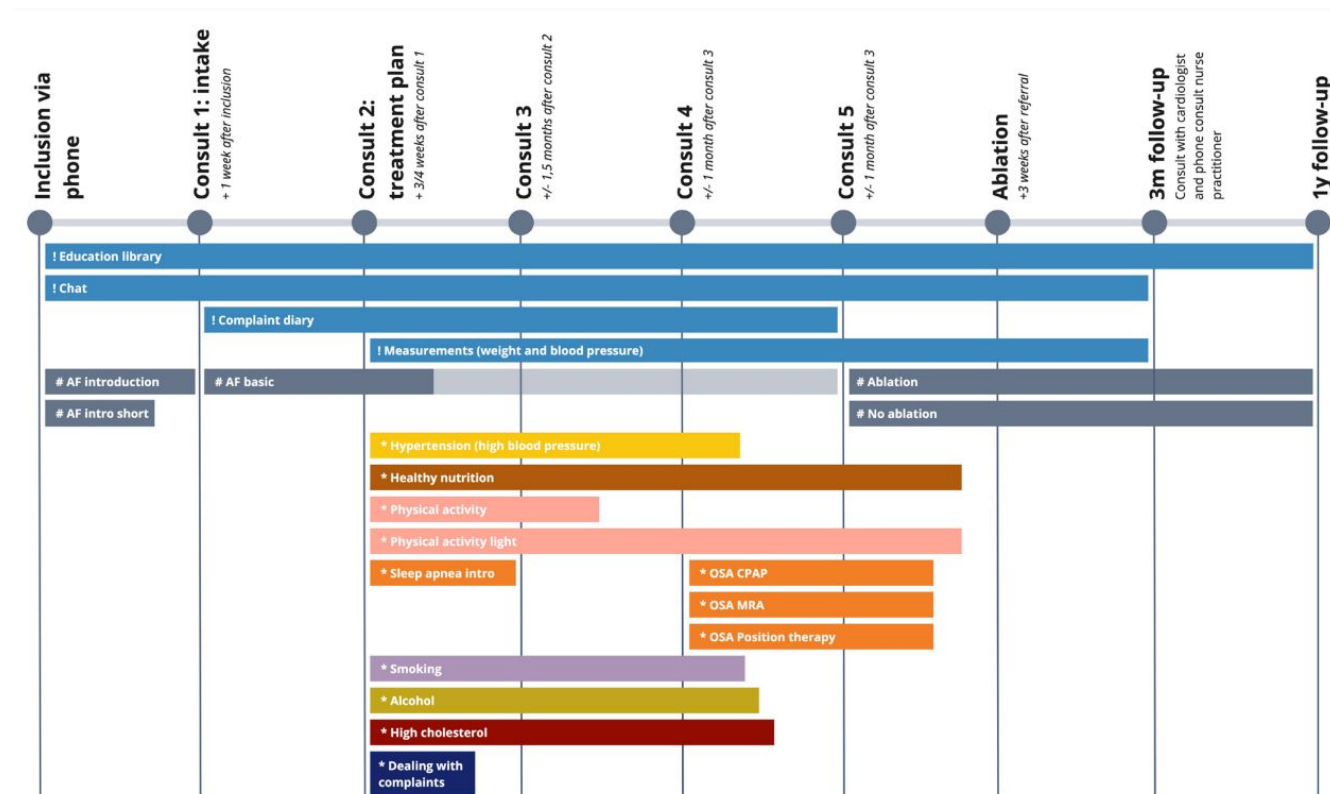
*"Information is shared—not withheld—with the patients, which is the most important thing. Then the patient can actually say, 'Okay, now I understand. Why is this? Why is that? And why are they doing this?'"*

Patients also referenced that having information about care via the digital platform before hand allowed them to feel secure and prepared for clinical procedures, as P10 explained:

*"Everything is explained so well through [the digital care platform]... like in those videos about the ablation procedure itself and how it works. Normally, when you go for a treatment and you don't know how it will go, you always feel a bit tense beforehand... like, 'Oh, how is this going to turn out?' But in this case, I could just let it happen."*

Having access to technology-supported care also allowed care delivery to fit flexibly into patient's lives. P11 for example, shared how the digital platform allowed them to continue receiving and making progress on their care journey even while away on vacation:

