



## ARTICLE

**Femtechdystopia**

Leah R. Fowler &amp; Michael R. Ulrich\*

**Abstract.** Reproductive rights, as we have long understood them, are dead. But while history seems to be moving backward, technology moves relentlessly forward. “Femtech” products, a category of consumer technology addressing an array of “female” health needs, seem poised to fill gaps created by states and stakeholders eager to limit birth control and abortion access and to increase pregnancy surveillance and fetal rights. Period- and fertility-tracking applications could supplement or replace other contraception. Early digital alerts to missed periods can improve the chances of obtaining a legal abortion in states with ever-shrinking windows of availability or prompt behavioral changes that support the health of the fetus. However, more nefarious actors also have interests in these technologies and the intimate information they contain. In the wrong hands, these tools can effectuate increased reproductive control and criminalization. What happens next will depend on whether we can improve accuracy, limit foreseeable privacy risks, and raise consumer awareness. But the current legal and regulatory landscape makes achieving these goals difficult, and it is further complicated by political influence and a conservative Supreme Court. This Article assesses multiple solutions involving diverse stakeholders, concluding that a multifaceted approach is needed to keep femtech’s dystopian future from becoming a reality.

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\* Leah R. Fowler is a Research Assistant Professor, University of Houston Law Center, and Research Director, Health Law & Policy Institute. Michael R. Ulrich is an Assistant Professor of Health Law, Ethics, & Human Rights, Boston University School of Law and Boston University School of Public Health, and a Solomon Center Distinguished Visiting Scholar, Yale Law School.

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**Table of Contents**

Introduction .....	1235
I. Femtech in the Shadow of <i>Dobbs</i> .....	1240
A. The End of Reproductive Rights .....	1241
1. Access to birth control.....	1242
2. State interests in fetal life.....	1248
B. The Potential Promise of Femtech.....	1252
1. Quantifying the menstrual cycle.....	1253
2. Empowering self-surveillance.....	1257
II. Femtech’s Dystopia.....	1262
A. Femtechnodystopia .....	1262
1. Femtech’s present perils.....	1262
2. A period panopticon .....	1271
B. Regulatory & Legal Shortcomings.....	1276
1. The limits of agency authority .....	1277
2. Constitutional obstacles.....	1283
III. A Different Future For Femtech.....	1290
A. The Difficulty of Mandating Change.....	1290
1. Litigation.....	1291
2. Legislation .....	1296
B. The Hail Mary of Influencing Change.....	1302
1. Technology industry solutions .....	1302
2. Group and individual action .....	1308
Conclusion.....	1312

## Introduction

*Dobbs v. Jackson Women's Health Organization*<sup>1</sup> overturned what many current justices had asserted was settled precedent and sent the issue of abortion back to the states.<sup>2</sup> But while the decision takes reproductive rights back to the status quo before the landmark *Roe v. Wade* decision in 1973,<sup>3</sup> consumer technologies move us—and a previously unimaginable surveillance apparatus<sup>4</sup>—relentlessly forward. This collision of past legal approaches with the present realities of reproductive science and online connectivity creates new challenges and opportunities. Smartphone-based applications (apps) for period and fertility tracking,<sup>5</sup> an enormously popular<sup>6</sup> subcategory of the “femtech” market,<sup>7</sup> illustrate the array of possibilities resulting from this seismic shift.

Viewed optimistically, these digital tools could offset some of the most drastic restrictions on reproductive freedoms. Consumers interested in avoiding pregnancy could use functionalities that reliably predict fertile days as fertility awareness-based contraception, which could soften the impact of

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1. 142 S. Ct. 2228 (2022).
  2. Becky Sullivan, *What Conservative Justices Said—and Didn't Say—About Roe at Their Confirmations*, NPR (updated June 24, 2022, 3:44 PM ET), <https://perma.cc/ZH69-ZGPG>.
  3. See *Roe v. Wade*, 410 U.S. 113, 139-40 (1973) (describing the state of abortion law prior to the decision).
  4. See ALBERT FOX CAHN & ELENIS MANIS, SURVEILLANCE TECH. OVERSIGHT PROJECT, PREGNANCY PANOPTICON: ABORTION SURVEILLANCE AFTER ROE 1-3 (2022), <https://perma.cc/RM6H-QTS7>.
  5. Some scholars distinguish between fertility trackers and period trackers, asserting that apps in the former category are intended to achieve pregnancy while the latter is not. See, e.g., Sarah E. Fox, Amanda Menking, Jordan Eschler & Uba Backonja, *Multiples over Models: Interrogating the Past and Collectively Reimagining the Future of Menstrual Sensemaking*, 27 ACM TRANSACTIONS ON COMPUT.-HUM. INTERACTION art. 22, at 9 (2020), <https://perma.cc/Y3MQ-RN69>. We believe that to be a distinction without a difference for most consumers and intentionally discuss these technologies as a singular category.
  6. About one-third of menstruating Americans engage in digital period tracking. Ashwini Nagappan, Madelyn Knowles, Ikaasa Suri & Shobha Dasari, *To Track or Not to Track? How Digital Period Tracking May Change in a Post-Dobbs World*, ROCK HEALTH (Aug. 29, 2022), <https://perma.cc/VY9Y-YDS6> (noting that 29% of menstruating respondents in a survey “reported using at least one digital product or solution to track their menstruation and/or fertility”).
  7. “Femtech” is a catchall term for an enormous category of products targeting “female” health. Ida Tin, *The Rise of a New Category: Femtech*, CLUE (Sept. 14, 2016), <https://perma.cc/H5JQ-9H9U>. The “fem” in “femtech” is from the word “female,” though this paper uses inclusive language wherever possible. People who menstruate and are capable of becoming pregnant include “women, transgender males, intersex persons, [non-]binary persons, and other persons who have the capacity for a menstrual cycle.” Margaret E. Johnson, *Menstrual Justice*, 53 U.C. DAVIS L. REV. 1, 5 n.6 (2019). A 2021 survey revealed that “19% of menstruating respondents identified as men, 24% of which reported digitally tracking their periods.” Nagappan et al., *supra* note 6.

