Navigating Privacy and Empowerment:

Women's Perceptions of Data Use in Femtech Tracking Apps

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ABSTRACT

In recent years, menstrual and fertility tracking apps have become a prominent part of many women's daily lives. These femtech tools promise empowerment through increased bodily awareness, cycle prediction, and health planning. However, they also operate within systems of datafication, monetization, and algorithmic governance that may limit user agency and compromise privacy. This thesis investigates how women experience empowerment and privacy while using menstrual and fertility tracking applications, with a particular focus on the popular app Flo.

The central research question guiding this study is: How do women experience privacy and empowerment in relation to personal data and reproductive health management while using femtech apps, particularly Flo? To address this question, a qualitative, multi-method research design was used, combining six semi-structured interviews, a content analysis of 120 user reviews, and a critical reading of Flo's privacy policy and terms of service. The research is informed by an interdisciplinary theoretical framework drawing on feminist technology studies, self-tracking literature, and critiques of surveillance capitalism.

The findings reveal that empowerment and vulnerability are not opposing outcomes, but often intertwined. Participants valued the sense of knowledge, clarity, and control that cycle tracking provided, yet also described emotional strain, guilt, or disillusionment when app predictions were inaccurate or access was limited by paywalls. Privacy concerns were present but rarely articulated in legal terms. Instead, users negotiated trust and discomfort through intuitive decisions about what data to log and what to withhold. Many accepted opaque data practices as the cost of access, reflecting a form of coerced consent. Still, small acts of resistance such as skipping features or limiting input were common.

This study shows that empowerment in femtech is not straightforward. It is shaped by emotional labor, financial access, platform design, and sociocultural expectations. Ultimately, users navigate these apps not as passive recipients but as active, if constrained, participants in complex systems of digital reproductive care.

Keywords: femtech, digital health, empowerment, privacy, surveillance capitalism, self-tracking, emotional labor

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1. Introduction

In today's digital age, our lives are increasingly intertwined with technology. From smartwatches that measure our heart rates to apps that track our sleep or step count; we've grown used to monitoring our bodies with digital tools. Even our most intimate bodily functions are no exception. Menstruation, fertility, pregnancy, and menopause are now often tracked through our smartphones. This shift raises important questions about who gains access to this data, and what happens to it once it leaves our bodies and enters the digital realm.

Amongst this broader trend of digital self-tracking, a market emerged in the early 2000s that targeted the specific health needs of women. This space is now known as female technology, or "*femtech*", a term coined by Danish entrepreneur Ida Tin, co-founder of the period and ovulation tracking app Clue (Martinez & Thomas, 2024). While femtech only entered public vocabulary around 2013, the concept had already taken shape with earlier apps such as Japan's Luna Luna *(*BeautyTech.Jp, 2021), launched in 2000, which laid the groundwork for tracking menstrual and fertility cycles digitally. Today, femtech spans a wide range of technologies: from menstruation and fertility tracking apps, to wearable breast pumps, menopause care platforms, and digital birth control tools (Washington Post, 2025).

The femtech market has experienced substantial growth over the past decade, evolving from a niche category to a significant sector within digital health. In 2023, the global femtech market was valued at approximately $26.8 billion, with projections suggesting it could surpass $43.4 billion by 2034, reflecting a compound annual growth rate of 4.5% (Pharmiweb, 2025). As of early 2025, the industry includes around 3,910 companies worldwide, with 1,050 funded startups and several achieving unicorn status, such as Maven Clinic (Reuters, 2024). Despite this growth, femtech still constitutes only a small fraction of the broader health tech sector; in 2022, it accounted for merely 1% of global health tech investment (MTIP, 2023). This disparity underscores how digital innovation continues to overlook the unique health needs of women, despite the rising demand and potential impact of femtech solutions.

One of these popular female technologies are the period- and/or ovulation tracking apps. Period- and ovulation tracking apps have become especially popular for their ability to provide personalized insights and a sense of control over one's cycle. However, these tools exist in a sensitive terrain. Menstrual data is very personal and can have political, medical, and even legal implications. One example is the overturning of Roe vs. Wade, a landmark 1973 U.S. Supreme Court decision that legalized abortion nationwide by ruling that the Constitution protects a woman's right to choose to have an abortion. Concerns were raised that period-tracking data could be used to surveil or prosecute people seeking abortions (Torchinsky, 2022, p. 46). In response, apps began publicly emphasizing their commitment to user privacy, posting reassuring messages on platforms like Instagram (Mehrara,

2024). Such examples highlight a tension: on the one hand, femtech promises users increased knowledge, autonomy, and access to health resources. On the other hand, many of these apps operate within a business model rooted in data extraction, often associated with surveillance capitalism (Ford et al., 2021, p. 51). This creates a paradox: the very tools that promise empowerment may simultaneously compromise the privacy and safety of their users.

This thesis explores how women perceive privacy and empowerment when using femtech tracking applications. By focusing on the period- and ovulation tracking app Flo as a case study within the broader femtech landscape, this study aims to provide insights that could help shape a more ethical and user-centered approach within the femtech industry.

1.1 Societal Relevance of the Research

Digital health technologies are becoming increasingly embedded in everyday life, shaping how individuals understand and manage their bodies. Femtech apps, in particular, have taken on a central role in how many women monitor their reproductive health. However, the rapid normalization of such technology's risks outpacing critical public awareness of the ethical implications of data collection, especially as these platforms handle intimate and politically sensitive health information (Tu & Gao, 2021, pp. 488–490). With the growing tension between user trust and corporate data practices, this research provides an opportunity to elevate women's voices in the debate on digital health ethics.

By foregrounding user perspectives, this study provides insights into how privacy and empowerment are experienced in real-world app use. These insights can inform more equitable and transparent design practices in the femtech industry, supporting digital inclusion while respecting bodily autonomy and data protection (Sharon, 2016, p. 570). In doing so, the study not only contributes to the well-being of individual users but also engages with broader societal debates about reproductive rights, digital vulnerability, and the responsibilities of health tech developers in a post-Roe and data-driven world (Mehrara, 2024).

1.2 Academic Relevance of Research

Academically, this research contributes to a critical re-evaluation of digital health through the lens of feminist media theory, user experience, and digital ethics. By exploring how women articulate their feelings of empowerment or discomfort, this research contributes to a growing body of scholarship on digital subjectivity and affective governance in health technologies (Hendl & Jansky, 2021, p. 167). It offers an original contribution by showing how empowerment is not a static outcome of technological access but a dynamic process shaped by trust, consent, and sociotechnical

infrastructures. These findings are particularly relevant for scholars in media studies, feminist STS (Science and Technology Studies), and critical data studies who are increasingly turning to user perspectives to understand the complexities of digital life.

Although surveillance capitalism and the commodification of user data have been widely explored (Zuboff, 2019, p. 8; Ford et al., 2021, p. 51), there is a clear lack of research addressing how these dynamics play out in explicitly gendered contexts such as femtech. This study expands existing theory by situating digital reproductive technologies within the lived experiences of their users, thus combining structural critique with empirical, embodied perspectives.

While femtech has gained increasing attention in both academic and professional discourse, much of the existing literature focuses on technological innovation, biomedical applications, or market dynamics (Wiederhold, 2021, p. 697). Current studies often emphasize the potential of femtech to improve health outcomes, increase bodily awareness, and fill gaps in traditional healthcare systems (Frost & Sullivan Institute, 2024, p. 5). Other scholarship has begun to critically engage with how these technologies operate within broader systems of surveillance capitalism, highlighting the monetization of personal data and the extraction of bio-value from user-generated health information (Gilman, 2021, p. 103). These critical perspectives shed light on the ethical risks posed by data-driven health platforms, particularly in relation to user privacy.

However, a clear gap remains in understanding how users themselves make sense of these tensions. While some existing researches have theorized empowerment and exploitation in femtech from a top-down perspective (Mehrnezhad & Almeida, 2021, p. 3), few studies have examined women's lived experiences and have explored how users negotiate the trade-offs between empowerment, convenience, and privacy in their everyday lives. As Hajkova and Doyle (2024) notes, while public discourse increasingly reflects anxieties about digital reproductive surveillance, academic studies have yet to systematically examine how these concerns are experienced and articulated by actual users of the femtech tracking apps.

Moreover, feminist critiques of health technologies have long emphasized the importance of subjective, embodied knowledge (Haraway, 1988, p. 581), yet these insights are often missing in research on femtech app usage. This study addresses that gap by examining how women understand, feel, and reflect upon their use of femtech technologies within the context of surveillance capitalism, digital health, and reproductive autonomy. By focusing on user narratives and perceptions, this research brings a grounded feminist lens to ongoing debates about privacy, empowerment, and ethical design in digital health platforms.

1.3 Research Question

Building on the previous discussion of femtech's rise, its ethical tensions, and the current gaps in academic literature, this study seeks to investigate how users experience and interpret the balance between empowerment and privacy in their interactions with digital health technologies, specifically femtech menstruation- and ovulation tracking apps. As stated before, apps like Flo claim to provide users with personalized insights and reproductive autonomy, they also collect, store, and potentially share sensitive data, raising concerns about transparency, consent, and data commodification. Understanding how women navigate these dynamics is critical not only for improving user experience but also for informing broader debates around digital health ethics, gendered technology, and surveillance capitalism. Accordingly, this thesis is guided by the following research question:

How do women experience privacy and empowerment in relation to personal data and health management while using femtech tracker apps, with a particular focus on the period-, and ovulation-tracker app Flo?

This central research question is intentionally broad to allow for an exploration of both emotional and cognitive experiences, as well as social and structural dimensions. It acknowledges that concepts like "privacy" and "empowerment" are subjective, fluid, and context-dependent.

In order to investigate these complexities more systematically, the research is further broken down into the following sub-questions:

1. *How do the business models of menstruation apps in the femtech market shape data collection practices, user engagement, and the commodification of personal data?*

This question investigates how femtech platforms are embedded within broader digital health economies that commodify personal data. It focuses on how commercial imperatives inform the design of features and engagement strategies. This question explores how users' intimate health data become valuable economic assets, and how these dynamics are rooted in the structural conditions of the femtech industry.

2. *How do women define empowerment in the context of using menstruation and ovulation tracking apps in the femtech market?*

This question centers on user interpretation, aiming to unpack how women conceptualize and experience empowerment in their use of these kind of apps. It also seeks to understand whether this empowerment is felt as genuine agency, or whether it is perceived as limited, conditional, or even illusory.

