Data-Body Mirror: Digital Menstrual Cycle Tracking and the Reconstruction of Young Women's Bodily Cognition

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Abstract. Self-tracking practices, particularly the use of menstrual cycle tracking applications, have gained increasing popularity among young women in China nowadays. Predominant research has adopted a critical paradigm, focusing on issues such as surveillance capitalism, commercial logic, and neoliberal discipline underlying these technologies. This focus, however, risks obscuring the active experiences and agency of the users themselves. Consequently, this paper aims to facilitate a constructive shift in perspective. Integrating insights from the embodied phenomenology, feminist technoscience, and Foucault's theory of "technologies of the self," this article constructs an analytical framework centered on subjective experience to explore how digital menstrual tracking apps mediate and reconstruct young women's perception, understanding, and narration of their bodily experiences. The study argues that by datafying the invisible rhythms of the body, menstrual tracking apps serve as a cognitive framework that assists users in transitioning from passively enduring vague bodily sensations to actively interpreting bodily patterns. Rather than being trapped in a binary opposition between data and embodied experience, female users critically integrate both and engage in community interactions, thereby generating highly personalized "situated knowledge." This process transforms technological affordances into internal capabilities. The daily practice of tracking one's bodily cycles thus transcends the mere individualization of health responsibility; it can be reframed as a "technology of the self" in the digital age. Its purpose shifts from conforming to external healthist standards towards an active practice of self-care dedicated to personal physical-mental harmony. Ultimately, the study advocates for a future development of women's health technology that moves beyond functionalism and dataism towards a care-ethics-led design paradigm. This calls for more inclusive, transparent, and user-sovereign technologies, alongside fostering critical digital literacy among contemporary youth.

Keywords: Self-tracking, Menstrual Tracking Apps, Female Body, Situated Knowledge, Feminist Technoscience

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1 Introduction

Within the contemporary landscape of digital health, self-tracking has become a significant means for individuals to conduct quantified health management. Among these practices, menstrual tracking apps, centered on recording menstrual cycles, mood fluctuations, and physical symptoms, have grown increasingly popular among young women in China. This trend is particularly pronounced as such applications integrate with wearable devices, further enhancing technology's capacity to sense and interpret physiological states. Beyond basic period prediction, these apps often encompass tracking premenstrual syndrome (PMS) and other menstrual discomfort symptoms, contraceptive guidance, and fertility assistance, deeply intervening in women's most intimate bodily experiences and life courses. This phenomenon not only signals the formation of a new health habitus but also initiates a sustained and profound dialogue between young women and their own bodies, mediated by technology. It offers a critical lens for re-examining the relationship between technology, embodied experience, and self-cognition in postmodern society.

Contrasting with the popularity of this practice is the dominant critical paradigm in related academic discourse. Existing research on self-tracking apps often focuses on their design logic, data privacy, and commercial marketing[1-3]. Employing Foucauldian power analysis frameworks, it effectively reveals the underlying potentials of surveillance capitalism, biopower, and neoliberal discourse[4-5], successfully warning of risks such as data commodification and the individualization of health responsibility masked by neoliberal "empowerment" rhetoric. Critical studies from a gender perspective further point out that some app designs may reinforce gender stereotypes and reduce the female body to a manageable object[5]. However, this critical paradigm has its limitations: it once again positions users as passive subjects of discipline. While powerfully revealing the contradiction between empowerment and disempowerment, it lacks a systematic explication of the internal mechanisms of empowerment and user subjectivity, thereby reinforcing the binary opposition between objective data and embodied experience[6]. Although some scholars have noted users' active negotiation and self-production practices within this context, these findings have not been elevated into a constructive theoretical perspective[6-7].