limitations or prohibitions on other forms of birth control.<sup>8</sup> Apps could also alert users to pregnancy—potentially as soon as a period is late.<sup>9</sup> This feature gives consumers who wish to terminate their pregnancies more time, which is particularly useful in states where the window to obtain a legal abortion is small.<sup>10</sup> In places where abortion is unavailable, early notification gives those who want to terminate more time to plan—both financially and logistically—to travel for needed care. And for those who carry to term, by choice or not, quickly identifying a pregnancy allows for behavioral modifications that support the fetus’s health. As a result, in a world with ever-shrinking access to reproductive care, thoughtfully designed period- and fertility-tracking apps could conveniently and discreetly increase users’ agency over their health.<sup>11</sup>

However, these products warrant healthy pessimism. People of reproductive potential will not be the only actors interested in these technologies and the intimate data they contain. Faith-based organizations<sup>12</sup> and conservative political administrations<sup>13</sup> may wish to further their

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8. *Infra* Part I.B.1.

9. *Infra* Part I.B.2.

10. Texas’s S.B. 8 prevented abortion after approximately six weeks of gestation, which could be as few as two weeks after a first missed period. Texas Heartbeat Act, ch. 62, § 3, 2021 Tex. Gen. Laws 125, 125-27 (codified at TEX. HEALTH & SAFETY CODE ANN. §§ 171.201-.212 (West 2023)); Maggie Astor, *Here’s What the Texas Abortion Law Says*, N.Y. TIMES (Sept. 9, 2021), <https://perma.cc/K5X2-JJB5>. We choose not to use the term “heartbeat” in characterizing this period in fetal development because it is misleading, even though that is the language that appears in the law. See Selena Simmons-Duffin & Carrie Feibel, *The Texas Abortion Ban Hinges on ‘Fetal Heartbeat.’ Doctors Call That Misleading*, NPR (updated May 3, 2022, 4:55 PM ET), <https://perma.cc/HYR8-4BGK> (explaining that, at six weeks of gestation, heart valves do not exist and the ultrasound machine manufactures a heartbeat-like sound to show electrical activity). Abortion became illegal in Texas on the thirtieth day after “the issuance of a United States Supreme Court judgment in a decision overruling, wholly or partly, *Roe v. Wade*, 410 U.S. 113 (1973), modified, *Planned Parenthood v. Casey*, 505 U.S. 833 (1992), thereby allowing the states of the United States to prohibit abortion.” Human Life Protection Act of 2021, ch. 800, § 2, 2021 Tex. Gen. Laws 1886 (codified at TEX. HEALTH & SAFETY CODE ANN. §§ 170A.001-.007 (West 2023)) (allowing for a narrow exception to protect the pregnant person’s life).

11. See generally Michele Estrin Gilman, *Periods for Profit and the Rise of Menstrual Surveillance*, 41 COLUM. J. GENDER & L. 100, 112-13 (2021) (giving examples of how these products could be thoughtfully designed by describing a menstrual justice vision for femtech).

12. See, e.g., Lilah Burke, *Catholic Contraception? Get the App*, INSIDE HIGHER ED (Jan. 23, 2020), <https://perma.cc/V7QG-WH5M> (describing the development of two apps designed to be consistent with Catholic teaching).

13. See, e.g., Kinsey Hasstedt, *A Domestic Gag Rule and More: The Trump Administration’s Proposed Changes to Title X*, HEALTH AFFS.: FOREFRONT (June 18, 2018), <https://perma.cc/CEE3-HE49> (to locate, select “View the live page”) (describing proposed rulemaking that imposes a departure from prior definitions of “family planning” to emphasize “fertility awareness-based methods, and specifically natural family planning”); Brian Beutler, *Leaked Memo Reveals White House Wish List*, CROOKED (Oct. 19, 2017), *footnote continued on next page*

ideological beliefs by engaging directly with femtech products to promote fertility awareness-based methods of contraception over other hormonal and barrier options. Anti-abortion advocates may also use user data to target advertisements promoting their agenda<sup>14</sup> or may even develop or fund apps directly.<sup>15</sup> Government agents seeking to enforce abortion prohibitions may be interested in the specific date of a user's last menstrual period to determine gestational age or identify suspicious patterns.<sup>16</sup> Citizens could leverage consumer data to avail themselves of the bounties offered by state laws that curtail abortion access through private enforcement.<sup>17</sup> And in a hypothetical future with increased criminalization of fetal-harming behaviors, perhaps motivated by recognition of fetal personhood,<sup>18</sup> prosecutors may leverage data

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<https://perma.cc/D249-DWZ3> (describing a leaked memo in which the Trump Administration expressed a desire “to halve federal funding for Title X . . . and divert the money into programs to promote ‘fertility awareness’ methods of birth control”).