3. *How do women perceive the potential risks of sharing their personal data on the menstruation and ovulation tracking apps?*

This final sub-question explores how users make sense of the privacy risks associated with sharing intimate health data through femtech apps. It examines their awareness, emotional responses, and coping strategies in relation to data collection and potential misuse.

Taken together, the sub-questions provide a conceptual framework for examining the layered experiences of femtech users, and for analyzing how gender, digital technology, and health data governance intersect in everyday practices of self-tracking.

This thesis starts with a theoretical framework that brings together surveillance capitalism in the context of femtech, empowerment through self-tracking, and feminist critiques of technology, data, and care. The methodology chapter then explains the qualitative approach, combining interviews with users of menstruation and ovulation tracking apps and a content analysis of Flo as a case study. The results chapter presents the main themes from both the interviews and content analysis, focusing on how women navigate empowerment, privacy concerns, and commercial data practices. The thesis ends with a conclusion that brings the theoretical and empirical insights together, reflects on the broader implications, and suggests directions for future research.

2. Theoretical Framework

To unpack the complex dynamics of femtech technologies, this study adopts a structured theoretical framework that moves from industry context to critical analysis. Femtech apps are not merely health tools; they are sociotechnical systems shaped by corporate agendas, cultural norms, and data infrastructures. As such, understanding how they function requires an interdisciplinary approach that addresses both their promises of user empowerment and their embeddedness within broader systems of surveillance and commercialization.

With this approach, this theoretical framework provides a multidimensional foundation for analyzing how femtech apps simultaneously offer empowerment and enact control, positioning users within complex systems of visibility, responsibility, and commodification. The framework is divided into three subheadings: the logic of femtech as an industry, empowerment through self-tracking practices, and feminist critiques of datafication, labor, and care. Together, these perspectives guide the empirical investigation and help make sense of the contradictory user experiences emerging in this field.

2.1 Rethinking The Logic of Femtech

Over the past decade, femtech technologies have emerged as a rapidly growing sector within the broader landscape of digital health innovation. The term "femtech", short for "female technology", refers to technological products and services that address health issues traditionally underrepresented in mainstream healthcare, including menstrual health, fertility, pregnancy, and menopause (Martinez & Thomas, 2024). Menstruation- and ovulation tracking apps are a clear example of such female technology; they promise users enhanced self-knowledge and bodily awareness by providing personalized cycle predictions, symptom analysis, fertility insights, and health tips based on user-generated data. Femtech platforms position themselves as empowering tools that allow women to take greater control over their reproductive health, offering autonomy and information in contexts where medical systems have historically marginalized women's bodily experiences (Garry, 2001, p. 13).

The sector's rapid expansion reflects broader cultural shifts emphasizing self-management, digital health literacy, and data-driven lifestyles. Flo, one of the most downloaded period-tracking apps globally, reports over 280 million users (Flo Health, 2024), while Clue and Period Tracker also maintain substantial global user bases. These platforms are characterized by user-friendly, aesthetically designed interfaces, often with pastel color schemes, motivational reminders, and simplified data visualizations, that encourage daily engagement and normalize health tracking as part of everyday self-care practices.

In order to provide personalized predictions and health insights, femtech apps like Flo collect a wide range of sensitive data. This includes not only information users actively input, such as period dates, symptoms, mood changes, sexual activity, and pregnancy status, but also passive data like device identifiers, location data, and usage patterns (Flo Health, 2024). While this is often framed as necessary for better accuracy, it also means users are sharing intimate health and behavioral information with companies whose data governance practices are not always transparent. Although platforms often claim that data is anonymized or shared only with "trusted partners," these terms are rarely defined in meaningful ways. Data may be stored in cloud-based systems and processed by third-party analytics firms or used for targeted advertising, even when the app is marketed as private or secure. These practices reveal that femtech platforms are not neutral health tools, but rather part of a broader digital ecosystem that treats personal data as a key resource, which raises important questions about consent, data governance, and privacy.

However, despite these promises of empowerment and personalization, femtech technologies operate within broader commercial and technological infrastructures that complicate their emancipatory narratives. Many apps rely on freemium models supported by the monetization of user data through advertising, predictive analytics, and third-party partnerships (Ford et al., 2021, p. 51). Thus, while offering users reproductive insights, they also embed users within systems of datafication and potential exploitation.

Understanding how these apps are designed, marketed, and embedded into daily life is essential for analyzing how digital reproductive health care simultaneously enables self-management while exposing users to new forms of surveillance and control.

2.2 Empowerment Through Self-Management & Health Tracking

Femtech apps like Flo or Clue encourage users to take an active role in managing their reproductive health. By tracking symptoms, moods, and hormonal changes, users are offered personalized insights that help them plan fertility, manage physical activity, or understand emotional patterns throughout their cycles. This kind of daily engagement with your body can create a strong sense of knowing, not just in terms of facts and data, but in feeling like you're the expert on your own body. This is sometimes described as *epistemic authority*, the idea that someone can gain legitimate knowledge outside of medical professionals (Zagzebski, 2012, p. 101). Ruckenstein and Pantzar (2017, p. 4) describe this as "situated objectivity": blending personal experiences with data to create a way of knowing that feels both scientific and intuitive. Fotopoulou (2020, p. 237) similarly points out that these tools let users take ownership of their reproductive data and health on their own terms.

Tracking also gives emotional reassurance. Many users feel more in control, more in touch with their bodies, and more confident dealing with things that are often ignored in healthcare settings, things such as irregular cycles, PMS symptoms, or mood swings. Balsamo (1996, p. 89) argues that reproductive technologies like these can shift how we see the female body, not as something to be examined by a doctor, but as something we can understand and interpret ourselves. Roberts (2016, p. 62) adds that apps can break the silence around things like period pain or hormonal changes by helping users name and track them, which makes them feel more valid and real.

But empowerment through self-tracking isn't always straightforward. Many researchers argue that the way these apps talk about empowerment fits within a bigger social idea: that health is something you're personally responsible for. As Lupton (2016, p. 102) explains, users aren't just supported to understand their bodies, they're expected to constantly monitor and improve them, as if that's their job. Sharon and Zandbergen (2017, p. 1697) call this "data fetishism": a kind of pressure to always be tracking and analyzing, as if more data always means better control.

The design of these apps also tells a story. Many are built around ideas of regularity, control, and what a "healthy" cycle should look like. Lupton and Maslen (2018, p. 197) show that this often leads to a medicalized view of menstruation, where everything is supposed to be predictable and on time. For people with irregular periods, hormonal conditions, or neurodivergent experiences, this can feel alienating. When the app doesn't match your reality, it can create stress, self-doubt, or frustration (Maslen & Lupton, 2019, p. 3). While tracking can feel empowering, it can also become a source of pressure. Some users feel guilty when they forget to log something or feel anxious about what the app says. As Pantzar and Ruckenstein (2017) and Nafus and Sherman (2014, p. 1795) note, self-tracking involves a lot of mental and emotional work. Kennedy and Moss (2015, p. 516) describe this as "calculated intimacy": a closeness to your body that only comes through regular effort and attention.

This neatly ties together with the fact that the kind of user these apps seem to be designed for is pretty narrow: usually cisgender, middle-class, digitally literate, and focused on fertility. As Bivens and Hoque (2018, p. 720) argue, this leaves out many people, including LGBTQ+ users or anyone with health experiences that don't match the app's assumptions. But this exclusion goes beyond identity, because it also reflects deeper structural inequalities. For instance, low-income women or those living in rural areas may not have regular access to smartphones, mobile data, or stable internet connections, all of which are prerequisites for using these apps effectively. Similarly, individuals with lower levels of digital literacy may find these tools confusing or unusable, especially when the interface assumes a high level of health or tech knowledge. Even when the app is free, meaningful access is often shaped by broader issues like time scarcity, language barriers, or limited access to healthcare services that could otherwise complement or contextualize self-tracking. This means that empowerment, as framed by these technologies, is often only available to those already in a relatively

privileged position. Ignoring these structural barriers risks presenting empowerment as universally accessible, when in reality it is shaped by uneven access, resources, and social conditions.

Despite these barriers, femtech technologies can offer benefits to low-income women, digitally illiterate users, or those with limited access to healthcare, but only under specific conditions. For instance, if designed with accessibility in mind, apps could help users track symptoms over time to better advocate for themselves in overstretched or under-resourced medical systems. For those with irregular access to doctors, consistent self-tracking can create a personal health record that may be valuable during brief consultations. Additionally, if apps were built with simplified interfaces, offline functionality, and culturally sensitive language options, they could potentially support broader populations. However, these possibilities depend on inclusive design and public health integration, which are currently lacking in many mainstream femtech platforms.

While femtech platforms offer powerful tools for self-knowledge and bodily engagement, the empowerment they facilitate is deeply entangled with structures of responsibilization, emotional labor, and self-surveillance. This construction of empowerment provides a critical bridge to the next section, which examines how femtech's promises of autonomy are increasingly shaped by the economic logics of surveillance capitalism.

2.3 Surveillance as a New Business Model

Femtech apps often promise users more control over their bodies and better insight into their reproductive health. These platforms suggest that if users log enough symptoms, moods, and cycle data, they'll be able to manage their fertility, emotional wellbeing, or hormone shifts more effectively. But behind this sense of control lies something more complicated. While femtech can feel empowering, these platforms are also part of a larger digital system that's built on collecting and monetizing personal data. In other words, they're not just health tools; they're part of what Zuboff (2019, p. 8) calls surveillance capitalism; a system where personal experiences are turned into data, which is then used to predict, influence, and profit from user behavior.

Central to the logic of surveillance capitalism is the process of *datafication*, the transformation of everyday activities, emotions, and bodily states into quantifiable data points (van Dijck, 2014, p. 198). In the context of femtech, datafication refers to how menstrual cycles, moods, and even sexual activity are captured, categorized, and stored. These data are not merely used to inform the user but are often leveraged to train algorithms, personalize content, or generate profit through targeted advertising and partnerships. As such, datafication plays a key role in shaping how reproductive bodies are understood, acted upon, and commodified in digital health ecosystems.

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Users might think they are just tracking their periods, but are actually also providing extremely sensitive information, about sex, emotions, medical symptoms, even pregnancy status, which gets collected and processed, often without them really knowing how or why. This process fits into Foucault's idea of the panopticon: a form of internalized surveillance where people adjust their behavior because they think they're being watched (Foucault, 1977, p. 201). In the digital version, users don't see who is watching, but they're constantly encouraged to input data, reflect on it, and adjust their routines. Lyon (2006, p. 3) adds that modern surveillance happens not through force but through participation. Femtech apps use positive reinforcement, sleek visuals, and reminders to make logging feel like care, while actually serving corporate goals.