*"Even when I was on vacation, I brought my blood pressure monitor and everything with me. I thought, 'Yeah, I'll probably have tasks to do there as well.' So, I did*



**Figure 1: Figure 1. Timeline of the clinic from the patient perspective: illustrating the physical interactions (the circles), the platform functionalities (marked with !), the general AF content that every patient gets (#) and the content programs that are personalized per patient (\*). This figure originally appeared in [12].**

*that, and I also tried to submit the data within a day of receiving the email, just to keep things on track."*

Others appreciated that they were able to keep in person visits to a minimum, instead communicating through the platform's chat function or (video) calling, as P4 describes:

*"If (the system) hadn't been there, I would have had to go to the hospital for every little thing. This system ensures that, first, you can take in the information at a time that suits you, and second, that you don't have to keep going there. So that also saves a lot of time. I found that interaction to be very valuable."*

However, despite these advantages, technology-supported care also introduced increased burden and usability challenges. Patients, such as P10, describe experiencing notification fatigue, perceiving notification prompts as spam: "what I especially noticed about the app was that at some point—it started to feel a bit like spam"(P10). P3 described clicking notifications away rather than reading articles after being frustrated with receiving many notifications, saying:

*"Well, if I don't mark it as read, it stays in my tasks. So I think, "I want to remove it from my tasks, but I still want to use that link later." For example, there's a video that's an hour and a half long. I have it open now, but I was debating whether to just move it to the education*

*section so I can find it again later and access the link when I need it. That way, at least the tasks are cleared."*

This highlights the importance of designing for adaptive notification strategies in digital health systems, remaining considerate that digital health platforms exist within a landscape of many other digital demands for attention.

Others experienced burden related to accessing the platform, relying on their spouses to make the material accessible. P6 shared:

P6: *"[when I want to know something from the platform] I ask my wife: "can you look that up for me?" She usually tries to print it out for me so I can read it properly...then I just have an A4 sheet, and I can look at it. That works best for me, for sure."*

Interviewer: *"Does your wife also have access to the platform where the information is?"*

P6: *"Oh yeah, she's on there more than I am..."*

Similarly, P12 shared:

*"[My husband] would be at the computer, reading out the questions, and I would give the answers. I actually found that the most pleasant way...he really helped me with that."*

This raises important considerations for equitable design of technology-supported care, and presents interesting opportunities to explore

shared access models and caregiver integration into digital health platforms.

## 2.2 The Role of Health Care Professionals in Making Digital Care Personalized

Patient interviews revealed that HCP's efforts to build relationships—both online and in person—were fundamental to delivering personalized care. Patients shared how HCPs built relationships through attending to their emotional needs, taking the time to listen to their life stories, and asking about their personal situations. As P7 describes:

*"[The clinic staff] regularly reach out to me, asking if everything is okay or if there's something I need. If anything comes up, they tell me to call or send a text. Yeah, yeah, and that happens quite often, so I can share a lot that way."*

In discussion with the nurse, patients shared how their lifestyle change efforts were heavily influenced by their A-Fib symptoms, co-existing health conditions and life events. With this insight, HCPs personalized digital care – for example turning protocols on or off, sending additional information relevant to specific patients co-morbidities, sending messages to check in and motivate them through challenging times, printing information for patients who preferred non-digital materials, or arranging care closer to home. This highlights the importance of designing digital health platforms to be flexible and support dynamic intervention from HCPs based on real-time patient needs.

This attention to patient's personal situations from HCPs deeply influenced how patient's experienced care. For example, P3 had a long history of interactions with HCPs who she felt had neglected to tailor care to her, but the efforts of the HCPs to learn about her co-morbidities and personalize her nutrition care accordingly drastically improved her experience:

*"I had actually just told myself, I give up. I can't lose weight. I have [a co-morbidity], and it's difficult. So I said, I'm willing to see a dietitian, but is she knowledgeable about [my co-morbidity]? Because otherwise, there's absolutely no point—I might end up following advice that doesn't help or even works against me... However, she took the time to read up on it, and I really appreciated that. That's something hardly anyone does... it made me feel truly taken seriously. That's one of the things that stood out to me. It made me feel acknowledged, like my struggles were recognized. So, I was really happy about that."*

Having a trusted health care professional on the other side of the care platform made many patients feel more secure, as P4 described:

*You just know that someone on the other side of the [digital care] system is keeping an eye on you, someone who knows you...that's very positive... If you make a mistake, she reminds you: "don't forget to add your weight!"*

These findings underscore the need for designers and HCI practitioners to engage with the labour that HCPs are doing behind the screen, opening up interesting possibilities to design for, rather

than design out, the relational aspects of technology-supported care.