14. See, e.g., Assurance of Discontinuance Pursuant to G.L. 93A, § 5, at 2-3, *In re Copley Advert., LLC*, No. 1784CV01033 (Mass. Super. Ct. Apr. 4, 2017) (providing an example in which a Christian services group and a network of crisis pregnancy care centers used geofencing and mobile data to disseminate anti-abortion messaging to mobile devices in and around reproductive health clinics).
15. See, e.g., Eva Wiseman, *Beware the Fertility App That Wants to Share Your Data with Anti-Abortion Campaigners*, GUARDIAN (June 9, 2019, 3:59 AM EDT), <https://perma.cc/DCT6-K3RT> (describing the case of Femm—an app “bankrolled by a hedge-funder who campaigns against abortion and birth control”); Fox et al., *supra* note 5, at 7-8 (describing Femm as “largely backed by conservative anti-choice foundation Chiaroscuro” and noting that it was “said to have shared misleading and inaccurate information with users regarding the side effects of hormonal birth control”).
16. See, e.g., Yasmeen Abutaleb & Emily Wax-Thibodeaux, *Missouri Reviewed Data About Planned Parenthood’s Patients, Including Their Periods, to Identify Failed Abortions*, WASH. POST (Oct. 30, 2019, 6:15 PM EDT), <https://perma.cc/6ML4-ACVB> (reporting on a state hearing in which Missouri’s state health director described monitoring health records from Planned Parenthood patients—including reviewing dates of last menstrual cycles); Jennifer Wright, Opinion, *The U.S. Is Tracking Migrant Girls’ Periods to Stop Them from Getting Abortions*, HARPER’S BAZAAR (Apr. 2, 2019) <https://perma.cc/E848-PH44> (detailing the tracking of migrant reproductive-health information, including menstruation).
17. See, e.g., Texas Heartbeat Act, ch. 62, § 3, 2021 Tex. Gen. Laws 125, 127-28 (codified at TEX. HEALTH & SAFETY CODE ANN. § 171.208(b) (West 2023)) (noting that if a claimant prevails, the court shall award injunctive relief, costs and attorney’s fees, and “statutory damages in an amount of not less than \$10,000”).
18. See, e.g., Act of Apr. 27, 2021, ch. 286, § 1, 2021 Ariz. Sess. Laws 1721, 1722 (codified at ARIZ. REV. STAT. ANN. § 1-219(A) (2023)) (granting an “unborn child at every stage of development, all rights, privileges and immunities available to other persons, citizens, and residents”). This law is currently being challenged in *Isaacson v. Mayes*, No. CV-21-01417, 2023 WL 315259 (D. Ariz. Jan. 19, 2023), *appeal docketed* No. 23-15234 (9th Cir. Feb. 22, 2023). See also H.R. 704, 134th Gen. Assemb., Reg. Sess. (Ohio 2022) (proposing to “recognize the personhood, and protect the constitutional rights, of all unborn human individuals from the moment of conception”). Both the Arizona law and the Ohio bill recognize fetuses as legal persons from the moment of conception and afford them the same constitutional rights as born persons.

from these apps in criminal prosecutions.<sup>19</sup> In light of these possibilities, one of the most promising tools to counteract the anti-choice movement and its assault on reproductive rights also has the potential to become one of its greatest weapons.

All period- and fertility-tracking apps expose consumers to at least some risks, but the laws and regulations governing accuracy and privacy are complex and unintuitive. For accuracy, the Food and Drug Administration (FDA) distinguishes contraceptive apps marketed to prevent pregnancy from proceptive apps meant to identify fertile days.<sup>20</sup> Though consumers may use each for contraception, the FDA regulates contraceptive apps more stringently as Class II medical devices<sup>21</sup> but only exercises enforcement discretion over proceptive apps.<sup>22</sup> Still other apps are not regulated by the FDA at all, carved out from the definition of “device” by legislation that excludes products intended for, among other functions, “maintaining or encouraging a healthy lifestyle.”<sup>23</sup> Consequently, non-contraceptive apps dominate the market and do not need to demonstrate safety or accuracy or include specific labeling before reaching an app store.<sup>24</sup> Data privacy and security protections are similarly confusing. The information that period and fertility trackers contain, no matter how sensitive or personal, is generally not entitled to special protection.<sup>25</sup> While the Federal Trade Commission (FTC) and state agencies can work to ensure that app claims are not unfair or deceptive, the often-unread and difficult-to-find terms of service and privacy policies of each app typically govern.<sup>26</sup> So data may be sold to third parties, susceptible to hacking, and shared with law enforcement.<sup>27</sup> The shifting reproductive-rights landscape intensifies these preexisting accuracy and privacy shortcomings by

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19. See, e.g., Cynthia Conti-Cook, *Surveilling the Digital Abortion Diary*, 50 U. BALT. L. REV. 1, 48-51 (2020) (describing how digital data has already been used against women as evidence of self-induced abortions).

20. See Genevieve Grabman & Cara Tenenbaum, *FDA Regulation Must Uphold Women’s Health*, 77 FOOD & DRUG L.J. 318, 334-35, 334 n.133 (2022) (explaining how Daysy is registered as a fertility diagnostic under the FDA’s pre-amendment device system but markets itself as a fertility tracker developed as a medical device).

21. 21 C.F.R. § 884.5370 (2020). The FDA regulates devices based on risk. Class I is the lowest risk category and Class III is the highest. *Classify Your Medical Device*, U.S. FDA (updated Feb. 7, 2020), <https://perma.cc/W47L-5TK8>; see also *Regulatory Controls*, U.S. FDA (updated Mar. 27, 2018), <https://perma.cc/VR8L-HMYC> (specifying that Class I is low to moderate risk, Class II is moderate to high risk, and Class III is high risk).

22. See Grabman & Tenenbaum, *supra* note 20, at 334 n.136.

23. 21 U.S.C. § 360j(o)(1)(B).

24. See *infra* Part I.B.1.

25. See *infra* Part I.B.1.b.

26. See *infra* Part II.A.1.c.

27. See *infra* Part II.A.2.

potentially exposing more unwitting consumers—who are poorly positioned to protect themselves—to the risk of unplanned pregnancy and expanded opportunities for surveillance.