This is where Lupton's (2016, p. 114) term "intimate surveillance" becomes relevant. Femtech apps collect private details that were once only shared with a doctor or close friend. Now, this information becomes part of a much larger data economy. Companies aggregate it, analyze it, and often sell or share it with advertisers, analytics firms, or health-related businesses. Even if the app is free to use, someone's paying for it, and often, that price is paid in data.

The way these platforms make money shows how data extraction is baked into their business models. Many apps follow a freemium model: the basic version is free, but premium features cost extra. Still, even free users are incredibly valuable because their data can be used for advertising, partnerships, or algorithm training. In 2019, the Federal Trade Commission (FTC) investigated Flo for sharing sensitive health data with Facebook and Google, even after promising users it would remain private (FTC, 2021). Flo later introduced "Anonymous Mode" and updated its privacy policy, but these changes show how pressure from regulation, not necesserily ethical design, often drives reform.

Even when apps appear to improve privacy, the details often remain vague. Privacy policies are full of unclear language like "trusted partners" or "third-party processors," and they rarely explain who actually sees the data or for what purpose (Cohen, 2019, p. 47). Ford et al. (2021, p. 87) point out that while companies may say they don't "sell" data, they often still use it in ways that support targeted ads, product development, or commercial partnerships. Zuboff (2019, pp. 131–133) argues that this is exactly how surveillance capitalism works: users give data freely, thinking that this will get used for personal use, but it ends up fueling corporate profit in ways they can not see. Users might think that they are in a private space of self-care, but their disclosures are actually feeding a much wider economic system.

This imbalance creates what Zuboff (2019, p. 208) calls an asymmetrical relationship. Users input deeply personal data while companies know everything about them and reveal almost nothing in return. Sharon (2016, p. 58) adds that this lack of transparency is a core feature of data-driven health platforms. It reinforces the illusion of control while hiding the mechanics of commodification. Apps

might make users feel like they're gaining knowledge and autonomy, but in reality, their choices are shaped by what the platform allows, and what it chooses to tell them.

The design of these platforms also plays a role in limiting user autonomy. Most users accept the terms of service without reading them, because they're long, complicated, and written in confusing legal language. Cohen (2022, p. 47) argues that this leads to what's known as "coerced consent": people click "agree" not because they truly understand the terms, but because saying no would lock them out of using the app. This kind of choice isn't really a choice at all. Users are nudged toward compliance through design, not informed decision-making.

Building on these critiques, this study also draws on Nissenbaum's (2010, pp. 127–129) theory of contextual integrity, which reframes privacy not as secrecy or complete control, but as the appropriate flow of information within specific social contexts. According to Nissenbaum, privacy is violated when information is used outside of the context in which it was originally shared. This perspective is especially relevant in femtech, where intimate health data provided for personal tracking may be repurposed for advertising, profiling, or research without users' full awareness. This theory offers a valuable lens to interpret users' selective tracking practices, emotional discomfort, and the symbolic acts of refusal observed in this study.

Once reproductive data is collected, it doesn't just stay in the app. Sharon (2016, p. 569) explains that health data often travels across platforms, data brokers, and algorithms. It might be used by insurance companies, advertisers, or even political campaigns. Zuboff (2019, pp. 131-133) refers to this as creating "epistemic inequality": companies know more and more about users, while users know less and less about how their data is used. Feminist scholars like Roberts (2016, pp. 65-67) and Fotopoulou (2020, p. 157) emphasize that when deeply gendered, intimate experiences are turned into data points, they risk being stripped of meaning and turned into products.

This phenomenon doesn't affect everyone equally. Ajana (2017, p. 39) points out that femtech reinforces a broader neoliberal narrative where health becomes a personal responsibility. Users are expected to manage their fertility, diet, mood, and productivity through constant self-monitoring. But this assumes that everyone has the time, energy, and resources to do so. Feminist critics remind us that this logic overlooks systemic barriers and uneven access. Roberts (2016, pp. 65-67) notes that marginalized users may face greater risks of data misuse or exclusion.

So, while femtech might offer tools for health awareness and cycle tracking, it also ties users into systems of surveillance, commercial exploitation, and unequal power. The empowerment it promises is often conditional, shaped by the app's goals and design. By looking at femtech through the lens of surveillance capitalism, we can see the deeper costs of these platforms, not just in data, but in agency, trust, and privacy.

2.4 Feminist Theories on Technology, Data, and Care

This final section brings in feminist critiques to better understand how femtech technologies are shaped by gendered power structures. Feminist scholars have long pointed out that science and technology have historically centered male experiences. As Wajcman (2004, p. 21) argues, the history of technology is deeply masculine, built around ideals of control, objectivity, and rationality. These values often leave out women's embodied, emotional, and cyclical experiences. Femtech, while often framed as a response to this gap, still operates within the same systems that have historically excluded or misrepresented women. Bivens and Hoque (2018, p. 718) explain that femtech platforms often reproduce mainstream ideas about womanhood, especially focusing on cisgender, heterosexual users who want to get pregnant. This creates a narrow picture of what it means to be a "typical" user, leaving out queer, trans, or non-reproductive identities.

Instead of radically changing the system, femtech sometimes reinforces older gender norms. Feminist theorists like Haraway (1988, p. 581) remind us that what seems like objective health data is always shaped by social and cultural ideas about what women's bodies should be like. When apps offer insights based on average cycles or binary gender categories, they often pathologize anyone who falls outside those patterns. Femtech might look personal and responsive, but the data it relies on is still standardized and abstracted. It becomes a new form of control disguised as care.

Apps like Flo ask users to constantly track, interpret, and manage their bodily rhythms. This expectation fits with what Lupton and Pedersen (2016, p. 6) describe as the "responsibilized subject": someone who feels morally obligated to take charge of their own health. In the context of femtech, this responsibility is deeply gendered. Women are expected not just to monitor their health, but to optimize it for fertility, productivity, and emotional balance. This pressure reflects broader ideas that women must manage their bodies and emotions not only for themselves, but for their families, partners, or future children.

This idea of empowerment through tracking sounds appealing, but as Fotopoulou (2020, p. 237) shows, it involves a lot of emotional and cognitive work. Every log, reminder, and prediction invites users to reflect on their feelings, adjust their behaviors, or even worry about irregularities. This labor is often invisible but very real. It is work that is expected and normalized, yet rarely questioned.

Balsamo (1996) and Dickenson (2012, p. 112) both point out that women's reproductive bodies have long been controlled through medicine, law, and culture. Femtech continues this history by promoting tools that invite users to "know" their bodies, but only within the limits of what the app can measure and analyze. If your cycle doesn't fit the model, the app might label it as irregular, risky, or out of sync. This can create anxiety or self-doubt, even when your body is simply doing something normal for you.

Roberts (2016, p. 602) adds that this kind of surveillance has never been applied equally. Historically, reproductive surveillance has disproportionately targeted marginalized groups: women of color, poor women, disabled women, and LGBTQ+ individuals. Crenshaw's (1991, p. 1244) concept of intersectionality reminds us that experiences with technology are shaped not just by gender but also by race, class, sexuality, and ability. Femtech apps that focus on the needs of white, middle-class, cisgender users risk reproducing inequalities instead of challenging them.

Technofeminists like Haraway (2016, p. 36) and Wajcman (2004, p. 21) argue that we need to stop seeing technology as either good or bad. Instead, we should see it as political: a site of negotiation, conflict, and possibility. Femtech apps are helpful for many people, but they are also shaped by profit motives, medical norms, and cultural assumptions. They help users learn about their bodies, but they also encourage certain ways of being: regular, fertile, productive, and emotionally in control.

Haraway (2016, p. 36) talks about "staying with the trouble," which means facing these contradictions rather than trying to simplify them. Feminist theory helps us see that users aren't just passive consumers of technology. They adapt, resist, and reinterpret what the app tells them. Some ignore the reminders, some skip logs, and others use the app in ways it wasn't designed for. Empowerment, then, isn't something the app gives. It's something that users create through their own practices.

2.5 Making Sense of Femtech: A Critical Integrative Lens

This final section brings together the different theoretical strands discussed in this chapter to offer a coherent framework for analyzing femtech platforms. These apps are not just tools for managing cycles; they are complex sociotechnical systems where empowerment, care, surveillance, control, and commodification come together in subtle and sometimes contradictory ways.

From the perspective of platform logic, femtech technologies promise users autonomy, health insight, and bodily literacy. Yet they do so within infrastructures that are deeply shaped by platform capitalism, where data extraction is a primary source of value. Empowerment, meanwhile, is framed not only as increased knowledge but also as self-optimization and continuous monitoring, placing the responsibility for health squarely on the individual. Feminist and technofeminist critiques complicate this further by showing how these platforms reproduce long-standing gendered dynamics, normalizing certain reproductive timelines, reinforcing emotional labor, and leaving out users who do not fit the assumed mold of cisgender, fertility-focused, digitally literate womanhood.

Overall, this chapter has developed a multidimensional framework for studying femtech platforms critically. It connects structural, emotional, and experiential layers, offering tools to unpack

how empowerment and control are entangled. Rather than framing femtech as either liberating or exploitative, this approach focuses on the ambiguity, asking how users live within and push back against these contradictions.

3. Research Design

This study employs a qualitative, multi-method research design to examine how women experience privacy and empowerment in relation to personal data and reproductive health management while using femtech applications, with a particular focus on menstruation- and ovulation tracking app Flo. A qualitative approach is appropriate due to the exploratory nature of the research question and the need to understand subjective experiences, affective responses, and individual meaning-making processes. As feminist media scholars have noted, studying technologies related to the body requires attention to lived experience and contextual interpretation, which qualitative methods are well-suited to uncover (Lupton, 2017, p. 22; Haraway, 1988, p.589).

The core of the research design consists of two complementary methods: semi-structured interviews and qualitative content analysis. Semi-structured interviews enable the collection of in-depth narratives that reflect how women personally engage with Flo, including their sense of bodily autonomy, trust in the platform, and awareness of data practices. The flexibility of this method allows the researcher to adapt the interview structure to participants' unique experiences while maintaining thematic consistency across cases (Bryman, 2016, p. 471).