## 3 Reflection

"Personalized care" means different things to patients, healthcare providers (HCPs), and designers—expectations are often misaligned. As designers, we sometimes question the depth of personalization in digital care. Is it truly personalized, or merely curated content sent via an app? Yet, these reflections also help us appreciate how far we've come and remind us that digital platforms are just one aspect of a broader, evolving care ecosystem.

Still, setting clear expectations from the outset is critical. Everyone involved—patients, designers, and providers—must have a shared understanding of what personalized digital care entails.

- **We wonder:** *How might we better align expectations of personalized care between care designers, care providers, and patients?*

Our research also reveals a key tension: while digital platforms efficiently deliver structured care, they often fail to meet patients' emotional and social needs. Nurses and other human actors remain essential in creating truly personalized, compassionate experiences. Patients want more than timely information—they want to feel seen, heard, and supported. Emerging technologies like AI may enhance personalization, but cannot yet replace this human element.

- **We wonder:** *How might we better attend to the storied and emotional lives of patients when designing technologies to support lifestyle change care?*

Additionally, our findings surface stories of partners and loved ones playing a critical role in digital healthcare delivery, often acting as intermediaries between patients and digital care systems. Their informal support roles are vital but often invisible.

- **We wonder:** *Who benefits when technology-supported lifestyle change scales, and who is left behind?*
- **We also wonder:** *How might we formalize the role of patient's partners and support networks in technology-supported lifestyle change care?*

We believe that these questions require interdisciplinary collaboration and look forward to discussing further with others in the HCI+Health community around our poster during the workshop.

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## References

- [1] Marco Ambrosetti, Ana Abreu, Ugo Corrà, Constantinos H Davos, Dominique Hansen, Ines Frederix, Marie C Iliou, Roberto FE Pedretti, Jean-Paul Schmid, Carlo Vigorito, et al. 2021. Secondary prevention through comprehensive cardiovascular rehabilitation: From knowledge to implementation. 2020 update. A position paper from the Secondary Prevention and Rehabilitation Section of the European Association of Preventive Cardiology. *European journal of preventive cardiology* 28, 5 (2021), 460–495.
- [2] Cindel Bonneux, Gustavo Rovelo, Paul Dendale, and Karin Coninx. 2019. A Comprehensive Approach to Decision Aids Supporting Shared Decision Making in Cardiac Rehabilitation. In *Proceedings of the 13th EAI International Conference*