The worst possible outcomes are not evenly distributed. Rates of period and fertility tracking with apps or other digital tools are fairly similar across race, ethnicity, and household income.<sup>28</sup> However, the populations most burdened by limitations on abortion and birth control are the same ones harmed by systemic racism and disproportionately higher rates of maternal mortality and morbidity.<sup>29</sup> This country’s history is replete with inequitable enforcement of criminal laws, including under *Roe*.<sup>30</sup> Those arrested for behaviors during pregnancy between 1973 and 2005 were more likely people of color, especially in the South.<sup>31</sup> They were also more likely to be poor.<sup>32</sup> These same characteristics map closely onto the populations most likely to rely on cellphones as their primary means of internet connectivity and least likely to engage in or encounter resources to support digital self-defense.<sup>33</sup> In this context, the future of period- and fertility-tracking apps is, at best, uncertain.<sup>34</sup>

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28. See Nagappan et al., *supra* note 6 (breaking down menstruation tracking among survey respondents by race and ethnicity and noting that “the percentage of menstruating respondents who reported digitally tracking their periods ranged from 24-33% across all household income ranges”).

29. See Katy Backes Kozhimannil, Asha Hassan & Rachel R. Hardeman, *Abortion Access as a Racial Justice Issue*, 387 NEW ENG. J. MED. 1537, 1538 (2022) (describing racial and ethnic disparities in access to reproductive health services); see also Khiara M. Bridges, *Racial Disparities in Maternal Mortality*, 95 N.Y.U. L. REV. 1229, 1266 (2020) (explaining that racial disparities in maternal mortality are the product of not only health care inequities but inequities in wealth distribution, residential segregation, and racial biases).

30. Lynn M. Paltrow & Jeanne Flavin, *Arrests of and Forced Interventions on Pregnant Women in the United States, 1973-2005: Implications for Women’s Legal Status and Public Health*, 38 J. HEALTH POL. POL’Y & L. 299, 309-11 (2013) (identifying state actions taken against women in forty-four states, the District of Columbia, and some federal jurisdictions between 1973 and 2005).

31. See *id.* at 311 (“Of the 368 women for whom information on race was available, 59 percent were women of color, including African Americans, Hispanic American/Latinas, Native Americans, and Asian/Pacific Islanders; 52 percent were African American. African American women in particular are overrepresented in our study, but this is especially true in the South.”).

32. *Id.* (noting that “71 percent qualified for indigent defense”).

33. See MARY MADDEN, DATA & SOC’Y, PRIVACY, SECURITY, AND DIGITAL INEQUALITY: HOW TECHNOLOGY EXPERIENCES AND RESOURCES VARY BY SOCIOECONOMIC STATUS, RACE, AND ETHNICITY 8-12 (2017), <https://perma.cc/9N6T-3FMF>.

34. While we present utopian and dystopian futures as binary, it is possible for these technologies to be both empowering and disempowering simultaneously. See Catriona McMillan, *Monitoring Female Fertility Through ‘Femtech’: The Need for a Whole-System Approach to Regulation*, 30 MED. L. REV. 410, 417-18 (2022).

This Article proceeds in three parts. Part I considers the implications of *Dobbs* beyond abortion. It assesses the argument that *Dobbs* can also be used to restrict contraception and enable pregnancy surveillance, concluding that this interpretation is not only plausible but likely. It then evaluates period and fertility trackers' potential to mitigate the harm of these possible outcomes. But, as Part II explores, the functionalities and broad datasets that make these technologies promising can also worsen the assault on reproductive freedoms. This concern is heightened in a world where a right to privacy may not exist, and the state's interest in potential life extends from menarche to menopause. More concerning still, existing regulatory and legal approaches do little to stop the state from interfering with reproductive freedom. Thus, this Article argues that three key criteria must be satisfied to avoid the greatest perils. Specifically, apps must be accurate, the data they contain must be kept private and secure, and consumers must be aware of their risks and limitations. But achieving these goals is complicated by developers' conflicts of interest and a budding reproductive surveillance state with criminal implications. With this in mind, Part III offers multiple options that account for practical limitations, the current Supreme Court, and political trends. In it, we argue that exclusive reliance on government intervention is misguided and look cautiously toward private industry and individual action. Our Article concludes with a warning: We must act now—with all available tools—to prevent femtech's dystopian future from becoming a reality.

## **I. Femtech in the Shadow of *Dobbs***

Since the Supreme Court decided *Roe v. Wade*, conservative lawmakers and other anti-choice activists have been hard at work anticipating and hastening its demise.<sup>35</sup> With the Court's decision in *Dobbs*, they have finally achieved their goal of reducing or outright eliminating access to safe and legal abortions in many parts of the United States.<sup>36</sup> But this long-sought-after accomplishment is not the end. This Part looks at what may come next in the continued efforts to curtail reproductive freedoms. It then turns to period and fertility trackers as potentially promising solutions that, if designed well, offer free, discrete, and convenient tools to increase bodily autonomy at the same time that public and private entities would seek to restrict it.

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35. See Elizabeth Nash & Isabel Guarnieri, *13 States Have Abortion Trigger Bans—Here's What Happens When Roe Is Overturned*, GUTTMACHER INST. (June 6, 2022), <https://perma.cc/K4FD-9RSV>.