However, individual experiences cannot be fully understood in isolation from the broader cultural, technological, and economic discourses in which they are embedded. As such, the study integrates a second method, which is qualitative content analysis. This involves the analysis of selected textual materials from the Flo app, specifically its terms of service, privacy policy, and a curated sample of user reviews from the Dutch Google Play Store. These materials offer insight into how key concepts such as privacy, consent, and empowerment are constructed and communicated both by the platform and its users. By combining individual user narratives with an examination of how the app frames its data practices, the study moves beyond a solely user-centric approach to also consider the structural and discursive dimensions of femtech technology.

The use of multiple qualitative methods enhances the credibility and rigour of the research through data triangulation (Denzin, 2012, p. 82). Whereas the interviews give insight into how women feel and reflect on their usage of the app, the content analysis helps interrogate the narratives and silences embedded in its design and communication. The methodological choice to integrate user experiences with contextual discourses is particularly relevant in femtech, a field shaped by tensions between intimate data use and commercial interests (Fotopoulou, 2020, p. 15; Ford et al., 2021, p. 51).

This design also aligns with feminist epistemological principles, which advocate for research that situates knowledge within embodied, social, and institutional contexts (Haraway, 1988, p. 589; Harding, 2004, p. 128). In line with this perspective, the research treats user voices not as neutral data points but as situated accounts shaped by intersecting dynamics of gender, technology, and digital capitalism. The aim is not to generalize across all users of Flo, but rather to offer a nuanced account of

how empowerment and privacy are experienced and negotiated by women in everyday reproductive health practices.

Finally, the choice of Flo as a case study is justified both by its global prominence, with over 280 million downloads worldwide (Flo Health, 2024), and by its centrality in public debates around menstrual data and digital surveillance. As a leading app in the femtech market, Flo offers a symbolic and empirically rich site through which broader tensions in the industry can be explored. Moreover, Flo has been the subject of controversy regarding data-sharing practices with third parties, further underscoring its relevance to this study's critical inquiry into privacy and empowerment (Federal Trade Commission, 2021).

Through this research design, the study aims to critically engage with the promises and pitfalls of digital health tools marketed to women, grounding its analysis in both user narratives and the sociotechnical systems in which those experiences unfold.

3.1 Sample, Participants, and Recruitment Strategy

The target population for this study consists of women aged 25 to 35 living in the Netherlands who have used a menstruation or fertility tracking application for a period of at least one month. This includes, but is not limited to, users of the Flo app. The decision to broaden the sample beyond the confines of a single app was motivated by both methodological and theoretical considerations.

From a practical standpoint, expanding the sampling frame improved feasibility by facilitating participant recruitment across different platforms. From an academic perspective, it enabled a more nuanced and comprehensive understanding of user experiences situated within the broader femtech ecosystem. Although Flo functions as the central case study in this research, narratives from users of other femtech applications were included in the interview analysis when their experiences reflected comparable features, such as similar data-sharing practices, privacy settings, user interfaces, or health personalization tools. This strategy allowed for a more layered thematic exploration and enabled Flo's user experience to be contextualized within wider industry practices and technological norms. Femtech applications frequently offer overlapping functionalities, including menstrual tracking, ovulation prediction, cycle notifications, and access to personalized health advice. Furthermore, many operate under similar business models and data governance regimes that prioritize user engagement while collecting and potentially monetizing sensitive health data. Thus, widening the participant scope supported analytic generalization by identifying recurring patterns across platforms. At the same time, it preserved the depth necessary for focused, comparative analysis centered on Flo as the principal object of study (Fotopoulou, 2020, p. 157; Lupton, 2017, p. 22).

The selected age range reflects a demographic often at a life stage where menstruation, fertility, and reproductive planning are particularly salient concerns. Additionally, this age group corresponds closely with the average age at which women in the Netherlands give birth to their first child (30.3 years), enhancing the relevance of the study's findings to the primary user group of femtech applications (Centraal Bureau voor de Statistiek [CBS], 2024).

A purposive sampling strategy was employed to recruit participants whose experiences were directly relevant to the research questions. This approach is well-suited to qualitative research, where the goal is to gain in-depth understanding of complex phenomena rather than achieve statistical generalizability (Palinkas et al., 2015, p. 535). To enhance the diversity of the sample and extend its reach beyond the immediate social networks of the researcher, snowball sampling was also implemented. Initial participants were encouraged to refer acquaintances who met the inclusion criteria, thereby enabling the recruitment of additional respondents through informal peer networks.

Recruitment took place through both digital and interpersonal channels. Online recruitment was conducted via targeted posts and messages on platforms such as Instagram, Facebook, and WhatsApp, particularly within women's (health) communities, university groups and student associations. Offline recruitment included word-of-mouth referrals and outreach through personal contacts. All calls for participation included a concise description of the study's purpose, reassurances of confidentiality, a clear indication of the time commitment (approximately 30 to 60 minutes), and an invitation to schedule an individual interview. Participants could choose to be interviewed in either Dutch or English, depending on their comfort and preference.

The intended number of interviews ranged from eight to ten. However, consistent with qualitative methodological standards, the final sample size was determined based on the principle of thematic saturation; the point at which additional data no longer yield new themes or significant variations in meaning (Guest, Bunce, & Johnson, 2006, p. 59). This flexible approach prioritizes the richness, depth, and variability of data over rigid numerical quotas and is particularly appropriate when studying complex phenomena.

While efforts were made to recruit a demographically diverse sample within the defined age range, the study acknowledges structural limitations inherent in its recruitment process. For example, participants reached through Instagram or WhatsApp networks may already be more likely to be digitally literate, highly educated, or socially connected. These factors potentially influence the overall composition of the sample in terms of class position, digital orientation, and familiarity with health technologies. Such dynamics are recognized and critically reflected upon in the limitations section of this thesis.

To provide additional context for the interview data and enhance interpretive transparency, the table below offers a brief overview of the interview participants. For each participant, a pseudonym is

listed alongside their age, occupation or study status, primary menstruation app used, and estimated length of app usage. This contextual information is particularly relevant for understanding how personal background and digital experience may shape perceptions of privacy, empowerment, and health management in femtech environments.

Table 1. Overview of Interview Participants

Pseudonym	Age	Occupation / Study	Main App Used	App Usage Duration
P1	25	Care worker in disability sector	Flo	Approximately 10 years
P2	26	Master's student at Erasmus, part-time kitchen assistant	Apple Health	Several years
P3	27	Intern in Food Quality Management	Flo	Intermittent use over a few years
P4	34	Functional IT administrator and volunteer communications advisor	Apple Health	Since first childbirth (~9 years ago)
P5	31	Advisor on patient participation in research	Apple Health	Several years
P6	27	Front office employee and board member of psychology association	Flo	2.5 years

All interview participants received an information sheet outlining the aims and procedures of the study, and written informed consent was obtained prior to participation (Appendix C). Participants were explicitly informed of their right to withdraw from the study at any time, without the need to provide a reason and without facing any consequences. No financial compensation was provided for participation, which aligns with standard ethical guidelines for low-risk academic research involving adult participants.

In addition to the interviews, a qualitative content analysis was carried out to better understand how the Flo app frames ideas like privacy, consent, and empowerment in its own language, and how users respond to that in practice. This analysis focused on tree main types of material: (1) Flo's official terms of service, (2) privacy policy, and (3) a curated sample of 120 user reviews taken from the Dutch

Apple App Store. These sources were selected because they reflect both the platform's institutional voice and the lived experiences and emotions of actual users.

The reviews were collected between January and March 2025 and filtered using thematic keywords such as "privacy," "control," "pressure," "trust," and "usefulness" (Appendix F). This helped narrow the sample to reviews that directly engage with key themes of the research. The terms of service and privacy policy were analyzed to see how the app frames user responsibility, consent, and data governance. These documents, though technical and formal in tone, are crucial in shaping the boundaries of the user platform relationship and in communicating what happens to users' data behind the scenes, often in vague or generalized ways.

3.2 Operationalization and Data Collection

This study focuses on two core theoretical concepts, which are privacy and empowerment within the context of femtech use. Given that both concepts are abstract, multifaceted, and context-dependent, they were operationalized into distinct thematic dimensions. These dimensions guided both the design of the semi-structured interview guide and the subsequent coding process during data analysis.

3.2.1 Operationalization of Empowerment

Empowerment was conceptualized as a user's perceived ability to make informed and autonomous decisions about their reproductive health. Drawing from feminist technology studies and self-tracking scholarship, empowerment was understood not as a fixed state, but as a dynamic and potentially ambivalent process (Fotopoulou, 2020, p. 23; Lupton, 2015, p. 447). Three interrelated subdimensions were used to guide the operationalization of this concept in the interview design:

The first dimension, *knowledge acquisition*, refers to the extent to which users feel that the application provides them with new or clearer insights into their menstrual and reproductive health.

- Example interview question: "In what ways has this application helped you feel more informed about your body or cycle?"

The second dimension, *decision-making autonomy*, captures whether users perceive the app as supporting their ability to make independent health-related decisions.

- Example question: "Have you ever made a health or lifestyle choice based on insights from the app? Can you tell me more about that?"

The third dimension, *self-surveillance and emotional response*, relates to how users experience the act of tracking itself, and whether it feels empowering, burdensome, or anxiety-inducing.

- Example question: "Do you ever feel pressured or guilty when you forget to track something?"

This framing allowed for both positive and negative affective experiences to emerge, recognizing that empowerment through technology can involve both control and constraint (Sharon, 2016, p. 58).

3.2.2 Operationalization of Privacy

Privacy was understood as the perception of control over one's personal and bodily data, as well as awareness of data collection and use. The concept was grounded in critical data studies and digital ethics literature, particularly in relation to surveillance capitalism and platform governance (Zuboff, 2019, p. 208; van Dijck & Poell, 2016, p. 3). Three analytical subdimensions were identified for the purpose of interpreting participant responses:

The first dimension, *perceived risk*, reflects users' concerns about how their data might be accessed, shared, or misused.

- Example question: "Are you concerned about who might have access to your health data from the app?"

The second dimension, *transparency and consent*, refers to users' awareness of the app's data collection practices and the clarity of its privacy policy.

- Example question: "Did you read the app's privacy policy when you signed up? Do you feel you understand what they do with your data?"

The third dimension, *trust and vulnerability*, captures the emotional aspects of privacy, including feelings of safety, exposure, or betrayal.

- Example question: "Do you feel comfortable using the app? Why or why not?"

3.3 Construction of the Interview Guide

The interview guide was designed to explore women's experiences of empowerment and privacy in relation to the use of menstrual and fertility tracking applications. Its construction was guided by the operationalization of the two core theoretical concepts, empowerment and privacy, into more specific thematic dimensions, ensuring that the interviews would yield rich, relevant, and conceptually grounded data. The guide was structured into five thematic sections, each serving its own

purpose in facilitating an open, reflective, and progressively deeper conversation. The full interview guide is included in Appendix A.

