



# An Interpretative Phenomenological Analysis of the Meaning of Wearable Health Trackers among Patients with Chronic Illnesses

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## ABSTRACT

Digital health technologies, especially wearable health trackers, have transformed chronic disease management by supporting real-time self-monitoring and patient engagement. While their functional benefits are widely recognized, little is known about how patients interpret and emotionally respond to these technologies in their daily lives. This study uses an Interpretative Phenomenological Analysis (IPA) approach to explore the experiences of eight adult patients with chronic illnesses who regularly use wearable health devices. The research seeks to answer: How do patients with chronic conditions experience and make sense of wearable health trackers as part of their self-care? This study adopts an Interpretative Phenomenological Analysis (IPA) approach to explore the lived experience of eight adult patients with chronic conditions who regularly use wearable health devices. Semi-structured interviews with these eight participants were thematically analyzed, revealing four core themes: the device as an emotional companion, ambivalence toward data, the emergence of autonomy, and digital literacy challenges. These themes reflect the complex interplay between technology, identity, emotion, and health behavior in chronic illness management. Findings show that wearable health trackers are not merely clinical tools but are deeply integrated into users' psychological and existential lives. This research contributes to the digital health literature by advocating for user-centered, empathetic design and culturally adaptive technologies. It also underscores the value of phenomenological inquiry in illuminating the emotional and subjective dimensions of self-tracking in health, offering directions for future research across diverse sociocultural settings.



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## INTRODUCTION

In recent years, the integration of digital technologies into healthcare has significantly reshaped how individuals perceive and manage their health. One prominent innovation is the rise of wearable health trackers, which enable users to monitor vital signs, track physical activity, and receive real-time health feedback. These devices have become especially popular among individuals with chronic conditions, as they offer the potential for increased autonomy, early detection of complications, and improved treatment adherence (Piwek et al., 2016).

However, the use of wearable health trackers extends beyond their clinical functions. Health tracking is not merely a technical or medical activity but is embedded within personal, emotional, and social contexts. As Lupton (2016) highlights, self-tracking practices intersect with users' identities, beliefs, and social relationships, influencing how individuals interpret their bodies and manage their health. For patients living with chronic illness, the constant monitoring of bodily functions may elicit varied emotional responses—ranging from empowerment and reassurance to anxiety and loss of control—depending on how the data is perceived and integrated into everyday life.

While existing research acknowledges the functional benefits of wearable devices, limited attention has been paid to the lived, subjective experiences of users with chronic conditions. There is a lack of in-depth understanding of how these individuals make sense of wearable technology as part of their self-care routines. This study addresses this gap by exploring the personal and emotional meanings

that emerge from the use of wearable health trackers through an Interpretative Phenomenological Analysis (IPA) approach.

In this light, the significance of wearable health technologies lies not only in their functional capabilities but also in their impact on the subjective experience of health and illness. Understanding how patients make meaning of their interactions with these devices requires more than measuring clinical outcomes—it calls for an exploration of lived experiences, personal narratives, and the emotional dimensions of health management. This is especially relevant in diverse sociocultural settings where perceptions of illness, technology, and autonomy may vary considerably.

To address these complexities, a phenomenological approach becomes essential. Phenomenology emphasizes the interpretation of human experience and aims to uncover the essence of how individuals perceive and engage with phenomena in their everyday lives. Exploring the lived experience of using wearable health trackers among people with chronic conditions provides critical insights into the psychological, relational, and existential dimensions of self-care. Such inquiry not only contributes to the academic discourse on digital health but also informs the development of more empathetic, inclusive, and person-centered technologies.

The study of individuals' subjective experiences in relation to health technologies has emerged as a critical domain within digital health research. As wearable devices become increasingly embedded in the lives of patients managing chronic conditions, scholars have begun to explore how these technologies are perceived, interpreted, and emotionally experienced in everyday settings. Research by Shivers et al. (2020) and Caldeira et al. (2022) has emphasized that patients' interactions with mobile health tools extend far beyond usability and clinical efficacy—they reflect complex emotional, cognitive, and social engagements that shape health behaviors and personal well-being.