36. *Id.*



### A. The End of Reproductive Rights

In the *Dobbs* opinion overturning *Roe* and *Casey*, the Supreme Court reversed nearly fifty years of precedent guaranteeing the legality of pre-viability abortion.<sup>37</sup> The Court held that the country’s history and tradition—a requirement for unenumerated rights—did not support a right to abortion.<sup>38</sup> To distinguish abortion from other recognized unenumerated rights, the Court focused on abortion’s destruction of “fetal life.”<sup>39</sup> Without a finding of historical support, the Court concluded that considerations under *stare decisis*—the nature of the Court’s prior errors and the quality of its reasoning, the workability of the abortion doctrine, the disruptive effect on other areas of law, and the absence of reliance—weighed strongly in favor of eliminating the previously protected constitutional right.<sup>40</sup> However, the majority goes to great lengths to suggest that the decision is a narrow ruling with little impact other than returning the question of abortion to the states.<sup>41</sup>

But regardless of whether that suggestion is genuine—and we believe it is not—the opinion itself and the legislative aftermath make clear that the debate around abortion continues to blaze, and divisions only deepen.<sup>42</sup> More concerning still, the Court’s emphasis on the fetus and the state’s interest in that fetus “at all stages of development” threatens other rights.<sup>43</sup> Under this new legal paradigm, the possibility of reducing or prohibiting access to birth control and increasing reproductive surveillance grows.<sup>44</sup>

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37. *Dobbs v. Jackson Women’s Health Org.*, 142 S. Ct. 2228, 2241-42 (2022).

38. *Id.* at 2244-48. *But see generally* Brief for American Historical Ass’n & Organization of American Historians as Amici Curiae in Support of Respondents at 5-14, *Dobbs*, 142 S. Ct. 2228 (No. 19-1392), 2021 WL 4341742 (examining the early history of abortion in the United States).

39. *Dobbs*, 142 S. Ct. at 2243.

40. *Id.* at 2261-78.

41. *Id.* at 2261, 2277-78, 2280-81. Justice Thomas’s concurrence raises considerable doubt about the sincerity of this claim. *Id.* at 2301 (Thomas, J., concurring) (“[I]n future cases, we should reconsider all of this Court’s substantive due process precedents, including *Griswold*, *Lawrence*, and *Obergefell*.”).

42. *See id.* at 2243 (majority opinion) (describing the “damaging consequences” of *Roe* and *Casey* and observing that, “far from bringing about a national settlement of the abortion issue, *Roe* and *Casey* have enflamed debate and deepened division”); *see also* David S. Cohen, Greer Donley & Rachel Rebouché, *The New Abortion Battleground*, 123 COLUM. L. REV. 1, 2-4 (2023).

43. In its recounting of historical abortion regulations, the *Dobbs* opinion makes special note of the regulations’ application to “all stages” at least thirteen times. *See, e.g., Dobbs*, 142 S. Ct. at 2252-53.

44. Under *Roe* and its progeny, the state’s interest in the potential life of the fetus was limited, and could not override a woman’s rights and autonomy before viability. *See* Michael Ulrich, *With Child, Without Rights?: Restoring a Pregnant Woman’s Right to Refuse Medical Treatment Through the HIV Lens*, 24 YALE J.L. & FEMINISM 303, 328-29  
*footnote continued on next page*

1. Access to birth control

An analysis of birth control in constitutional law reveals that we must take seriously concerns about restrictions or bans on contraception.<sup>45</sup> Much like access to abortion before *Dobbs*, contraception appears on its face as settled law. In the 1965 case *Griswold v. Connecticut*, the Supreme Court held there was a constitutional right to privacy that incorporated within it the right of a married couple to determine whether to use contraception to prevent pregnancy.<sup>46</sup> Similar to abortion, the Constitution does not specifically mention the right to privacy or contraception. However, the Court pointed to precedent that held the unenumerated parental right to raise children in a specific manner and the unenumerated right to association as not only constitutional rights but also ones of fundamental importance.<sup>47</sup> And critically, the Court noted that enumerated rights would be less secure without these “peripheral rights.”<sup>48</sup> The right to privacy’s unenumerated status should be less relevant given that the right is—as the Court notes in *Griswold*—older than the Bill of Rights itself.<sup>49</sup> In *Eisenstadt v. Baird*, the Court clarified that the right to privacy, which includes contraception, emanated not from a couple’s marital status but from a preexisting constitutional right for each individual.<sup>50</sup>

In light of this precedent, the step from revoking the right to abortion to revoking the right to contraception might seem like a leap. But reading these

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(2012) (finding maternal-fetal jurisprudence did not establish or recognize a state interest in protecting the health of the fetus that could overcome the woman’s liberty interests). An expanding state interest in the fetus that now encompasses all stages of development could include fetal health, because it is an ongoing interest that is no longer tied to viability and the theoretical possibility that the fetus could survive independent of the womb. See *Roe v. Wade*, 410 U.S. 113, 160 (1973). Instead, the state has broad authority to limit the woman’s autonomy under this expansive new view of fetal protection, which could open the door to surveillance and intervention at the earliest stages of pregnancy. See *infra* Part I.A.2.

45. Julie Rovner, *A GOP Talking Point Suggests Birth Control Is Not at Risk. Evidence Suggests Otherwise*, KAISER HEALTH NEWS (Aug. 5, 2022), <https://perma.cc/P7D6-U4M3>.

46. 381 U.S. 479, 480, 485 (1965).

47. *Id.* at 482–83 (citing *Pierce v. Soc’y of Sisters*, 268 U.S. 510 (1925); *Meyer v. Nebraska*, 262 U.S. 390 (1923); and *NAACP v. Alabama*, 357 U.S. 449 (1958)).

48. *Id.*

49. *Id.* at 486. This line of reasoning played a critical role in the Court finding an individual right to firearms for the purpose of self-defense in *District of Columbia v. Heller*, 554 U.S. 570, 625 (2008). There, in determining the existence and scope of the right, the Court found it important that the Second Amendment was merely recognizing a preexisting right. *Id.* at 592. Thus, the right to self-defense, while not explicitly mentioned in the Constitution, was “not a right granted by the Constitution. Neither is it in any manner dependent upon that instrument for its existence.” *Id.* (quoting *United States v. Cruikshank*, 92 U.S. 542, 553 (1876)).

