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Author

Vreeman, Kate

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Reproductive Health Tracking Apps and the Potential for Data Surveillance to be Challenged

Kate Vreeman¹

¹Chemical and Biomolecular Engineering Department, University of California, Los Angeles

*vreemankate@g.email.edu

Abstract: With the example of Flo Health, this paper argues that women's health tracking apps transform personal data into systems of surveillance and propose data justice through Standpoint Theory, Care Ethics, and community governance.

INTRODUCTION

In recent years, women's health care is often talked about as a domain of innovation, personalization, and empowerment. Yet the history of reproductive medicine also shows how personal bodily knowledge can be taken, commercialized, and controlled. This is especially prevalent in menstrual cycle tracking apps, a huge market sold as self-care, convenience, and scientific self-knowledge. These platforms are overwhelmingly marketed through the category of health, making them a revealing site for studying how care is designed, monetized, and normalized [5,6].

For example, an app called Flo Health is a free mobile device app that millions of people use to track their reproductive cycle. In 2021, the U.S. Federal Trade Commission finalized an order requiring Flo Health to obtain affirmative user consent before sharing personal health information after alleging that the company had disclosed sensitive data from millions of users to marketing and analytics firms, including Facebook and Google [12]. After the Dobbs decision and the subsequent strengthening of abortion restrictions in many states, Flo Health released "Anonymous Mode" because the company received pushbacks from users about reproductive data and how it could be accessed by third parties [13]. This case is a good example of health care, platform capitalism, and privacy law.

The Flo Health case study reveals how digital health technologies can function less as individual education and more as reproductive surveillance infrastructure. To support the argument, Standpoint Theory and Harding's Strong Objectivity [4], care centered justice perspectives [8, 9], and the Theory of Change tools are applied [18, 19]. This framework challenges dominant STEM assumptions that data extraction is objective, consent is adequately captured through terms of service, and innovation is safe simply because it is personalized and user verified. These dynamics raise more questions about how digital health tools reshape relationships between users, technology companies, and regulatory institutions. As reproductive data becomes increasingly embedded within commercial platforms, the boundaries between care, convenience, and surveillance become difficult to distinguish, especially to the everyday person. Examining menstrual cycle tracking apps therefore provides an opportunity to evaluate how emerging health technologies redistribute responsibility for privacy, safety, and informed consent.

This work is in partial fulfillment of the ENGR184 course using the blueprint curriculum in [1,2] and captured in a collection [3].

METHODS

This study uses a critical interpretive method rather than experimental measurements. The goal of the analysis is not whether Flo Health is valuable or reliable as a menstrual cycle tracker, but how the app's design, public statements, and data practices construct public knowledge, assessment, and care. The primary case materials are the FTC order and Flo Health's public statement on "Anonymous Mode" [12, 13]. These materials are analyzed alongside research on menstrual tracking apps, privacy, and surveillance capitalism [10, 11, 14-16] and with the ENGR 184 course materials that instructed on Standpoint Theory, disability justice, and Theory of Change as intertwined analytic tools rather than separate modules [18, 19].

The analysis proceeds through a deep interpretive reading structured by the indicated three lenses. First, Standpoint Theory and Harding's concept of strong objectivity guide the examination of whose experiences and risks are centered in the design and focus of digital health technologies [4]. Rather than assuming a neutral or universal user, standpoint analysis begins from the perspectives of individuals who are most vulnerable to reproductive surveillance, including those living under restrictive abortion laws or facing limited privacy protections online.

Second, the study draws on care and disability justice frameworks to evaluate how menstrual cycle tracking apps define and give feedback on care [12,13]. These frameworks emphasize interdependence, accessibility, and collective safety rather than individual optimization or capitalistic, market efficiency. Applying this lens makes it possible to distinguish between care technologies that genuinely support people and those that transform incredibly private bodily data into commercial resources.

Third, the analysis uses the course's Theory of Change tool to identify potential intervention points for change and growth [15,16]. These tools help distinguish between soft reforms, such as improved privacy settings, to radical reforms that alter how reproductive data are governed or controlled.

Together, these methods allow the case study to connect technical design decisions with broader social questions about surveillance, accountability, and justice in digital health technologies. This is summarized In Table 1, which compares each framework to its respective lens.

Table 1. Framework and Application to Flo Case

Standpoint Theory	Who are those most exposed to reproductive health surveillance? Who could be harmed by this collection of data?
Strong Objectivity	Is there deep research bias? Who is making the app, and therefore what point of view is the data being interpreted from?
Care and Disability Justice	Is the app for personal growth and community dependence, or capitalist gain and control?
Theory of Change	Is it enough to simply limit the spread of data,

	or should reproductive health data collection be limited or more protected?
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RESULTS AND INTERPRETATION

Genealogy of Extraction

Gynecology surveillance and data collection matters because personal health care does not begin with a blank technical slate [5-7]. Historical accounts of gynecology demonstrate that reproductive knowledge has often been produced through unequal personhood relations, where patients' bodies and lived experiences become sources of data or knowledge without their own corresponding control over the outcomes of that data. [7] While Flo is not equivalent to earlier medical abuses, ignoring historical trends and outcomes can be devastating to many different groups of people. The comparison is still instructive because in both cases, intimate bodily knowledge is treated as something that can be collected, distributed, and analyzed without proportional power returning to those who it came from.