However, existing approaches to investigating these experiences often rely on quantitative frameworks that focus on metrics such as adherence rates, physiological outcomes, or user satisfaction. While valuable, such approaches tend to overlook the depth of personal meaning and the existential dimensions involved in living with chronic illness while using self-monitoring technologies. As noted by Blease et al. (2020), the data-driven transformation of healthcare raises critical questions about trust, interpretation, and the human experience—elements that cannot be fully captured through numbers or standardized surveys.

This methodological gap presents a significant challenge: conventional research tools frequently fall short in illuminating the lived reality of how patients engage with digital health trackers. The nuances of fear, motivation, alienation, or empowerment that emerge in response to these devices require a different lens—one that privileges the voice of the participant and their interpretative engagement with the phenomenon. Phenomenology, particularly the interpretative strand, offers this lens by prioritizing meaning-making and lived experience as foundational to understanding human interaction with technology.

By acknowledging these methodological limitations, this study addresses the need for a qualitative, experience-centered approach that can uncover the deeper meanings patients ascribe to wearable health technologies. It contributes to a growing body of work that recognizes the limitations of positivist paradigms in health research and advocates for more humanistic, narrative-driven methodologies.

In addressing the integration of wearable health technologies within chronic disease management, current strategies have predominantly relied on practical and technological interventions aimed at enhancing clinical outcomes, promoting adherence, and improving system efficiency. These approaches—typically grounded in quantitative methodologies—prioritize data collection, performance metrics, and usability testing (Piwek et al., 2016). While such models offer valuable insights into how devices function and influence behavior on a surface level, they often neglect the subjective realities of the individuals who use them.

This oversight becomes particularly evident in the context of chronic illness, where health management is not merely a matter of compliance or measurement, but an ongoing, emotionally complex experience. Quantitative assessments rarely capture the affective dimensions of using digital

devices—the anxiety provoked by biometric data, the shifting sense of bodily awareness, or the symbolic significance users attach to self-tracking tools. As highlighted by Olla & Shimskey (2022), digital health data alone are insufficient in representing the richness of lived experience, especially among those managing long-term conditions.

Consequently, the prevailing approaches result in incomplete and reductionist understandings of how wearable health trackers are incorporated into daily life. These limitations underscore the need for a phenomenological perspective, which prioritizes depth over breadth, and meaning over measurement. By focusing on how individuals interpret and live through their interactions with wearable technology, phenomenology enables a more nuanced, context-sensitive, and human-centered comprehension of the phenomenon.

The absence of such phenomenological inquiry—particularly within Southeast Asian contexts where digital literacy, cultural beliefs, and healthcare infrastructures vary widely—leaves a critical gap in current scholarship. This study responds to that gap by exploring the lived experiences of individuals with chronic illness in using wearable health trackers, aiming to reveal the essence of meaning-making that shapes their engagement with technology.

Several studies have explored the use of wearable health technologies, mostly from clinical, behavioral, or usability perspectives. Research by Lupton (2016) and Caldeira et al. (2022) highlights how digital self-tracking intersects with identity and health perceptions, yet few have focused on the personal meaning experienced by users with chronic illness. Shivers et al. (2020) used an interpretative approach to examine emotional responses to wearable use but did not extend the findings to different cultural contexts. In Southeast Asia, especially Indonesia, research on the lived experience of patients using wearable trackers remains limited. This gap calls for a deeper inquiry into how individuals make sense of these technologies in daily life.

This study adopts Interpretative Phenomenological Analysis (IPA) to explore the meaning-making processes of chronic illness patients using wearable health trackers. IPA is suited for uncovering personal interpretations and emotional responses to complex experiences. It focuses on how individuals construct meaning from their lived reality rather than on general patterns or causal explanations. This method helps answer the question of how patients perceive, integrate, and emotionally respond to wearable technologies. By doing so, the study provides insights that move beyond functionality toward a richer understanding of digital health experiences.