50. See 405 U.S. 438, 453 (1972).

cases with fresh eyes after *Dobbs* reveals concerning parallels, pointing to vulnerabilities in the rights articulated in both *Griswold* and *Eisenstadt*. *Dobbs* questions the right to privacy generally and emphasizes the relevance of ongoing public debate.<sup>51</sup> Contraception remains a contentious public and political issue.<sup>52</sup> In addition, *Dobbs* rejected several arguments for abortion that also underly the right to contraception. For example, the Court was unmoved by claims that “people will be inhibited from exercising their freedom to choose the types of relationships they desire” or that “women will be unable to compete with men in the workplace and in other endeavors.”<sup>53</sup> Notably, the same arguments embraced in *Dobbs*<sup>54</sup> about why abortion rights are nonessential in the modern era can easily apply to contraception: attitudes about unmarried pregnant women have changed;<sup>55</sup> federal and state laws banning pregnancy discrimination have expanded;<sup>56</sup> pregnancy and childbirth leave have increased;<sup>57</sup> insurance or government assistance often cover the

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51. See *Dobbs v. Jackson Women’s Health Org.*, 142 S. Ct. 2228, 2242-45 (2022) (discussing the relevance of differing public views and state legislatures’ efforts to restrict abortion rights).
52. See *infra* notes 66-81 and accompanying text (discussing religious challenges to contraceptive mandates); see also Melissa Brown, *Sen. Marsha Blackburn Criticizes 1965 Supreme Court Ruling on Birth Control Access*, TENNESSEAN (updated Mar. 23, 2022, 11:41 AM CT), <https://perma.cc/9ML7-E3D2>.
53. *Dobbs*, 142 S. Ct. at 2258-59.
54. See *id.*
55. But see Heidi Moseson, Moria Mahanaimy, Christine Dehlendorf & Caitlin Gerdts, “. . . Society Is, at the End of the Day, Still Going to Stigmatize You No Matter Which Way”: A Qualitative Study of the Impact of Stigma on Social Support During Unintended Pregnancy in Early Adulthood, 14 PLOS ONE e0217308, at 9 (2019), <https://perma.cc/SHV3-XJFA> (discussing findings from “in-depth interviews with 25 young women in the San Francisco Bay area who . . . reported strong perceptions of stigma toward early unintended pregnancy from their social networks that prevented them from disclosing [their] pregnancy to family members and friends . . . for fear of judgment or negative reactions”).
56. But see CARLY MCCANN & DONALD TOMASKOVIC-DEVEY, CTR. FOR EMP. EQUITY, PREGNANCY DISCRIMINATION AT WORK: AN ANALYSIS OF PREGNANCY DISCRIMINATION CHARGES FILED WITH THE U.S. EQUAL EMPLOYMENT OPPORTUNITY COMMISSION 4 (2021), <https://perma.cc/2UVU-2ZSC> (finding that, “[d]espite an overall higher success rate of receiving benefits than other forms of sex discrimination, the majority (74%) of pregnancy charges result in no monetary benefit or required workplace change through the EEOC process”).
57. But see Maureen Sayres Van Niel et al., *The Impact of Paid Maternity Leave on the Mental and Physical Health of Mothers and Children: A Review of the Literature and Policy Implications*, 28 HARV. REV. PSYCHIATRY 113, 113, 124 (2020) (noting that only 16% of all American private-industry employees have access to paid leave and that approximately 23% of employed mothers without access to paid leave returned to work within ten days of giving birth).

costs of health care for pregnancy;<sup>58</sup> and safe haven laws allow people to drop off newborns without fear of criminalization.<sup>59</sup>

These are reasons enough to be suspicious about the future of access to contraception, but the *Dobbs* opinion highlights an even greater cause for concern. By dismissing privacy and equal protection as justifications for the right to access abortion, the Court focuses instead on the abortion right itself.<sup>60</sup> But, according to the Court, unenumerated rights must be “deeply rooted in [our] history and tradition” as an essential element to our nation’s “scheme of ordered liberty” to warrant recognition under the substantive due process jurisprudence.<sup>61</sup> *Dobbs* emphasizes that, while penalties for abortion may have

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58. *But see* Michelle H. Moniz et al., *Out-of-Pocket Spending for Maternity Care Among Women with Employer-Based Insurance, 2008-15*, 39 HEALTH AFFS. 18, 21 (2020) (finding that between 2008 and 2015, mean out-of-pocket spending for maternity care rose among women with employer-based insurance).

59. Infant safe-haven laws are available in all fifty states, but vary in the anonymity, immunity, and legal protections they guarantee to parents. Child Welfare Info. Gateway, *Infant Safe Haven Laws* 2, 4 (2022), <https://perma.cc/7TWA-823S>. Further, infant safe havens are rarely used. According to the National Safe Haven Alliance’s annual impact report, 115 babies were dropped off in 2021. NAT’L SAFE HAVEN ALL., 2021 IMPACT REPORT 4 (n.d.), <https://perma.cc/K38W-VK2W>. This represents 0.003138% of live births in that same year. *Accord* JOYCE A. MARTIN, BRADY E. HAMILTON & MICHELLE J.K. OSTERMAN, NAT’L CTR. FOR HEALTH STATS., NCHS DATA BRIEF NO. 442, BIRTHS IN THE UNITED STATES, 2021, at 2 (2022), <https://perma.cc/2YZB-LAWL>.