Therefore, this paper aims to promote a constructive shift in research perspective. Guided by this paradigm, the study first examines how menstrual tracking apps, as a "digital body mirror," datafy women's bodily rhythms, thereby mediating and reshaping young women's cognition and experience of their own bodies. This core inquiry can be broken down into three levels: What framework does digital tracking technology provide for young women to perceive, record, and interpret themselves? How does this "technology-body" interaction process specifically reconstruct women's bodily awareness and self-care? How should we envision a philosophy for women's technology design that enhances rather than diminishes subjectivity? This paper attempts to address these three aspects, systematically illustrating the process of cognitive reconstruction experienced by young women while tracking their bodily cycles. This approach aims to achieve a paradigm shift from technological critique to the interpretation of subjective experience, integrating embodied phenomenology and feminist technoscience

studies to construct an analytical framework centered on subjective experience, thereby offering a new referential perspective for related research and practice.

2 From Chaos to Pattern: Datafication as a Translator of Bodily Cognition

In contexts lacking systematic knowledge frameworks and technological mediation, the physiological rhythms of the female menstrual cycle, such as hormonal fluctuations from the follicular phase, ovulation, to the luteal phase, remain an invisible black box. What women perceive are merely the subjective experiences that overflow from this black box: perhaps unexplained premenstrual mood swings and breast tenderness, or the indescribable abdominal heaviness during menstruation. These fragmented, uncertain sensations become, in a Foucauldian sense, symptoms not yet disciplined by knowledge[8]; they are subjective transcriptions of internal physiological processes, yet lack a corresponding framework for interpretation, making it difficult to translate them into comprehensible order within an individual woman's self-cognition.

The fuzziness and uncertainty exhibited by the female menstrual cycle at the experiential level are rooted in the ontological characteristics of bodily existence. Merleau-Ponty's phenomenology of perception reveals that the living body, as the source of meaning, operates in a fundamentally pre-reflective and anonymous manner[9]. The body schema dynamically integrates our perceptions, rendering many bodily experiences inherently chaotic and difficult to define clearly at their initial occurrence. This primordial ambiguity is particularly pronounced in female bodily experience. The female body possesses a fluid, polysemic quality irreducible to a single logic[10]. Its sensations often exhibit shifting locations and nonlinear intensity changes, resisting simple labeling and pathologization by patriarchal medical discourse.

In the corporeal feminist research, Grosz proposed the concept of the "volatile body," attempting to break from traditional views of the body as fixed, closed, and stable[11]. She profoundly noted that the menstrual cycle is not a clockwork-like repetition but a generative process, different each time[11]. This complex experience could be comprehensively explained from a phenomenological standpoint, which means women's perception of menstrual symptoms is not clear and definable but rather diffuse and difficult to pinpoint precisely[12]. For instance, when menstrual cramps occur, women often struggle to clearly locate the pain, and the sensation experienced may not be a singular "stabbing" or "dull ache." Menstrual fatigue also seems not merely physical tiredness, but a dual heaviness of spirit and body. The interweaving of such psychosomatic sensations keeps the experience in a fluid state resistant to clear categorization. However, this perceptual indefinability does not stem solely from women's insufficient knowledge of their own bodies. Menstruation itself is a composite process involving the coordinated action of multiple bodily systems, like uterine contractions, neural transmission, and hormonal fluctuations. The vague, indeterminate experiences of cramps and fatigue instead reflect the characteristic of the female body as a "lived body in situation[12]"; their bodily sensations are not isolated physiological reactions but

deeply interwoven products of the interaction between bodily systems and the implicit social-cultural disciplining of menstrual experience.

At the empirical research level, Fahs, through psychotherapeutic cases of three women, found that the fuzziness of menstrual experience is not only physiological but also narrative[13]. Her subjects often used contradictory emotional expressions and fragmented sensory imagery rather than singular, clear linear language to describe menstruation. For example, Rosie, due to conservative family upbringing, viewed menstruation as "dirty, shameful," yet in therapy actively discussed it to attempt resistance against patriarchal discipline; Moira, on one hand, used her period to express reluctance towards her maternal role, but simultaneously resented the "aging" represented by menstrual changes[13]. Fahs thus concluded: "Women feel strongly ambivalent about menstruation, seeing it as both a profound source of personal suffering and a means of resistance, emotional expression, and feeling the 'normalcy' of fertility"[13]. The resulting picture is that there is no "unified menstrual experience"; each woman's feeling towards menstruation is ambivalent and polysemic.