The interview is opened with a short introduction script, which explained the purpose of the research, emphasized participants' rights to confidentiality and voluntary participation, and asked for explicit consent to record the conversation. This introduction aimed to create an atmosphere of trust and transparency, which is particularly important when discussing potentially sensitive topics such as reproductive health and personal data (Heldens & Reysoo, 2005, p. 122).

The first section, "Getting to Know You," contained general demographic and lifestyle questions intended to ease participants into the conversation. These introductory questions helped establish rapport, contextualize the participant's technology usage habits, and offer insights into how digital health technologies fit into their broader daily lives. Asking about general technology use before discussing femtech specifically also minimized potential feelings of vulnerability early in the interview.

The second section, "General Use of Tracking Apps," focused on participants' usage patterns, preferences, and motivations regarding menstrual and fertility tracking applications. Questions in this section addressed the duration and frequency of use, app selection processes, most-used features, and perceived helpfulness or shortcomings. These questions provided a foundational understanding of participants' relationships with their tracking apps before delving into deeper affective and critical reflections.

The third section, "Experiences of Empowerment and Self-Management," explicitly engaged with the first core theoretical concept: empowerment. Questions here were grouped around two subthemes: (1) knowledge and understanding of the body and (2) emotional responses to self-tracking practices. Participants were invited to reflect on how app usage shaped their knowledge, decision-making, emotional wellbeing, and sense of autonomy. In line with feminist scholarship on technology and self-tracking (Fotopoulou, 2020, p. 23; Lupton, 2015, p. 447), the questions allowed for ambivalent experiences to emerge, recognizing that empowerment can be both enabling and constraining.

The fourth section, "Perceptions of Privacy and Data Handling," addressed the second core theoretical concept: privacy. Here, questions explored participants' initial awareness of data practices, emotional reactions to privacy risks, and behavioral responses such as reading privacy policies or modifying app usage. To ensure informed responses, a short, factual background on common data-sharing practices among femtech companies was provided if participants were unfamiliar with the issue. This section incorporated both reflective and hypothetical prompts to elicit emotional and behavioral dimensions of trust, vulnerability, and perceived risk (Zuboff, 2019, p. 208; van Dijck & Poell, 2016, p. 3).

The final section, "Concluding Reflections," offered participants the opportunity to share additional thoughts or experiences that had not been covered by the structured questions. It also invited feedback on the interview experience itself, in line with feminist methodological principles that view research encounters as co-constructed and emphasize participant agency throughout the research process (Haraway, 1988, p. 589; Harding, 2004, p. 128).

Throughout the interview, questions were designed to be open-ended, neutral in tone, and non-leading. Follow-up probes were prepared but used flexibly depending on participant responses. This flexibility ensured that the interviews could adapt to the unique experiences and priorities of each participant while maintaining conceptual coherence across interviews. Language was deliberately kept informal and accessible, acknowledging that the topics of menstruation, health tracking, and digital privacy can be sensitive or stigmatized in some contexts.

The interview guide was piloted with two individuals who matched the target demographic. The pilot interviews led to minor adjustments in the phrasing and sequencing of questions to improve clarity, conversational flow, and emotional comfort. For example, questions about emotional reactions were moved slightly later in the interview to ensure participants were already at ease. Based on the pilot, small clarifications were also added to some privacy-related prompts to avoid assuming prior technical knowledge about data governance. Also this piloting made clear that the origional version had too much of an academical tone, which was ajusted later on.

3.4 Construction of the Content Analysis Dataset

The content analysis in this study was designed to complement the interviews by offering a deeper look into how privacy and empowerment are framed not just in personal experiences, but also in public-facing materials. For the user reviews, a Python script was created to scrape relevant entries from the Dutch Apple App store. This scraping took place between January and March 2025. To ensure the selection stayed close to the research focus, Reviews were filtered using specific keywords including "privacy," "trust," "data," "control," "usefulness," and "pressure." This step helped narrow the pool to reviews that spoke directly to emotional responses and user reflections on self-tracking, empowerment, and data use. Once collected, the reviews were imported into an Excel sheet where they where manually coded for recurring themes, patterns, and contradictions. Codes were loosely based on the same concepts operationalized in the interview guide, allowing for cross-comparison between personal narratives and public discourse.

For the terms of service and privacy policy, the documents where approached as institutional texts that shape user understanding and expectations. A systematic manual coding process was applied, in which specific clauses were tagged and organized based on recurring themes such as

consent, third-party data sharing, anonymization, personalization, and user agency. Close attention was paid to ambiguous language (e.g. "trusted partners") and to patterns in how responsibilities and rights were framed.

This combination of formal documents and spontaneous user feedback allowed to analyze how key concepts are both communicated by the platform and experienced or challenged by users. It adds a crucial discursive layer to understanding the everyday realities of femtech use.

3.5 Data Analysis

The interview transcripts and textual materials were analyzed through a thematic analysis, guided by the six-phase approach developed by Braun and Clarke (2006, pp. 87-93). This analytical framework was selected due to its methodological flexibility and its appropriateness for exploring experiential, affective, and discursive aspects of qualitative data. Thematic analysis has been widely adopted within feminist research traditions, as it enables the identification of patterned meaning across datasets while remaining attentive to contradictions, silences, emotional registers, and context-dependent expressions (Herzog, Handke, & Hitters, 2019, p. 729). It also allows for a rigorous yet interpretive engagement with data, making it particularly suitable for the present study's aim of examining how privacy and empowerment are experienced and articulated by users of femtech applications.

Familiarization with the data: All interview transcripts and textual materials, were read and re-read in order to immerse the researcher in the content and gain a preliminary understanding of the recurrent patterns, tensions, and affective tones present across the dataset. During this phase, reflexive notes were taken to record early analytic impressions and to identify areas warranting deeper examination.

Generating initial codes: The data were systematically coded at a semantic and latent level. Coding was conducted through a hybrid approach that combined inductive (data-driven) and deductive (theory-driven) strategies. Inductive codes emerged directly from the data, capturing unexpected meanings or experiences articulated by participants, while deductive codes were informed by the study's theoretical framework and operationalized themes, including notions of empowerment, privacy, trust, consent, and data commodification.

Constructing themes: Coded data extracts were examined for thematic similarity and conceptual alignment. They were then collated into candidate themes that captured broader patterns of meaning. For the interview data, this process involved clustering narratives that expressed similar feelings of agency, vulnerability, or ambivalence. In the case of the textual materials, the researcher examined how the selected documents communicated values such as transparency, user control, and technological trustworthiness.

Reviewing themes: Emerging themes were reviewed for internal coherence and distinctiveness. This involved a comparative reading across the data sources to explore how themes manifested differently depending on the actor and communicative platform. This step functioned as a form of analytical triangulation, helping to identify congruencies or disjunctions between institutional narratives and users' lived experiences. For example, expressions of anxiety in user reviews were examined alongside reassuring language in the privacy policy to interrogate discursive gaps or alignments.

Defining and naming themes: Each theme was refined and defined in relation to the study's central research question and conceptual framework. The researcher developed thematic narratives that articulated how empowerment and privacy were experienced not as fixed or universal constructs but rather as fluid and relational categories shaped by sociotechnical infrastructures, trust dynamics, and broader cultural discourses surrounding health, data, and gender.

Producing the report: In the final phase, themes were written up with supporting quotations from both interview participants and textual materials. Selected excerpts were chosen for their illustrative clarity and representativeness, as well as their ability to highlight diversity within and across participant experiences. In keeping with feminist methodological principles, particular care was taken not to flatten contradictions or ambivalences but instead to preserve the complexity of user perspectives.

The same thematic analysis approach was applied to the content analysis of textual materials in order to ensure methodological consistency between the different components of the dataset. While the interviews primarily reflected individual and subjective experiences of app usage, the textual materials revealed institutional framing strategies and public discourses surrounding privacy, safety, and empowerment. The thematic analysis of these materials allowed for an interpretive comparison of how values such as user autonomy, data responsibility, and trust were constructed and communicated by different stakeholders. This cross-textual approach facilitated a deeper understanding of how discourse operates within the femtech ecosystem, providing insight into both the affective experiences of users and the normative claims advanced by app developers.

By integrating the thematic analysis of interviews with that of the content materials, the study maintains methodological coherence while illuminating the interplay between user perception and corporate representation. In doing so, it contributes to a more comprehensive understanding of how gendered health technologies are navigated, contested, and made meaningful in everyday digital life.

3.6 Ethical Considerations

Given the intimate and potentially sensitive nature of the subject matter, reproductive health, bodily data, and digital privacy, particular care was taken to adhere to ethical research standards. The

study followed the ethical principles outlined in the Netherlands Code of Conduct for Research Integrity (VSNU, 2018) and was conducted under the supervision of Erasmus University Rotterdam.

Prior to participation, all respondents received an informed consent form that outlined the study's aims, the voluntary nature of participation, their right to withdraw at any time, and the measures taken to protect confidentiality. Participants were explicitly asked whether they consented to audio recording and whether they preferred to remain anonymous. All participants that opted for full anonymity are referred to by pseudonyms throughout this thesis.

Interviews were conducted in safe and familiar environments, either online or in private settings, and participants were reminded they could skip any questions they found uncomfortable. Transcripts were anonymized immediately after transcription and stored securely on a password-protected drive accessible only to the researcher. No identifying metadata from the Flo app or participants' personal health histories was collected. To respect data privacy beyond participant interviews, all content drawn from user reviews or media articles was anonymized.

3.7 Methodological Limitations and Reflexivity

While the study provides rich insights into the experiences of femtech tracking app users, several limitations must be acknowledged. First, the sample was limited in size and geographic scope, focusing exclusively on women aged 25–35 in the Netherlands. Although this provided a consistent demographic focus, it may not capture the diversity of global femtech experiences, particularly across racial, class-based, or cultural lines. Second, the reliance on voluntary participation via digital recruitment likely skewed the sample toward more digitally literate or privacy-aware users.

Moreover, while thematic saturation was used to guide the number of interviews, it is possible that additional perspectives, especially from users with different motivations, health conditions, or experiences, were not captured. These limitations do not invalidate the findings but rather frame their interpretive scope: this study aims for depth over breadth, and for theoretical transferability rather than generalizability (Lincoln & Guba, 1985, pp. 290-327).