60. *Dobbs v. Jackson Women’s Health Org.*, 142 S. Ct. 2228, 2244-45, 2257 (2022). The Court also rejected arguments connecting abortion to a right of autonomy and defining one’s concept of existence, suggesting that it would not support linking a right to contraception to broader conceptual rights such as autonomy, equity, or justice. *Id.* at 2258-59. Despite a compelling brief arguing the Mississippi law violated the Equal Protection Clause, the Court dispensed with equal protection in one paragraph, stating that precedent foreclosed treating abortion restrictions as sex-based restrictions. *Id.* at 2245-46. *Contra* Brief for Equal Protection Constitutional Law Scholars Serena Mayeri, Melissa Murray, and Reva Siegel as Amici Curiae in Support of Respondents at 2-5, *Dobbs*, 142 S. Ct. 2228 (No. 19-1392), 2021 WL 4340072 (asserting that the “Equal Protection Clause supplies an additional, independent basis for the constitutional right to an abortion”).

61. *Dobbs*, 142 S. Ct. at 2246 (alteration in original) (first quoting *Timbs v. Indiana*, 139 S. Ct. 682, 686-87 (2019); then quoting *McDonald v. City of Chicago*, 561 U.S. 742, 764, 767 (2010); and then quoting *Washington v. Glucksberg*, 521 U.S. 702, 720-21 (1997)). The majority frequently quotes *Washington v. Glucksberg*, a 1997 case considering the right to the assistance of a physician in dying, as the guiding principle for recognizing unenumerated substantive due process rights. 521 U.S. 702, 705-08 (1997). While there may be some disagreement over the accuracy of *Glucksberg*’s test for determining whether an unenumerated right is protected by the Constitution, the Court cites to the case twelve times in the *Dobbs* majority. *See, e.g., Dobbs*, 142 S. Ct. at 2242. *Contra* Erwin Chemerinsky, *Washington v. Glucksberg Was Tragically Wrong*, 106 MICH. L. REV. 1501, 1505 (2008) (arguing that Chief Justice Rehnquist’s majority opinion in *Glucksberg* “is just wrong in saying that due process is limited to protecting those rights that are ‘objectively, “deeply rooted in this Nation’s history and tradition”’” (quoting *Glucksberg*, 521 U.S. at 720-21)).

differed at common law, no authority endorsed a “positive *right* to procure an abortion.”<sup>62</sup> The Court could likewise identify historical evidence suggesting that contraception was not a positive right at common law. For example, the Court could point to Dr. Charles Knowlton’s conviction in 1832 for publishing information about the use and benefits of birth control.<sup>63</sup> The Court might also consider the Comstock Act of 1873, which made it a federal offense to disseminate contraception through the mail.<sup>64</sup> In light of these and likely other examples, the Court is unlikely to view access to contraception as a right deeply rooted in our history and tradition.

Of course, any discussion of *Dobbs* would be incomplete without addressing what the Court identified as the key factor distinguishing abortion from other substantive due process rights such as contraception. The Court emphasized that abortion is fundamentally different because it destroys what the Mississippi law at issue described as an “unborn human being.”<sup>65</sup> But we are intensely skeptical about whether this truly distinguishes abortion from contraception, and with good reason. In *Burwell v. Hobby Lobby Stores, Inc.*—also written by Justice Alito, author of the *Dobbs* majority opinion—the Court accepted that mere belief that many contraceptives were abortifacients was sufficient to avoid a federal mandate of contraception coverage.<sup>66</sup> These alleged “abortion-inducing drugs”—as then-Judge Kavanaugh called them during his 2018 confirmation hearing<sup>67</sup>—included emergency contraception, often called the “morning after pill,” and intrauterine devices (IUDs).<sup>68</sup>

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62. *Dobbs*, 142 S. Ct. at 2251.

63. See generally CHARLES KNOWLTON, FRUITS OF PHILOSOPHY: AN ESSAY ON THE POPULATION QUESTION 47-50 (Charles Bradlaugh & Annie Besant eds., Rotterdam, Van der Hoeven & Buys continental ed. 1877) (1832) (describing ways to “check” conception, including concepts identical or akin to withdrawal, boudruche (condom), sponge, spermicide, and douching/astringent injection). That Dr. Knowlton was sentenced to “three months imprisonment at hard labor” for merely writing about contraception, and that his conviction “aroused very little public attention,” further supports that contraception was not viewed as a constitutional right. Norman E. Himes, *Charles Knowlton’s Revolutionary Influence on the English Birth Rate*, 199 NEW ENG. J. MED. 461, 463 (1928).

64. Comstock Act of 1873, ch. 258, 17 Stat. 598 (codified as amended at 18 U.S.C. §§ 1461-1462).

65. *Dobbs*, 142 S. Ct. at 2243.

66. 573 U.S. 682, 691 (2014) (“[A]ccording to [the business owners’] religious beliefs the four contraceptive methods at issue are abortifacients.”); see also I. Glenn Cohen, Melissa Murray & Lawrence O. Gostin, Opinion, *The End of Roe v Wade and New Legal Frontiers on the Constitutional Right to Abortion*, 328 J. AM. MED. ASS’N 325, 326 (2022) (observing that the *Dobbs* opinion, read together with *Hobby Lobby*, suggests that contraception is at risk of further restriction or bans).

67. *Confirmation Hearing on the Nomination of Hon. Brett M. Kavanaugh to Be an Associate Justice of the Supreme Court of the United States: Hearing Before the S. Comm. on the Judiciary*, 115th Cong. 2500 (2018) (statement of then-Judge Brett M. Kavanaugh).

68. *Hobby Lobby*, 573 U.S. at 701-02.