From an ontological perspective, the primordial experience of the female body and its cyclical rhythms possesses an inherent ambiguity that resists complete quantification and precise definition. This deep-seated uncertainty within the body itself may create an "epistemic rupture[14]" between physiological mechanisms and individual cognition. While women can perceive bodily changes, they struggle to discern the logic and patterns behind them, giving rise to anxiety. Correspondingly, the core function of menstrual tracking apps lies in their ability to systematically record various data like basal body temperature, cervical mucus, and emotional symptoms, translating the once invisible hormonal fluctuations into visually accessible charts and curves. This process of data translation provides a crucial "mirror of cognition" for women eager to understand their bodily changes and their causes. It helps them construct a mental model related to their personal cycle, thereby alleviating the individual anxiety stemming from the "epistemic rupture."

In empirical research, Algera found that several subjects recorded bodily experiences from different phases within their tracking apps, placing originally isolated sensations within a coherent hormonal cycle for comparison and correlation, thereby mentally sketching a chart dynamically displaying their own hormonal changes[6]. In that case, one interviewee, who attempted long-term contraception through self-tracking, admitted that before starting, these sensations were indescribable and irregular to her; Afterwards, she could clearly recognize the coincidence and mutual corroboration of feelings like "desire for intimacy" and "happiness" with physiological manifestations like "cervical mucus changes" within her ovulation window[6] .Thus, the application and the user co-construct a dynamic cyclical narrative. Within this narrative framework, cold numerical values and vivid embodied experiences are both regarded as reliable messengers of internal physiological processes, allowing users to visually "see" and deeply feel their once ambiguous and elusive bodily rhythms.

When originally fuzzy and disordered subjective sensations are transformed into visually presented objective charts, users gain a degree of interpretive authority over their own bodies. The deeper significance of digital self-tracking extends beyond behavior monitoring and optimization to its potential for epistemic empowerment as a form of

personal science, which means that when users conduct self-experiments driven by hypotheses, employing methods like data analysis and correlation testing to satisfy personal curiosity, they cease to be passive data recipients and become active knowledge producers[15]. The "verified self-knowledge" gained through such methodical, controlled practice allows individuals to understand the unique patterns of their bodies and lives—such as how certain foods affect personal sleep quality or how business trips induce specific blood pressure changes[15]. Ultimately, personal expertise demystifies traditional medical authority. Users can guide their daily decisions and behavioral patterns based on highly personalized empirical insights, achieving a higher degree of autonomy and discursive power in health management. In the research of Ford, De Togni, and Miller, interviewee Lisa discovered through long-term data logging that her monthly facial acne might be related to elevated androgen levels during the luteal phase, thereby gaining solid grounds for seeking targeted treatment[16]. Hamper pointed out that self-tracking apps related to physiological cycles can also grant women trying to conceive greater initiative; For example, interviewee Kelly discovered through app tracking that she experienced delayed ovulation and proactively adjusted her conception plans accordingly, effectively avoiding unnecessary medical interventions based on standardized cycle models[7]. Whether used for conception, contraception, or routine menstrual management, the ability to produce self-knowledge through datafication practices and conduct effective life planning and medical negotiation based on it signifies an active internalization of technology and an agential construction of subjectivity.

The process of producing knowledge from data ultimately facilitates a profound shift in women's relationship with their bodies—from passive endurance to active interpretation. Human consciousness and bodily experience are inseparable; an individual's self-cognition is continuously constituted through dynamic interaction with the world[9]. When internal, vague bodily sensations enter the cognitive framework of an external, visual technological mediator, bodily discomfort is no longer merely a "mysterious torment" to be endured [12]. As seen in Ford, De Togni, and Miller's study, when users experience mood swings, fatigue, acne, or pain, they often wonder, "Is this hormonal?" and attempt to find a concrete reason for their complex psychosomatic experiences from the historical data recorded in their period tracking apps, making the experience more comprehensible and manageable[16]. Feelings like pain or emotional fluctuations transform from an alien force threatening self-mastery into a known, temporary phase within the body's rhythm.