From a reflexive standpoint, the researcher's positionality, as a woman of similar age to the participants, slightly younger, with academic exposure to feminist critique and born and living in the Netherlands herself, both enabled rapport and shaped the interpretive process. Steps were taken to remain analytically self-aware throughout the study, including the use of a research journal to record assumptions, surprises, and evolving interpretations. Feminist research acknowledges that subjectivity cannot be eliminated but should be critically examined (Haraway, 1988). Rather than claiming neutrality, this thesis embraces the interpretive nature of qualitative inquiry and situates its findings within a transparent, reflective methodological framework.

4. Results

This chapter presents the key findings of the study, drawing on both semi-structured interviews and qualitative content analysis to explore how women experience empowerment and privacy while using femtech apps, particularly Flo. Rather than presenting these sources separately, the results are organized thematically to reflect the layered ways in which personal experiences, platform design, and public discourse shape each other. Each section weaves together interview data, user reviews, and platform materials to unpack how femtech is lived, negotiated, and made meaningful in everyday life. Throughout, the analysis remains grounded in the theoretical framework, paying attention to how empowerment, responsibilization, consent, and trust are experienced within broader systems of surveillance capitalism, gendered health technologies, and digital care.

4.1 Navigating Self-Knowledge in Femtech

A recurring theme across interviews and app store reviews was the experience of empowerment through cycle tracking. In this study, empowerment is understood as a user's perceived ability to gain knowledge, interpret bodily patterns, and make autonomous decisions about reproductive health. Many participants described a growing sense of self-awareness as they used the app to connect mood, physical symptoms, and menstrual cycles. These moments of recognition gave users a feeling of control over both their bodies and emotions, which they often interpreted as empowering.

This reflects Ruckenstein and Pantzar's (2017) notion of situated objectivity, where personal data is not viewed as neutral but becomes meaningful through its embedding in lived experience. For example, P5 (31, advisor in research, Flo user for ~10 years) explained:

"I can see, yes, it's almost that time again, and I think, right, my emotions are stronger now, so I will think more carefully before making decisions."
Her use of the app supported emotional regulation and decision-making autonomy, as she gained clarity around the cyclical nature of her moods.

Similarly, P4 (34, IT manager, Flo user since childbirth) described the reassurance of recognizing emotional patterns:

"If you're emotional, you can think, oh, it's just because of this, it will pass soon."
These quotes suggest that the app facilitates epistemic authority over the body, users begin to trust their own interpretations of embodied states, rather than deferring entirely to external medical authority.

This benefit was echoed in app store reviews, where users praised Flo for "making things make sense" and helping them "feel in control of [their] body and emotions." Such feedback affirms the platform's role in knowledge acquisition, a core dimension of empowerment.

However, this sense of agency was conditional and uneven. Many users pointed to structural limitations within the app, especially regarding cost. Several participants expressed frustration that meaningful features had been placed behind a paywall, altering their access to health insights. P6 (27, front office employee, Flo user for 2.5 years) remarked:

"I could have learned more if they just removed the paywall. Now I feel like I'm missing things."

This statement illustrates how empowerment is shaped by the freemium model, where the depth of reproductive insight becomes contingent on financial access.

This concern was also raised in app store reviews:

"I love how much I've learned from Flo, but it's frustrating that now you have to pay to keep learning."

Here, empowerment becomes data-dependent and commodified, a product delivered in exchange for subscription, rather than an inherent right. As Fotopoulou (2020) argues, this model risks reinforcing socio-economic inequalities, especially when bodily knowledge is positioned as a market good.

Beyond monetization, users also questioned the predictive reliability of the app. P3 (27, Food Quality Management intern, Flo user for a few years) called this dynamic "pseudo-control":

"You think you know, but it turns out not to be the case every time."

This highlights the emotional complexity of digital trust—users are intellectually aware that biological processes are variable, but they still experience frustration or doubt when the app's forecast doesn't match their body's behavior.

As P2 (26, master's student, Apple Health user) put it:

"It's like I know it's not exact science, but I still get annoyed when it's wrong. You expect it to help you, and when it doesn't, it's like… what's the point?"

These tensions reflect the datafication of reproductive health: emotional states are expected to align with algorithmic predictions, and when they don't, users may blame themselves or distrust the technology.

For some, the app's usefulness seemed time-limited. P1 (23, care worker, Flo user for 10 years) explained:

"Now my cycle is so regular and predictable that I know when I'll get my period, so I don't need the app anymore."

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This suggests that the app acts as a transitional support tool, rather than a sustained source of empowerment.

Still, a few users described the app in explicitly feminist terms. P5 reflected:

"Menstruation apps can really empower you by making you more aware of your own body. For a long time I didn't understand what my cycle was doing. Now I feel like I know myself better." This resonates with Haraway's (1988) call to reclaim epistemic authority, resisting biomedical detachment by cultivating intimate, grounded bodily knowledge.

Yet even in these statements, empowerment was described as partial and contingent, dependent on access, algorithmic fit, and health literacy.

In short, while Flo and similar apps can foster knowledge, clarity, and confidence, they also expose users to emotional friction and structural barriers. Empowerment in femtech is not simply delivered through design; it is negotiated through everyday interactions shaped by financial constraints, predictive errors, and bodily uncertainty.

4.2 Emotional Ambivalence and the Hidden Labor of Tracking

While many participants initially described cycle tracking as empowering, a deeper emotional layer emerged when they reflected on how it felt to maintain this engagement over time. What began as a tool for self-knowledge and autonomy often morphed into a sense of obligation, fatigue, or guilt. This emotional ambivalence illustrates how femtech platforms not only support care but can also demand it, subtly shifting emotional labor onto the user.

This dynamic aligns with Kennedy and Moss's (2015) concept of calculated intimacy, in which digital platforms encourage emotional closeness through design features that require ongoing interaction. Logging, notifications, and pattern recognition are presented as care, but come with expectations of consistency and compliance.

P5 (31, advisor in research, Flo user for ~10 years) captured this contradiction:

"It's nice that you can track things and gain insights. But sometimes it becomes something you have to do. Like a task. If you forget, you feel guilty. And then you feel like, 'ugh, I didn't log it, now it's incomplete.' That gives a weird feeling, like you failed somehow."
Here, the act of tracking shifts from voluntary self-surveillance to internalized discipline, a clear expression of responsibilization (Lupton, 2016), where users feel morally accountable for managing their health through digital routines.

This sense of emotional strain extended into intimate relationships. P3 (27, Food Quality Management intern, Flo user for a few years), who initially used Flo for fertility tracking, explained:

"At first it helped, because we had more clarity. But we started realizing we were having sex just because of the timing. It wasn't fun anymore. It felt clinical. We decided to let that go, because it just added stress."

Her story reflects how optimization logic, central to digital self-tracking, can reshape private, embodied experiences like sex into tasks tied to data output, what Ajana (2017) describes as the extension of biopolitical control into intimate life.

For some, the emotional burden eventually led to quiet disengagement. P6 (27, front office worker, Flo user for 2.5 years) described her withdrawal:

"I don't do that anymore, because I find it a bit too much. Like, logging every symptom, headache, mood, cravings. I used to do it, but now I just skip it. It made me feel like I was constantly managing something, even when I just wanted to relax."

Her decision reflects what Sharon (2016) calls negotiated agency: a subtle refusal to comply fully with platform norms, not through protest but through selective disengagement.

This tension between empowerment and exhaustion was also visible in app reviews. One user wrote,

"I loved the app at first, but now it just feels like work,"

and another noted,

"I stopped using it because it became overwhelming to keep up."

These reflections reinforce the idea that femtech does not merely provide support — it also creates emotional obligations that can become burdensome.

Still, the experience was not universally negative. Some users valued reminders and routines. P6 added:

"Sometimes I forget to log my period, and the app reminds me. I actually like that, it saves me mental energy, like, I don't have to remember everything myself."

This illustrates that perceived burden or benefit depends heavily on emotional state and context. The same notification that feels helpful one day may feel intrusive the next.

Taken together, these accounts complicate the idea that digital health tools inherently empower users. While tracking can offer clarity and emotional reassurance, it can also produce guilt, fatigue, and intimacy strain. As Fotopoulou (2020) argues, femtech platforms do not simply offer empowerment, they demand it, often in ways that are invisible, routinized, and deeply felt.

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4.3 Navigating Data Practices in Femtech

In addition to emotional ambivalence, many participants expressed detachment or uncertainty when discussing data practices. While concerns about privacy were not absent, they rarely manifested as active mistrust or refusal. Instead, users described a more passive orientation, one shaped by resignation, default trust, or lack of time. This reflects what Cohen (2022) terms coerced consent: the phenomenon where users agree to data collection not out of informed choice, but because refusing would obstruct access to desired features.

This dynamic was widespread among participants. All six admitted to never having read the privacy policy of their app of use. P5 (31, advisor in research, Flo user for ~10 years) stated:

"It's just not something I take the time for. You want to use the app, not read legal stuff. I just assume it's fine, or I don't want to know too much."
This quote illustrates a form of trust-by-default, where convenience trumps scrutiny. While not rooted in blind faith, this type of trust reflects a pragmatic coping mechanism, an attempt to manage emotional energy in the face of complex, opaque systems.

App store reviews echoed this unease. Some users referenced past controversies, such as Flo's 2021 data-sharing settlement. One wrote:

"After the scandal with Facebook, I just don't trust them anymore. The 'Anonymous Mode' sounds nice, but they still track way too much."
Another commented:
"If they were serious about privacy, they wouldn't need to collect all this in the first place."
These remarks suggest an awareness of intimate surveillance: a mode of data extraction that targets emotional, reproductive, and bodily rhythms under the guise of care.

Still, participants rarely acted on this discomfort. P2 (26, master's student, Apple Health user for several years) shared:

"I always click 'only essential cookies.' It's one little thing I can control."
Such gestures represent what Sharon (2016) calls negotiated agency: small, symbolic acts of boundary-setting within systems that feel too large to challenge directly. These micro-choices don't eliminate risk, but they help users preserve a sense of control.

Importantly, participants distinguished between visible and abstract forms of consent. Cookie prompts felt manageable; privacy policies did not. The design of the app played a key role in shaping perceived agency. What is clickable and foregrounded feels actionable; what is buried in technical language remains inert. One app review captured this tension:

"They make it sound like you have control, but the truth is in the fine print, and no one reads that."
This reflects Nissenbaum's (2010) theory of contextual integrity, the idea that privacy is not about secrecy, but about maintaining appropriate flows of information within social expectations. When those expectations are violated or obscured, trust breaks down, not dramatically, but gradually.