The article is structured as follows. The introduction outlines the context of wearable health technologies and the rationale for phenomenological inquiry. The methodology section explains the IPA framework, sampling, and data collection procedures. The results section presents key themes derived from participant narratives using thematic interpretation. The discussion elaborates on the implications of these findings within clinical and technological domains. The article concludes by emphasizing the importance of designing human-centered digital health solutions grounded in lived experience.

## **RESEARCH METHODS**

### **Study Design**

This study employed an interpretative phenomenological approach (IPA), which is rooted in the philosophical traditions of Heidegger and focuses on the interpretation of lived experiences. IPA was chosen for its capacity to explore how individuals make sense of significant phenomena in their lives—in this case, the use of wearable health trackers by patients with chronic conditions. The approach allows for an in-depth understanding of subjective meanings and how these are constructed within personal, social, and technological contexts. It is particularly suited for health-related inquiries that seek to uncover nuanced perceptions, emotional responses, and identity formation through human-technology interactions.

### **Participants**

Participants in this study were adults diagnosed with chronic health conditions who had been using wearable health tracking devices for at least three months. A purposive sampling strategy was employed to select individuals with firsthand experience relevant to the phenomenon under investigation. Inclusion criteria included adults aged 40 years or older, diagnosed with chronic illnesses such as diabetes, hypertension, or cardiovascular disease, and possessing the cognitive and physical ability to engage in in-depth interviews. Exclusion criteria comprised individuals with acute psychiatric disorders or those unable to provide informed consent.

A total of eight participants were included in the study, consisting of five males and three females, with an age range of 45 to 65 years. The sample size aligns with recommendations for Interpretative Phenomenological Analysis (IPA), which typically involves small, homogeneous samples to allow for detailed, idiographic exploration of lived experiences (Smith, Flowers, & Larkin, 2009). Their diverse educational and occupational backgrounds contributed to a rich and contextual understanding of the lived experiences explored.

To enhance methodological transparency, the researchers engaged in reflexive journaling throughout the study, acknowledging their potential biases and preconceptions. The lead researcher, who has a background in digital health and patient care, maintained awareness of how their disciplinary orientation might shape data interpretation. This reflexivity helped ensure that participants' voices remained central in the analysis.

### **Data Collection**

Data were collected through semi-structured, in-depth interviews conducted in person at locations chosen by the participants to ensure comfort and privacy, typically their homes or nearby community health centers. An interview guide was used to facilitate open-ended discussions while allowing flexibility to explore emerging themes. Each interview lasted between 45 and 75 minutes and was audio-recorded with the participants' permission. Field notes were also taken to capture non-verbal cues and contextual observations. All interviews were transcribed verbatim. Efforts were made to create a respectful and empathetic atmosphere to encourage participants to share their thoughts and emotions freely.

### **Data Analysis**

Data were analyzed using Interpretative Phenomenological Analysis (IPA), following the systematic procedures outlined by Smith, Flowers, and Larkin (2009). Transcripts were first read repeatedly to gain familiarity with the content. Meaning units were then identified, coded, and clustered into emergent themes reflecting the participants' lived experiences. These themes were further examined for connections and overarching patterns that captured the essence of the phenomenon. NVivo software was used to support the organization and retrieval of coded data, enhancing transparency and coherence during the analysis. The iterative process allowed for the constant comparison and refinement of themes, ensuring that interpretations remained grounded in participants' narratives.

### **Ethical Considerations**

Ethical approval was obtained from the relevant institutional research ethics committee prior to data collection. All participants provided written informed consent after being briefed on the study's objectives, procedures, and their rights, including the right to withdraw at any time without consequences. Anonymity was preserved by assigning pseudonyms to all participants, and all identifiable information was removed from transcripts. Data were stored securely and used solely for research purposes. The study adhered to internationally recognized ethical standards for research involving human participants.

## **RESULTS**

This study aimed to explore the subjective experiences of individuals with chronic conditions in making sense of their use of wearable health trackers as part of their self-management practices. Through an interpretative phenomenological approach, four key themes emerged from the analysis,

each reflecting a distinct aspect of how participants perceived and lived their interactions with the device.