Therefore, by symbolizing and externalizing the invisible internal states of the body, menstrual cycle tracking apps provide users with an interface for reflective dialogue. On this interface, women are no longer passive receivers of bodily signals but active interpreters. They use data, this external mediator, to understand the internal tides of their bodies, thereby translating an often unsettling bodily fuzziness into a bodily subjectivity that is comprehensible and even plannable.

3 Between Data and Sensation: The Generation of "Situated Knowledge"

Although digital self-tracking technology offers new agency for individuals to understand themselves and their bodies, the process of cognitive reconstruction in which this technological mediation participates is itself embedded within complex power structures and cultural discourses. A profound concern is that while data demonstrates empowering potential, it may also subtly evacuate the substance of real lived experience. De Stefano noted that self-quantification culture caters to the narcissistic and self-optimizing desires of subjects in contemporary performance societies, yet conceals a process of de-subjectivation: techno-capitalism does not need subjects, only neutral consumers to increase profits; the more people hope to individualize through consumption, the more de-individualized their identities become[17]. The "apparatus" in Agamben's view was defined as anything that can in some way capture, orient, determine, intercept, shape, control, or secure the gestures, behaviors, opinions, or discourses of living beings, with the subject being the result of the relation and struggle between living beings and apparatuses[18]. In his view, those captured by the "apparatus" do not gain new subjectivity but merely obtain a controllable number. Quantified-self applications may reinforce the hierarchical opposition between objective numerical data and embodied lived experience, accomplishing de-individualization through user self-alienation. In translating lived bodily experience into data points, rich, complex embodied experience risks being abstracted into a flat, digitized two-dimensional body[2]. The gaze of modern clinical medicine dissects the body into observable, classifiable objects for discipline[8]. The obsession with bodily data in quantified-self practices may similarly dissolve the subjectivity and complexity of bodily experience by reducing embodied experience to numerical metrics. Geampana thus invoked Sanders's views as evidence to indicate that self-tracking apps may turn individuals into data-governed objects; users' continuous focus on quantified metrics may lead them to drift away from the body's original, unmediated intuitive perception[4]. De Moya and Pallud proposed the concept of "guilt-based subjectivity,"and pointed out that self-tracking apps induce guilt feelings in users through "failure to meet target" notifications, prompting behavioral adjustments to conform to norms; For instance, User 11 in their study felt "failure in self-management" due to "not meeting sleep goals," even sacrificing work time to catch up on sleep, fully demonstrating dataism's dominance over the subject[19].

The worship of the datafied body participates in constructing the implicit norms of healthism. Here, neoliberal discourse further individualizes health responsibility, shaping health into a mandatory personal duty, with meticulous tracking technology becoming the optimal tool for fulfilling this responsibility. In menstrual cycle tracking apps, technology, on one hand, grants female users a new perspective to scrutinize their health status in the name of "control"; on the other hand, the illusion of "controllability" it fosters easily narrows the attribution of menstrual-related issues to individual failures in health management, ultimately implanting intangible health pressures deep within the individual under the guise of self-surveillance. To facilitate implicit norm-setting, certain so-called health standards are established. The technological interface may analyze and provide feedback on women's menstrual cycle data based on these standards.

Consequently, certain bodily "deviations"—like an occasional bout of cramps or an unexplained low mood—are no longer experienced by the subject as part of a natural rhythm within the data's processing and presentation. Instead, they are incorporated into projects requiring self-optimization. Hamper noted that when period-tracking app predictions conflict with women's bodily experiences or self-perceptions, or fail to identify clear "patterns," it can cause confusion, frustration, and self-doubt among users[7]. Under the construction of health standards, the body's natural variations become objects requiring constant adjustment and optimization, entrapping individuals in a state of ongoing self-monitoring and managerial pressure.