For some, resignation replaced concern. P6 (27, front office worker, Flo user for 2.5 years) expressed this bluntly:

"I think I've just accepted that we live in a world where apps take our data. You can stress about it, or just keep going."
This statement aligns with Zuboff's (2019) critique of surveillance capitalism: users know they are being monitored, but the alternatives are too burdensome to pursue. In such cases, trust is not earned but tolerated, a kind of emotional bargain between user and platform.

Despite these limitations, participants were not naïve. Their trust was conditional, strategic, and emotionally calibrated. They knew they lacked full visibility into Flo's data systems, but weighed that against what the app gave them: cycle predictions, symptom logs, and a sense of control. Trust was thus not a belief in transparency, it was a coping strategy, shaped by routine, emotional economy, and the limits of user energy.

In sum, users did not experience Flo's privacy infrastructure as empowering. They rarely felt fully informed or in charge, but they found ways to manage their exposure, however small. Their consent was negotiated, partial, and distant, not given once and forgotten, but continually re-evaluated through daily interactions with a platform that both supported and surveilled them.

4.4 How Users Negotiate Consent and Discomfort

This section addresses how users perceive the risks of sharing intimate data with Flo, not through formal privacy discourse, but through personal choices, emotional cues, and subtle refusals. While few participants rejected the app outright, many described choosing not to track certain information, especially data that felt too intimate, invasive, or unnecessary. These behaviors illustrate a form of everyday resistance, where users assert control over their digital participation through selective disengagement.

Rather than relying on legal frameworks, users drew embodied, emotional boundaries. P3 (27, Food Quality Management intern, Flo user for a few years) explained:

"I only fill in the basics. I know the app wants more, like moods or discharge, but that feels a bit too much. I don't really know why, it just doesn't feel necessary."
This is a clear example of contextual integrity (Nissenbaum, 2010): the decision not to disclose isn't

driven by abstract risk, but by a social and emotional sense of appropriateness. What's acceptable in a health app is filtered through personal comfort and cultural upbringing, not just functionality.

Similarly, P5 (31, advisor in research, Flo user ~10 years) reflected:

"It feels invasive, honestly. I already don't talk about cervical mucus in real life, so why would I put it into an app?"
This quote shows that social taboos and embodied privacy shape tracking behavior. Even though the app offers space to log every bodily detail, users don't necessarily feel that level of sharing is justified or emotionally safe.

These decisions often stemmed from intuition rather than formal awareness. P1 (23, care worker, Flo user for 10 years) stated:

"Maybe I just grew up thinking that stuff is private. Or maybe even gross. I don't know. It's just not something I feel like sharing, even with an app."
Here, consent is affective and fluid, not a single agreement but an ongoing negotiation based on what feels "normal," "safe," or "too much." This reinforces the idea that privacy isn't about hiding data per se, but about regulating its flow in ways that feel contextually right a key aspect of contextual integrity.

These personal boundaries also emerged in user reviews. One user noted:

"I like the calendar, but I don't feel good entering stuff like mood or sex. I don't want that kind of data in the cloud."
Another said:
"It asks for too much. I just want a tracker, not a therapist."
These comments suggest that tracking expectations are not universally accepted. Instead, users carve out comfort zones, where menstruation logging is fine, but sex, emotion, or discharge feels off-limits.

These acts of limitation, as for example skipping features, turning off reminders, or using the app in minimal mode, represent what Sharon (2016) calls negotiated agency. They are not forms of protest, but quiet recalibrations of control, allowing users to participate without fully surrendering their comfort or autonomy.

P4 (34, IT manager, Flo user for 9+ years) voiced this tension clearly:

"It sometimes feels like the app just wants to get as much out of you as possible. I get that it wants to help, but it also wants your data."
This comment reflects the dual nature of femtech; it offers care, but care that is entangled with data extraction and commercial logic. Even when features appear helpful, users remain aware that behind each prompt is a business model.

Some participants navigated this tension through invisible resistance. P2 (26, master's student, Apple Health user) explained:

"I don't think I ever sat down and thought, 'I trust this app' or 'I don't.' I just know what I want to track, and I stop there. That feels like enough for me."
This approach shows how trust and consent are often felt rather than formalized based on gut feeling, not policy knowledge.

These examples push back against the idea of consent as a one-time, rational act. Instead, consent appears as context-sensitive, emotionally negotiated, and partially withheld. As Fotopoulou (2020) and Haraway (1988) remind us, technologies of care often demand data while failing to respect the emotional labor they require. Users in this study responded not by rejecting the app, but by drawing quiet lines; deciding what to track, what to ignore, and how much of themselves to reveal.

4.5 Flo's Privacy Policy and Terms of Service

This section addresses how Flo's business model and platform design shape user experiences of consent, control, and empowerment. Through a close reading of Flo's privacy policy and terms of service, it becomes clear that the platform presents a narrative of care and transparency, while embedding mechanisms that serve data extraction, personalization, and commercial goals. These documents function not only as legal protections but as discursive tools that define how empowerment is framed on institutional terms.

One of the most striking themes is Flo's repeated claim that users are "in control" of their data. The app highlights features such as data deletion, account editing, and the much-publicized "Anonymous Mode" as signs of empowered digital agency. At face value, this aligns with feminist demands for informed consent and data ownership (Fotopoulou, 2020). However, the documents often rely on vague, generalized language and design friction, which obscure rather than clarify how data is processed.

For instance, while Flo claims not to "sell" personal data, it admits to sharing user information with "trusted partners," including Meta and Google, for "personalization" and "relevant content." This reflects Zuboff's (2019) critique of surveillance capitalism, in which user experiences are leveraged as behavioral surplus, data that is collected not to serve users, but to feed prediction markets.

The language used here is key. Terms like "relevant" and "people like you" mask the profiling infrastructure behind algorithmic recommendations. Users may believe they are receiving neutral health advice, when in fact their behavior is being modeled, segmented, and optimized for monetization. Empowerment, then, becomes instrumentalized, used to justify more engagement, more input, and more data.

Flo's terms of service also place responsibility on the user. The app states that it is "not a substitute for medical advice" and that users are responsible for interpreting their own data. Legally, this is understandable. But ethically, it represents a form of responsibilization (Lupton, 2016), where users bear the burden of making sense of health patterns without clear support or accountability from the platform. As P5 (31, advisor in research) noted:

"I don't know what to trust. Sometimes it feels helpful, but then you read the fine print and think: wait, they don't even stand behind their own info."

This quote highlights the tension between perceived care and legal distance. The app offers forecasts, symptom suggestions, and emotional framing — but disclaims any real responsibility for outcomes.

Even mechanisms designed to offer control, such as opt-outs, are difficult to access. Users are told they can limit data collection by adjusting device-level settings or contacting customer support. These additional steps introduce design friction, which discourages disengagement. As Cohen (2019) argues, such practices contribute to coerced consent, where theoretical choice exists, but practical barriers make refusal unlikely.

P4 (34, IT manager) voiced this frustration:

"I always say I care about privacy, but I've never opened that settings page. It's too much work."

Her quote captures the emotional and cognitive labor demanded by privacy management in femtech apps. While transparency is promised, it is often hidden behind technical complexity and effort, rendering user autonomy symbolic rather than functional.

App store reviews echoed this skepticism. One reviewer wrote:

"I get that they added Anonymous Mode, but if they really cared about privacy, they wouldn't collect so much to begin with."

Another said:

"They say it's safe, but they said that before the Facebook thing, too."

These comments suggest that users feel the gap between the platform's language and its economic model, even if they don't read the policy documents directly. Trust, in this context, is not rooted in transparency, but in pragmatic compromise.

Ultimately, Flo's documents construct a corporate narrative of empowerment: one that emphasizes control, flexibility, and personalization, while obscuring the platform's dependence on behavioral data. This narrative aligns with the logics of surveillance capitalism, where user data is valorized, but user rights are conditional, abstract, and difficult to exercise.

In short, Flo's terms of service and privacy policy offer a corporate narrative of care, agency, and transparency. But a closer look reveals how much of this narrative depends on technical language, legal disclaimers, and platform-centric assumptions about what users know or can control. While participants rarely read these texts, the issues they raise, around consent, control, and trust, were deeply felt. This shows that privacy is not just written into policies but lived through everyday interactions, shaped by what platforms choose to explain, and what users are left to assume.

4.6 Discussion

The results presented in this chapter reveal that experiences of empowerment and privacy in femtech are complex, conditional, and emotionally negotiated. While participants often described feeling more informed and in control of their bodies, this sense of empowerment was frequently accompanied by stress, guilt, and fatigue. These findings reflect what Lupton (2016) calls responsibilization, where digital health tools shift the burden of care and monitoring onto individuals, particularly women. Users are not only expected to manage their health, but to do so within systems shaped by algorithmic opacity, monetized access, and behavioral prediction.

A central contradiction is that empowerment often depends on a user's ability to navigate or resist platform features that are framed as supportive. Participants such as P5 and P3 found that cycle tracking enhanced their understanding of emotional and physical patterns, which aligns with Ruckenstein and Pantzar's (2017) concept of situated objectivity. At the same time, this empowerment was often fragile and conditional. It depended on app accuracy, economic access, and emotional capacity. When these conditions were not met, users adapted by selectively disengaging, illustrating what Sharon (2016) calls negotiated agency: the small, everyday choices users make to protect their wellbeing within a platform that demands consistent participation.

The emotional labor of tracking also complicates the idea of empowerment. While femtech tools promise clarity and convenience, users often described tracking as a repetitive and sometimes stressful responsibility. This reflects Kennedy and Moss's (2015) concept of calculated intimacy, where platforms foster closeness and care by requiring regular self-disclosure. Participants like P5 experienced guilt when failing to log data, showing how health management becomes intertwined with emotional discipline.

Privacy was similarly experienced as an ongoing and emotionally informed negotiation, rather than a clear-cut agreement. Most participants had not read Flo's privacy policy and described a sense of resignation toward data collection. This supports Cohen's (2022) notion of coerced consent, where users accept terms not out of informed agreement, but because refusal would block access. Yet participants also performed small acts of resistance, such as declining cookies or avoiding the app's

more detailed features. These actions reflected a desire to preserve a sense of control without opting out entirely. Such choices align with Nissenbaum's (2010) theory of contextual integrity, which defines privacy as the appropriate flow of information within specific social contexts. What users chose not to share was shaped as much by emotional intuition and cultural taboos as by any formal understanding of digital risk.