### **This Watch Feels Like My Personal Nurse” – Technology as an Emotional Companion**

Many participants described their wearable health tracker not merely as a health monitoring tool but as a constant companion that carried personal significance. The device was perceived as “alive,” providing continuous oversight and reminders that fostered emotional comfort and security.

“I feel like this watch is my personal nurse—it keeps reminding me to move or take my medication. It feels like I’m not alone anymore.” (P4, male, 52)

This perceived companionship offered psychological reassurance and helped establish daily routines, especially valuable for participants managing long-term conditions that require ongoing attention.

### **The Companion Role of Health Trackers**



### **Between Self-Control and Data Anxiety” – Ambivalence Toward Digital Health Information**

Participants expressed ambivalent feelings toward the data generated by the device. On one hand, the data empowered them to monitor and understand their health independently. On the other hand, the numbers often triggered anxiety, particularly when results appeared outside of expected ranges.

“I’m more aware of my condition now, but sometimes I get too fixated on the numbers. If my heart rate goes up a little, I start to panic.” (P2, female, 45)

While intended to support well-being, the technology occasionally introduced new psychological stressors, illustrating the complex interplay between digital health data and emotional regulation.

### **Now I Can Control My Own Body” – Autonomy in Self-Management**

The use of wearable health trackers contributed to a growing sense of agency and autonomy in managing chronic conditions. Participants reported feeling more engaged in decision-making processes

related to their health and lifestyle, marking a shift from passive dependence on healthcare providers to active participation.

“I used to just wait for the doctor to tell me what’s going on. But now I can see things for myself. I feel more responsible.” (P1, male, 60)

This sense of empowerment transformed how participants viewed their role in the healing process, positioning themselves as active agents in their own care.

### **Not Everyone Understands This” – Digital Barriers and Literacy Inequity**

Some participants highlighted the challenges of using wearable technology, particularly for those unfamiliar with digital tools. Limited digital literacy created feelings of frustration and dependence, often requiring support from family members or caregivers to navigate the device or accompanying applications.

“At first, I didn’t know how to use it. I had to keep asking my son. And when the app has a problem, I don’t know what to do.” (P6, female, 58)

This barrier underscored the digital divide within health technology use, raising concerns about equitable access and the inclusivity of digital health innovations for older or less tech-savvy populations.

The findings reveal that the experience of using wearable health trackers among individuals with chronic conditions is multidimensional—encompassing emotional, cognitive, behavioral, and existential dimensions. The device is not merely seen as a clinical tool but is embedded in users’ personal narratives of health, self-monitoring, and identity. While the technology fosters empowerment and autonomy, it also brings challenges such as data-induced anxiety and digital exclusion. These insights emphasize the importance of designing human-centered, empathetic, and contextually sensitive health technologies that align with the lived realities of their users.

## **DISCUSSION**

This study contributes a rich, experiential perspective to the digital health discourse by emphasizing that patients do not engage with wearable trackers passively or uniformly. Rather, they construct personal meanings around their use, exhibit emotional ambivalence toward data, and often renegotiate their sense of agency through sustained bodily awareness.

These findings resonate with prior IPA studies, such as Shinebourne and Smith (2011), which emphasize how technology-mediated experiences intertwine with identity and emotional regulation. Similarly, global investigations into self-tracking practices (e.g., Pantzar & Ruckenstein, 2017; Neff & Nafus, 2016) highlight the cultural and emotional variability of digital health engagement, underscoring the importance of sociocultural context in shaping user experiences. By engaging more broadly with these diverse IPA-informed inquiries, the current study extends the conversation beyond utilitarian perspectives, situating wearable health tracking within lived, meaning-making processes.

Moreover, this research reveals elements frequently overlooked in mainstream evaluations of digital health tools: emotional labor, identity negotiation, and digital literacy challenges. These nuanced dimensions enrich our understanding of how health technologies are embodied and internalized by users managing chronic conditions.

Implications for design and policy include the need for empathetic, user-centered technologies that acknowledge emotional complexity and cultural context. Designers should consider adaptive features that support diverse interpretations and emotional responses to data. Healthcare providers, meanwhile, must be equipped to facilitate discussions that validate patients’ affective experiences with digital tools.