However, female users are not merely passive recipients under data determinism or blind believers in algorithmic authority. A core tenet of "situated knowledges" resonates with this perspective: situated knowledge is shaped by communal ties rather than individual isolation, and carries inherent qualities of partiality, constructiveness, contestability, and accountability[20]. Building on this notion of "situated knowledge," Algera found that users of fertility tracking apps did not position data and experience at opposite ends but engaged in a critical integration: data provided possible explanatory frameworks for vague experiences (e.g., a temperature rise might hint at ovulation), while bodily experiences in turn verified or questioned the meaning of data (e.g., a familiar lower abdominal heaviness might confirm the approaching period)[6]. Through collaboration with technology, they keenly captured the rhythms of hormonal changes, viewing the body as a dynamic field co-influenced by daily factors like stress and sleep, ultimately establishing a dynamic model of "situated health" between data and sensation.

The generation of situated knowledge under technological mediation also involves scrutinizing and negotiating the precision of the technological tools themselves. Women may have experienced their physiological cycles not operating as expected: a late night, a cold, or a period of anxiety can delay or advance the period of a woman with previously regular cycles; the flow or color of menstrual blood may also change unpredictably. The design logic of many menstrual tracking apps, however, often constructs statistical averages as the sole standard for judging bodily normality, struggling to accommodate this dynamic diversity of cycles. For example, Hamper's interviewee, Vera, was repeatedly flagged for "data anomalies" by the app due to her irregular 50-day cycle[7]. Furthermore, many apps' algorithms rely solely on simple calendar calculations, making prediction reliability questionable. Prediction failures can lead to miscalculated periods, unintended pregnancies, and other issues [5].

Facing these risks, users have gradually developed more agentic usage strategies. Through using tracking apps, some users acquired new self-knowledge, subsequently reducing their reliance on the apps and becoming able to predict their cycles based on their own cognition and observations [21]. On social media platforms like Xiaohongshu, numerous posts inquire about "which period apps are more reliable" or "which predictions are more accurate," demonstrating women users' practice of not blindly trusting a single data source and actively seeking cross-verification of data. Studies by Healy[5] and Algera [6], both indicated that when app predictions severely contradict women users' bodily feelings, users tend to increasingly trust the latter or compare results by using multiple apps simultaneously. Built-in women's support communities within the apps

or other common social media women's communities also play a crucial supportive role. For instance, in the "Period Discussion Zone" of the app "Meiyou" or on Xiaohongshu, many users post queries about whether their short cycle is normal or if their delayed period is concerning. The comment sections may feature responses from users with relevant self-knowledge or follow-up questions from others with similar concerns. Women's active sharing and inquiry about personal bodily conditions online, comparing and understanding bodily diversity, make vastly different bodily experiences publicly shared. This implicitly declares the legitimacy of individual difference, effectively alleviating short-term anxiety caused by bodily deviations from standard data. This "try-and-see" experimental spirit, coupled with the collective interpretive practice of sharing charts, comparing experiences, and co-interpreting within online communities, fosters a bottom-up, situated expertise. It helps female subjects reclaim definitional power over their personal bodies and powerfully challenges the authority of app algorithms.

Through long-term, meticulous recording, what female users accomplish is far from the passive reception of a set of standardized physiological knowledge. Hamper pointed out that period-tracking apps help women establish connections between universalized reproductive knowledge ("textbook cycles") and individualized bodily experiences ("my cycle"), thereby generating autobiographical knowledge about their own fertility[7]. Supported by data, female users actively compose highly personal menstrual narratives, weaving together objective data, subtle emotional fluctuations, and specific life events to form a situated understanding of their own bodies. The purpose of self-tracking is no longer confined to utilitarian health optimization but extends towards a deeper, ongoing bodily awareness [6].