The analysis of Flo's privacy policy and terms of service confirmed this gap between institutional rhetoric and lived experience. Although the platform claims to empower users with control over their data, it does so through vague language, design friction, and legal disclaimers that shift responsibility to the user. The promise of empowerment is thus undercut by the app's reliance on datafication, behavioral profiling, and personalization systems. This dynamic echoes Zuboff's (2019) critique of surveillance capitalism, in which users are enrolled in systems of data extraction that are difficult to see, question, or refuse.

Taken together, these findings challenge the idea that femtech platforms empower by default. Empowerment in this context is not something that is delivered by design. It is something users construct, negotiate, and sometimes resist in response to commercial systems, technological limitations, and social expectations. Users are not passive consumers of digital health tools, but active participants in shaping how care, trust, and autonomy unfold in everyday reproductive life.

These dynamics raise important questions about the limits of consent and control in commercial health technologies, which will be further addressed in the concluding chapter.

5. Conclusion

This thesis set out to investigate how women experience privacy and empowerment in relation to personal data and reproductive health management while using femtech apps, particularly Flo. Drawing on semi-structured interviews, app store reviews, and a close reading of platform documentation, the study shows that these experiences are not fixed or uniform but deeply relational, emotionally negotiated, and embedded in commercial and technological infrastructures.

Five key findings emerged from the analysis. First, participants commonly described empowerment as rooted in knowledge acquisition and emotional clarity. Cycle tracking helped them interpret bodily patterns and regulate emotions, offering what Ruckenstein and Pantzar call "situated objectivity." However, this empowerment was often time-limited: as users grew more familiar with their bodies, they no longer needed the app, or felt constrained by its accuracy limits.

Second, empowerment was often undermined by emotional labor. Participants described the app as supportive but also burdensome, especially when tracking became routine. Guilt and fatigue emerged when they failed to log symptoms, revealing how the promise of empowerment was often entangled with pressure and obligation.

Third, experiences of privacy were shaped less by legal understanding than by emotional and cultural boundaries. Users rarely read the privacy policy, but they intuitively avoided entering certain intimate details. This demonstrated a subtle, affective approach to privacy that relied on comfort and intuition rather than formal consent, aligning with but also expanding Nissenbaum's theory of contextual integrity.

Fourth, trust in the platform was conditional and often resigned. Most participants accepted data collection not because they agreed with it, but because opting out was inconvenient or unclear. This reflects a form of coerced consent shaped by emotional economy rather than transparency.

Finally, users were not passive. Many enacted subtle forms of refusal, skipping features, limiting input, or ignoring prompts. These quiet acts of resistance allowed them to regain a sense of control without abandoning the app entirely. Consent, in this context, was not a single moment, but a continual process of negotiation.

Taken this valuable knowledge together, we can conclude that women's experiences of privacy and empowerment in femtech are shaped by emotional intuition, platform design, commercial logics, and sociocultural norms. These experiences cannot be reduced to a binary of agency or exploitation, but instead unfold in nuanced, adaptive, and sometimes contradictory ways.

5.1 Theoretical Reflections

This study offers several novel insights into the politics of data, care, and agency in femtech. Most notably, it highlights how consent is experienced not only as a legal or rational act, but as an emotional and intuitive boundary practice. Participants did not evaluate privacy in terms of policy detail, but through what felt acceptable to disclose. This expands theories like contextual integrity and coerced consent by emphasizing their affective dimensions.

Second, the research shows that empowerment is often conditional and time-bound. While previous literature has focused on how tracking fosters autonomy, this study reveals how users outgrow the app, become frustrated with monetized features, or feel overwhelmed by its demands. Empowerment thus emerges not as a fixed outcome, but as a temporary and negotiated state.

Third, the findings challenge the idea that resistance in digital systems must be overt or oppositional. Instead, users demonstrated subtle, quiet forms of agency: skipping features, ignoring prompts, or selectively logging only what they deemed meaningful. These everyday micro-resistances suggest a mode of user agency that is pragmatic, emotional, and grounded in personal boundaries.

By weaving together theories of surveillance capitalism (Zuboff, 2019), responsibilization (Lupton, 2016), feminist epistemology (Haraway, 1988), and digital care, this study underscores that empowerment and privacy in femtech cannot be meaningfully understood without attention to emotion, structure, and relationality. It affirms the value of interdisciplinary feminist theory while also proposing new avenues for thinking about agency, intimacy, and resistance in datafied health contexts.

5.2 Methodological Reflections

This study used a qualitative, multi-method research design that combined semi-structured interviews with content analysis of Flo's terms of service, privacy policy, and a sample of 120 app store reviews. This approach proved especially useful for unpacking how women experience empowerment and privacy in relation to femtech platforms.

Rather than separating the findings per method, the study intentionally chose to integrate insights thematically. This allowed for a more layered and realistic understanding of how meaning is made in everyday femtech use. For example, moments of frustration mentioned by participants could be directly linked to the kinds of promises or assumptions embedded in app design and policy language. Similarly, vague privacy statements in Flo's documentation could be interpreted alongside user reviews that expressed distrust or disengagement. Thematic analysis offered a flexible but grounded way to follow these connections across datasets.

This methodological choice helped avoid the trap of treating user interviews as entirely separate from broader digital infrastructures. Instead, it became clear that empowerment and privacy are not fixed concepts, but are actively negotiated through small decisions, emotional responses, and subtle acts of resistance. These dynamics came to light precisely because the study worked across different levels—personal, discursive, and platform-based—while staying close to participants' own language and experiences. The combination of data triangulation and reflexive thematic coding strengthened the interpretive depth and analytical validity of the study.

5.3 Limitations of the Study

Despite its strengths, the study also has important limitations. First, the participant sample was relatively small and demographically narrow. All interviewees lived in the Netherlands and were between the ages of 25 and 35. While this age group aligns with the most active users of menstruation and fertility apps, it does not represent the full spectrum of femtech users. Perspectives from older adults, adolescents, trans and nonbinary users, or people from different cultural and racial backgrounds are missing here. These voices could reveal different experiences of empowerment, discomfort, or exclusion.

The self-selected nature of the sample may have also introduced bias. Participants who chose to take part were likely more reflective, engaged, or critical of privacy and health tracking than the general user base. They may also have been more digitally literate or socially aware, which could influence how they interact with and think about femtech technologies. As a result, some everyday or less consciously articulated experiences may have been overlooked.

The content analysis, while adding a valuable layer of institutional context, also faced its own constraints. It focused exclusively on publicly accessible materials. namely, privacy documents and app store reviews, and did not include in-app behavioral data, internal communication from the Flo development team, or visual interface analysis. Interviews with designers, engineers, or product strategists could have added important insight into how design decisions are made, what values guide them, and how users are imagined during the development process.

Finally, while triangulation strengthened the analytical depth of the study, it also meant navigating different types of data with different levels of detail and tone. Interview material was deeply personal and emotional, while the privacy policy and reviews were more functional or fragmentary. Balancing these modes of expression required interpretive sensitivity and theoretical grounding, but also introduced complexity in maintaining coherence across findings.

Acknowledging these limitations is important not to undercut the value of the findings, but to frame them appropriately. This study does not claim to represent all users or all aspects of femtech, but

rather offers a situated, critical perspective on how empowerment and privacy are experienced and made meaningful within one specific slice of the femtech landscape.

5.4 Theoretical and Societal Implications

This research highlights that femtech platforms like Flo do not simply deliver reproductive insights; they mediate how users understand their bodies, emotions, and agency. The thesis contributes to feminist critiques by showing that data practices in femtech are not neutral. Even when framed as tools of empowerment, these platforms encode assumptions about normative femininity, bodily regularity, and responsible digital citizenship.

At the same time, the study reveals that users are not passive. Many actively negotiate what they disclose, selectively use features, and express nuanced views on trust and emotional impact. This challenges simplistic narratives of victimization or technological optimism and calls for more attention to the everyday politics of digital care.

From a societal perspective, the findings suggest that health technologies aimed at women must be evaluated not only on the basis of utility or innovation but also on how they distribute responsibility, labor, and risk. Designers and regulators should consider not just transparency, but also emotional and cognitive accessibility, especially around privacy choices and consent.

5.5 Future Research Directions

This study has shown that experiences of empowerment and privacy in femtech are deeply shaped by design, discourse, and social position. While it offers a detailed and situated understanding of Flo users in the Netherlands, future research is needed to capture the broader landscape of femtech experiences, particularly those that remain underrepresented in academic and public discourse.

One important direction is to expand the demographic and geographic scope of femtech research. The current study focused on a relatively narrow group, young adult women in the Netherlands with at least some digital literacy. Future studies could look more closely at how race, class, migration status, and gender identity shape both access to and engagement with femtech. Users with limited access to healthcare, low digital literacy, or experiences of institutional distrust may engage with these apps in significantly different ways or may be excluded from their benefits altogether. Research that centers marginalized voices would help expose how structural inequalities are reproduced, or resisted, within digital reproductive care.

In addition to focusing on users, future research could investigate the internal logics and assumptions embedded within app development processes. This includes analyzing how design

decisions are made about interface language, data categories, tracking features, and personalization algorithms. Interviews with developers, UX designers, and data scientists could shed light on how commercial, normative, or technical priorities shape the user experience. Such research could also help unpack how gendered assumptions become embedded in code, often without deliberate intent, but with real social effects.

Another relevant avenue is to map femtech platforms within the broader ecosystem of reproductive data flows. Period-tracking apps do not exist in isolation: they are increasingly connected to advertising networks, wearable devices, insurance systems, and digital health platforms. Research could trace how reproductive data circulates across these infrastructures, what kinds of predictive profiles are built from it, and how these profiles may be used by third parties such as insurers, pharmaceutical companies, or tech firms. Such analysis would deepen our understanding of how seemingly personal health data can become part of large-scale predictive systems that influence decision-making far beyond the user's intent.

Finally, future research could explore practices of refusal, resistance, and alternative use. While this study touched on strategies such as selective tracking or cookie rejection, there is more to learn about how users push back against dominant platform logics. This includes studying non-users or former users, as well as communities that experiment with non-commercial or feminist alternatives to mainstream femtech. Investigating these spaces could provide insight into what more equitable and user-centered models of digital reproductive care might look like.

By expanding the scope of inquiry, diversifying methods and voices, and placing femtech in wider sociotechnical systems, future research can contribute to a more comprehensive and justice-oriented understanding of what is at stake when intimate data is collected, analyzed, and monetized in the name of care.

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