- on *Pervasive Computing Technologies for Healthcare* (Trento, Italy) (*Pervasive-Health'19*). Association for Computing Machinery, New York, NY, USA, 389–398. doi:10.1145/3329189.3329241
- [3] Virginia Braun and Victoria Clarke. 2019. Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health* 11, 4 (2019), 589–597. doi:10.1080/2159676X.2019.1628806
- [4] Tom Butler, Conor P Kerley, Nunzia Altieri, Joe Alvarez, Jane Green, Julie Hinchliffe, Dell Stanford, and Katherine Paterson. 2020. Optimum nutritional strategies for cardiovascular disease prevention and rehabilitation (BACPR). *Heart* 106, 10 (2020), 724–731.
- [5] Mina K Chung, Lee L Eckhardt, Lin Y Chen, Haitham M Ahmed, Rakesh Gopinathannair, José A Joglar, Peter A Noseworthy, Quinn R Pack, Prashanthan Sanders, Kevin M Trulock, et al. 2020. Lifestyle and risk factor modification for reduction of atrial fibrillation: a scientific statement from the American Heart Association. *Circulation* 141, 16 (2020), e750–e772.
- [6] Anand N Ganesan, Nicholas J Shipp, Anthony G Brooks, Pawel Kuklik, Dennis H Lau, Han S Lim, Thomas Sullivan, Kurt C Roberts-Thomson, and Prashanthan Sanders. 2013. Long-term outcomes of catheter ablation of atrial fibrillation: a systematic review and meta-analysis. *Journal of the American Heart Association* 2, 2 (2013), e004549.
- [7] Jordi Heijman, Dominik Linz, and Ulrich Schotten. 2021. Dynamics of atrial fibrillation mechanisms and comorbidities. *Annual review of physiology* 83, 1 (2021), 83–106.
- [8] Isabel Höppchen, Stefan Tino Kulnik, Alexander Meschtscherjakov, Josef Niebauer, Franziska Pfannerstill, Jan David Smeddinck, Eva-Maria Strumegger, Faith Young, and Daniela Wurhofer. 2024. "Be with me and stay with me": Insights from Co-Designing a Digital Companion to Support Patients Transitioning from Hospital to Cardiac Rehabilitation. In *Proceedings of the 2024 ACM Designing Interactive Systems Conference* (Copenhagen, Denmark) (*DIS '24*). Association for Computing Machinery, New York, NY, USA, 890–904. doi:10.1145/3643834.3661633
- [9] Isabel Höppchen, Stefan Tino Kulnik, Bernhard Reich, PhD., Josef Niebauer, Jan Smeddinck, Alexander Meschtscherjakov, and Daniela Wurhofer. 2024. Establishing Foundations on Both Sides of the Bridge: Exploring Contextual Barriers to Cardiac Rehabilitation Uptake to Inform Digital Health Technology Design. In *Proceedings of Mensch Und Computer 2024* (Karlsruhe, Germany) (*MuC '24*). Association for Computing Machinery, New York, NY, USA, 588–593. doi:10.1145/3670653.3677479
- [10] Leonard A Kaminsky, Charles German, Mary Imboden, Cemal Ozemek, James E Peterman, and Peter H Brubaker. 2022. The importance of healthy lifestyle behaviors in the prevention of cardiovascular disease. *Progress in cardiovascular diseases* 70 (2022), 8–15.
- [11] Marijke Melles, Armagan Albayrak, and Richard Goossens. 2021. Innovating health care: key characteristics of human-centered design. *International Journal for Quality in Health Care* 33, Supplement\_1 (2021), 37–44.
- [12] Renee R Noortman, Anne Wil Burghoorn, Peter Lövei, Jos-marien Jansen, Eva JL Deckers, Jasper Vermeer, Tineke Vinck-de Greef, Lukas Dekker, and Mathias Funk. 2023. Careful curation of care content: A case study of a technology-supported atrial fibrillation outpatient clinic. *International Journal of Design* 17, 3 (2023), 79–94.
- [13] Louise Segan, Sandeep Prabhu, Jonathan M Kalman, and Peter M Kistler. 2022. Atrial fibrillation and stress: a 2-way street? *Clinical Electrophysiology* 8, 8 (2022), 1051–1059.
- [14] Megan Streur, Sarah J Ratcliffe, Jocasta Ball, Simon Stewart, and Barbara Riegel. 2017. Symptom clusters in adults with chronic atrial fibrillation. *Journal of Cardiovascular Nursing* 32, 3 (2017), 296–303.
- [15] Jasper Vermeer, Tineke Vinck, Bianca de Louw, Stacey Slingerland, Marcel van't Veer, Marta Regis, Jos-marien Jansen, Edwin van den Heuvel, and Lukas Dekker. 2023. Improving outcomes of AF ablation by integrated personalized lifestyle interventions: rationale and design of the prevention to improve outcomes of PVI (POP) trial. *Clinical Research in Cardiology* 112, 6 (2023), 716–723.
- [16] Developed with the Special Contribution of the European Heart Rhythm Association (EHRA), Endorsed by the European Association for Cardio-Thoracic Surgery (EACTS), Authors/Task Force Members, A John Camm, Paulus Kirchhof, Gregory YH Lip, Ulrich Schotten, Irene Savellieva, Sabine Ernst, Isabelle C Van Gelder, et al. 2010. Guidelines for the management of atrial fibrillation: the Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC). *European heart journal* 31, 19 (2010), 2369–2429.
- [17] Shannon Wongvibulsin, Evagelia E Habeos, Pauline P Huynh, Helen Xun, Rongzi Shan, Kori A Porosnicu Rodriguez, Jane Wang, Yousuf K Gandapur, Ngozi Osuji, Lochan M Shah, et al. 2021. Digital health interventions for cardiac rehabilitation: systematic literature review. *Journal of medical Internet research* 23, 2 (2021), e18773.