4 The Daily Cultivation of Self-Care: Menstrual Tracking as a "Technology of the Self"

Within neoliberal discourse, digital menstrual tracking technology becomes an effective tool for completing the individualization of health responsibility. However, stopping at a critique of this semantic layer may overlook the more subjective connotations it harbors. Therefore, this paper attempts a constructive resignification, re-anchoring its core from passive compliance with external self-optimization standards towards an internally-directed, active practice of self-care. From this perspective, "responsibility" refers to conscious practices individuals undertake based on their own situations and needs, aimed at pursuing physical-mental harmony and quality of life

Foucault's philosophical reflections on "technologies of the self" provide a crucial theoretical lens for understanding this shift. The concept of "technologies of the self" refers to practices that permit individuals to effect, by their own means or with the help of others, operations on their own bodies, souls, thoughts, conduct, and way of being, to transform themselves to attain a state of happiness, purity, or immortality [22]. De Stefano traced self-quantification as a modern technological revolution of this ancient

practice of self-care; as a technology of the self, it produces new regimes of truth (accurate data), forms of subjectivity, modes of care (self-management and optimization via numbers), and political dimensions[17].

Scholars posited that self-quantification is not merely about tracking, monitoring, and optimizing but about analyzing this data to gain insights into one's own life and health, producing knowledge about the self, which constitutes an active technology of the self[15]. Users' critical questioning of the objectivity of health data and algorithms also reflects the agency of individuals to reappropriate bodily experience through reflection, thereby forming a reflective subjectivity via technologies of the self. Material Engagement Theory posits that technology is not in binary opposition to the body but an extension of cognition and bodily experience [23]. Under the framework of technologies of the self, self-tracking applications cease to be alien surveillance apparatuses; instead, they integrate into and extend the user's bodily perception, becoming an internal component for exploring and narrating the self.

The feasibility of transforming self-tracking into an active technology of the self is also reflected in its properties as an embodied, diffuse daily practice. This practice is deeply embedded in the subject's lifeworld and substantially influences its constitution. The daily, weekly, or monthly sustained acts of recording and observation by female users, as a micro, digitized ritual of self-care, make the connection with the self and body a daily discipline capable of fostering a deep bodily awareness. Ford, De Togni, & Miller found in their research that female users of period-tracking apps developed a complex set of self-techniques, including: monitoring and hypothesizing (logging data and inferring patterns); scheduling adjustments (planning or canceling social/work activities based on predicted PMS or pain periods); medical assistance (using app data as objective evidence in medical consultations to substantiate subjective experiences); and interpreting social interactions (attributing emotional reactions to hormonal cycles, thereby reinterpreting social situations)[16]. For these women, mastering these techniques was seen as a rite of passage, a marker of successful self and life management. Algera also found that after period-tracking apps visualized the physiological cycle, female users would engage in ongoing personal life experiments based on this, such as proactively adjusting diet, sleep, or stress management, then closely observing the impact of these variables on their cycle to find the most suitable personal lifestyle[6]. For them, daily measurement and recording were not cold mechanical operations but an intimate dialogue established with the body. This dialogue transforms data tracking into an embodied, sensuous attention, interweaving numerical values and bodily feelings, jointly deepening the user's sensory cognition of her own physiological processes. The daily tracking of the body also enables women to preserve and continually nurture a keen awareness and warm regard for their own life rhythms amidst the fragmentation of postmodern life.

Therefore, at the empirical level, women's self-care practices transcend the singular pursuit of bodily optimization under healthism, demonstrating an ethical dimension centered on self-understanding and care for life. From a constructive perspective, the individual's self-responsibility for health is not merely passive compliance with external norms but an active, creative construction of a way of life in harmony with one's own body, based on individualized self-techniques and self-knowledge. In this shift of

perspective, the individual's self-cognition of bodily sensations and the intent behind concrete practices are paramount.