Neutral Digital Care

Flo's public brand is care, literacy, and empowerment, but the FTC order showed that this care was funded by advertising and analytics infrastructures [7]. This matters because most menstrual cycle tracking apps are not protected by Health Insurance Portability and Accountability Act (HIPAA) in the way many users assume [10]. Recent research shows that reproductive health apps often collect identifiable information, depend on third parties, and create privacy risks that intensify under uneven abortion laws to secure funding [9]. The ethical problem is therefore not only limited to an event of a data breach, but also the intentional spread of personal information. It is the STEM habit of treating the collection of more personal data as a neutral technical good and the sharing of that data as a routine background process that often supports innovation.

Standpoint Theory and Stronger Objectivity

Harding's strong objectivity insists that less partial knowledge begins with humans, not from unconnected sources [4]. From the standpoint of the company and its executive team and engineers, "Anonymous Mode" may appear as adequate privacy protection attached to an otherwise beneficial product [8]. From the standpoint of someone living under an abortion ban or a user concerned about surveillance of reproductive data, the meaning of the data collection changes. The key question becomes whether the platform externalizes the costs of its business model onto those with the least protection. A 2025 qualitative study found that users wanted ownership over their data, clearer privacy statements, and stronger safeguards against external access [15]. Starting from these standpoints produces a more objective picture of the app because it reveals risks that may not be obvious to its creators.

Care Justice Versus Cost Minimization

The care framework presents another problem that care is never neutral [12,13]. Nishida's account of care as a site of power challenges the idea that good health technology simply helps an independent user protect and optimize themselves [12]. Menstrual tracking is useful for many

people, especially those managing irregular cycles, PCOS, fertility tracking, or even when preparing for conversations with medical professionals [11]. But when care is directed by the market, the system is built to collect more data than necessary, turning vulnerability into engagement, and putting risk management onto the user. A justice-oriented health tool would start with data minimization, user control or local storage, plain language and clear privacy, accessible design, and the leadership of those most impacted [13]. It would treat safety not as an optional setting but as a core design principle.

Community Engagement and Theory of Change

The community engagement component should move beyond telling individuals to “be careful” online. Using the Theory of Change, three scales of intervention become available [15,16]. A soft reform response would require no default third party sharing, short and clear privacy notices, and routine external audits. A radical reform response would reject advertisement technology business models altogether and require community governance over reproductive data collection while each user would maintain control of their individual Information. This would also include developing standards for health centers and clinics that refuse to recommend apps lacking data minimization practices. A beyond reform response recognizes that some communities may need alternative ways of tracking or even off-network alternatives such as paper tracking, local device storage, community clinic records, or open-source tools because the best way to protect personal data is to never collect the data at all. A realistic engagement strategy would combine a clinic reproductive data justice workshop series, a public-facing privacy guide for patients and clinicians, and policy advocacy modeled on Washington's My Health My Data Act, which protects health data that fall outside HIPAA [14].

Limits of Privacy as an Optional Feature

Flo's "Anonymous Mode" is interesting because it does not completely solve the problem it names. The feature allows for further privacy, but Flo Health also warns that users may lose data recovery and some personalization benefits when they turn it on [8]. Privacy is therefore configured as a sacrifice the user must choose, rather than as the platform's baseline principles. Design choices like this obviously show how a dominant STEM assumption like maximal data extraction is treated as normal, while safety is treated as an add-on or optional feature. If a woman's health technology becomes safer only when users accept less convenience, less backup, or less personalization, then innovation has been defined from the standpoint of the platform rather than from the standpoint of those who need care.

CONCLUSIONS

The Flo Health case illustrates how digital women's health technologies can function simultaneously as tools of care and infrastructures of data collection. While menstrual cycle tracking applications offer great benefits for many users, the broader systems in which they operate often transform incredibly personal bodily information into commercial or analytic resources. Applying Standpoint Theory, Care Ethics, and Theory of Change frameworks reveals that the core issue surrounding reproductive health apps is not simply privacy but who and what is given power. Questions about who controls reproductive data, who benefits from its collection, and who bears the

risks of surveillance are central to understanding how these technologies shape modern health care systems.

The analysis suggests that improving reproductive digital health technologies requires moving beyond privacy statements and toward structural changes in design and governance. Future reproductive health tools could prioritize data minimization, local storage options, transparent consent processes, and community involvement in technology governance. Policy initiatives such as Washington State's My Health My Data Act demonstrate how legal frameworks can extend protections to health information that falls outside traditional medical privacy laws [14].

Ultimately, building more ethical health technologies requires rethinking the relationship between care and data. Systems designed around extraction-first technologies risk reproducing inequalities and exposing users to new forms of surveillance. By contrast, technologies grounded in principles of care, accountability, and user control can help ensure that digital health innovations serve the communities they claim to support.

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