In sum, this study underscores the value of phenomenological inquiry in illuminating the subjective landscape of digital health, offering insights that can inform both practice and future interdisciplinary research.

These findings align with and extend the work of Lupton (2016), who emphasized the sociocultural and affective dimensions of self-tracking practices. They also complement the interpretative insights from Shivers et al. (2020), who noted emotional ambivalence in chronic illness management but did not explore its sociotechnical dimensions. Furthermore, the study affirms the argument made by Blease et al. (2020) that digital health systems must account for trust, interpretive complexity, and user identity in their design and evaluation. Unlike previous studies, this research situates these insights within a Southeast Asian context, where cultural values, health beliefs, and digital divides further influence how technology is perceived and appropriated.

### **Implications of the Findings**

The insights generated through this study carry important implications for both health professionals and digital health designers. From a practical standpoint, understanding that patients emotionally engage with wearable devices as more than functional tools suggests the need for empathetic and human-centered design, which accommodates the psychological and existential dimensions of chronic illness management. Healthcare providers should also recognize that patients may experience data not only as informative but also as stress-inducing, requiring supportive interventions that integrate emotional reassurance with digital literacy education. Culturally, the findings reveal how technology is interpreted through local values and social contexts, highlighting the need for health technologies to be adaptable across diverse populations. At the societal level, the study points to the ethical responsibility of ensuring equitable access to digital tools and closing literacy gaps that may reinforce exclusion or dependency among vulnerable users.

### **Limitations of the Study**

While this study offers valuable insights into the lived experiences of patients with chronic illnesses, several limitations should be acknowledged. The small, purposive sample limits the transferability of findings to broader populations, especially outside the Indonesian cultural and healthcare context. As is typical in phenomenological research, the goal was not to generalize but to explore meaning in depth; however, variation in participants' socioeconomic status, digital exposure, and condition severity may have influenced their engagement with the device. Furthermore, the reliance on self-reported narratives carries potential bias, as experiences may be filtered through memory, language, and personal interpretation. Despite these limitations, the study provides a rich foundation for further inquiry into subjective experiences with health technologies.

### **Prospective Directions for Future Research**

Future research could build on these findings by examining how patients' experiences with wearable health trackers evolve over time, particularly through longitudinal studies that trace shifts in perception, usage patterns, and emotional adaptation. Comparative studies across different cultural settings would also enrich understanding of how cultural norms and health beliefs shape engagement with digital health tools. Moreover, integrating perspectives from healthcare providers could offer a more holistic view of how wearable technology affects the clinical relationship and decision-making processes. Given the emotional and existential dimensions identified in this study, future work may also explore the role of narrative interventions or digital storytelling in enhancing patient engagement and self-management practices. Ultimately, expanding phenomenological inquiry in digital health will contribute to more responsive, ethical, and inclusive health technology development.

## **CONCLUSION**

This study explored the lived experiences of individuals with chronic illnesses in using wearable health trackers, focusing on how they interpret and give meaning to this technology within their daily self-care practices. The findings show that these devices function not only as monitoring tools but also as emotional companions, triggers of anxiety, and representations of autonomy. Such insights deepen our understanding of the psychological and existential aspects that shape user engagement—dimensions often neglected in quantitative or design-centric research. By employing Interpretative Phenomenological Analysis (IPA), this study addresses a notable gap in digital health

literature and underscores the importance of empathetic, culturally responsive approaches in technology design. It also emphasizes the urgency of inclusive digital literacy strategies to ensure equitable access and usability for diverse populations.

Ultimately, this research makes an original contribution by foregrounding the emotional and meaning-making dimensions of wearable technology use in chronic illness management. Its findings have the potential to inform not only future phenomenological studies but also digital health policies and design practices that prioritize the complexity of human experiences. Further research could build on this foundation by examining longitudinal engagement patterns or conducting cross-cultural comparisons to enrich the global discourse on human-technology interaction in healthcare.

## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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