5 Conclusion: Towards a Care-Oriented Feminist Health Technology

From a philosophy of technology perspective, humans and technology are co-constitutive [24]. Self-tracking technology is precisely a current case of human-technology co-evolution. Based on this stance, this paper has explored how menstrual tracking apps, as a "digital body mirror," mediate and reconstruct young women's perception, understanding, and narration of their own bodies through datafication and visualization. This process begins with the application translating invisible internal bodily states into visible charts. Female users then engage in critical integration between data and sensation, gradually developing highly personalized situated knowledge. Ultimately, this daily practice is elevated into a Foucauldian technology of the self, its core intention resignified from conforming to external healthist standards to a conscious pursuit of personal physical-mental harmony and quality of life. Female users of digital menstrual tracking apps become agential subjects who actively engage in self-care and author personal menstrual biographies through technology.

However, mainstream menstrual tracking apps still possess structural deficiencies that constrain women's potential to fully realize self-empowerment through technology. The product language of some apps may harbor implicit patriarchal assumptions—for instance, labeling the "ovulation phase" as the "fertile window," discursively squeezing the usage space for women not planning pregnancy, and presupposing all users as fertility-desiring potential mothers. Driven by commercial logic, some apps commodify core functions like data analysis and cloud backup, reselling user attention to advertisers, transforming healthy living into a commodity for sale. This makes advanced features less accessible to low-income users, exacerbating health inequalities. Algorithmically, the prediction algorithms of many apps may be neither precise nor transparent. Widespread data privacy risks also expose sensitive physiological and intimate activity data to potential exploitation by surveillance capitalism [21]. As Healyremarked: "If you are not paying for it, you're the product"[5]. If such apps are connected to large datasets, there is also the risk of de-anonymizing individuals, exposing their private health and behavioral data [2].

Confronting these dilemmas, we urgently need to construct a feminist health technology led by an ethics of care. This requires future technological design to transcend the confines of functionalism and dataism, turning to a more reflective and inclusive paradigm. Specifically, at the level of algorithm and interface design, decentralization and customization can be implemented—for example, offering highly customizable tagging systems allowing users to define symptoms themselves, and replacing arbitrary "normal/abnormal" judgments with probabilistic tags, returning the power of value judgments to the user. Regarding the health knowledge system provided, efforts can be made to break the monopoly of modern Western clinical medical knowledge, introducing perspectives like Traditional Chinese Medicine to offer users richer interpretive

frameworks. Functionally, community collaboration features should be strengthened, generating anonymous insights based on collective data while ensuring privacy to help normalize diverse personal experiences within a reasonable range. At the infrastructural level, privacy-by-design architecture should be promoted, including but not limited to local storage, end-to-end encryption, and clear data ownership policies. To enhance data security, future applications could also explore using technologies like blockchain to protect the privacy and integrity of health data[19]. The period-tracking app "drip," developed in 2019 by the Berlin-based feminist open-source team "Bloody Health Collective," offers a valuable prototype: through local storage, transparent algorithms, and a non-commercial model, it practices principles like "your data, your choice" and "your body is not a black box," demonstrating that period-tracking technology can exist entirely apart from data-exploitative business models, promoting ethical innovation in the field of menstrual technology[25]. As technology emphasizing embodied experience, such as wearable devices, gradually becomes more sophisticated and widespread, practices like self-tracking and monitoring may become even more prevalent in the future. This makes structural regulation and legislative protection of personal health privacy data increasingly crucial.

Ultimately, technological innovation must progress in tandem with the maturity of user-subjects. It should be advocated for that young people cultivate a subject position of "mastering technology rather than being mastered by it." While utilizing technological conveniences to facilitate personal life and deepen bodily awareness, they should resist flattening complex, vivid bodily experiences into singular, normative data points. To this end, systematic education in personal information literacy is vital. Its core lies in helping technology users develop a clear awareness of data risks, acquire practical skills for autonomous data management, and dispel blind faith in algorithmic predictions. Through critical usage practices, youth can establish a more autonomous and positive relationship with technology, steadily accomplishing the reconstruction of self-cognition and the manifestation of their life-subjectivity in the digital age.

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