For many, the dividing line between abortion and birth control is not as clear as one might assume and rests on a subjective belief about what is medically, legally, and ethically significant.<sup>69</sup> The American College of Obstetricians and Gynecologists defines pregnancy as beginning when a fertilized egg implants itself in the uterine wall.<sup>70</sup> By this common definition, a birth control's mechanism of action must destroy the implanted embryo or fetus to qualify as an abortion.<sup>71</sup> But for some, including the corporate leaders of Hobby Lobby, the relevant focal point is not implantation but fertilization.<sup>72</sup> For those espousing this perspective, contraceptives preventing a fertilized egg from implanting would also constitute an abortion.<sup>73</sup> And while science has shown that neither emergency contraceptives nor IUDs affect an already-implanted embryo or fertilized egg,<sup>74</sup> the theoretical

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69. Claire Horner & Lisa Campo-Engelstein, *Dueling Definitions of Abortifacient: How Cultural, Political, and Religious Values Affect Language in the Contraception Debate*, HASTINGS CTR. REP., July/Aug. 2020, at 14, 15-18.

70. Grace S. Chung, Ryan E. Lawrence, Kenneth A. Rasinski, John D. Yoon & Farr A. Curlin, *Obstetrician-Gynecologists' Beliefs About When Pregnancy Begins*, 206 AM. J. OBSTETRICS & GYNECOLOGY 132.e1, 132.e1 (2012) ("Since 1965, the American College of Obstetricians and Gynecologists (ACOG) has defined *pregnancy* as beginning with implantation of the embryo in the uterine wall. This definition is used also by the Guttmacher Institute, Planned Parenthood, and some textbooks.").

71. *See id.*; *Abortion*, NAT'L INSTS. OF HEALTH: MEDLINEPLUS, <https://perma.cc/9G6J-HEJL> (last updated Aug. 5, 2022). The term "embryo" is used for the first eight weeks after fertilization. *How Your Fetus Grows During Pregnancy*, AM. COLL. OBSTETRICIANS & GYNECOLOGISTS, <https://perma.cc/A536-TWA8> (last updated Dec. 2021). Nine weeks after fertilization, it is called a "fetus." *Id.*; *see also* Horner & Campo-Engelstein, *supra* note 69, at 14.

72. Horner & Campo-Engelstein, *supra* note 69, at 16-17; *see also* *Another Look at Contraception*, U.S. CONF. CATH. BISHOPS (2018), <https://perma.cc/NX8M-ZM3V> ("[I]t's scientifically indisputable that a new human life begins when an embryo first forms at fertilization—6 to 8 days *before* implantation."). A slight majority of obstetrician-gynecologists also believe that pregnancy begins at fertilization. Chung et al., *supra* note 70, at 132.e3 (finding that 57% of American obstetrician-gynecologists believe pregnancy begins at conception).

73. *Hobby Lobby*, 573 U.S. at 701.

74. Emergency contraceptives inhibit ovulation. Kristin O. Haeger, Jaqueline Lamme & Kelly Cleland, *State of Emergency Contraception in the U.S., 2018*, 3 CONTRACEPTION & REPROD. MED. art. 20, at 2 (2018), <https://perma.cc/W5PQ-TL2Y> (reviewing the literature and concluding that the "best available evidence suggests that progestin-only [emergency contraception pills] work only before ovulation has occurred and do not inhibit implantation of a fertilized egg" and that "[p]rogestin-only [emergency contraception pills] are ineffective after an embryo has implanted in the uterus and thus cannot work as an abortifacient"). IUDs primarily operate by changing cervical mucus to make it inhospitable to sperm. Kirsten Black, Pamela Lotke, Kai J. Buhling & Nikki B. Zite, *A Review of Barriers and Myths Preventing the More Widespread Use of Intrauterine Contraception in Nulliparous Women*, 17 EUR. J. CONTRACEPTION & REPROD. HEALTH CARE 340, 343-44 (2012) (summarizing the scientific literature and concluding that evidence does not support the proposition that IUDs are abortifacients).

possibility that they could, based on the asserted personal beliefs that life begins at fertilization, sufficed for the *Hobby Lobby* Court.<sup>75</sup>

The Court made clear that the judiciary has no authority to address whether religious beliefs are reasonable.<sup>76</sup> Similar to *Dobbs*, the Court in *Hobby Lobby* opposed a “binding national answer” to what it described as the high moral stakes question of whether these contraceptives equated to abortion.<sup>77</sup> After the decision, organizations could avoid providing contraception coverage by simply filling out a form stating their religious objections.<sup>78</sup> The insurance company would then provide payments to beneficiaries for contraceptive services they could acquire independently.<sup>79</sup> But religious groups challenged this regulatory compromise in *Little Sisters of the Poor Saints Peter and Paul Home v. Pennsylvania* and *Zubik v. Burwell*, arguing that filling out a form was still complicit in providing what they believed equated to abortion.<sup>80</sup> Opposition stemmed from the religious groups’ conviction that “deliberately avoiding reproduction through medical means is immoral.”<sup>81</sup>

If *Hobby Lobby* walked so *Zubik* and *Little Sisters of the Poor* could run, *Dobbs* is sprinting to usher in an even more aggressive era of restrictions. The long and ultimately successful battle to overturn *Roe* illustrates the increasingly powerful political voice of abortion opponents, even though they represent a minority viewpoint.<sup>82</sup> That this group includes opponents of contraception,<sup>83</sup> in our view, makes increased restrictions on birth control at the state level all but certain. For example, Louisiana’s proposed H.B. 813 would have altered the definition of “person” by stating that life begins at the “moment of fertilization,” independent of implantation.<sup>84</sup> In doing so, the bill aimed to

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75. See *Hobby Lobby*, 573 U.S. at 723-24.

76. *Id.* at 724.

77. *Id.* The Court echoed this language in *Dobbs*, chastising *Roe* and *Casey* for “usurp[ing] the power to address a question of profound moral and social importance.” *Dobbs v. Jackson Women’s Health Org.*, 142 S. Ct. 2228, 2265 (2022). The framing of abortion as a moral issue and one best left to state representatives could lead to the Court accepting more arguments akin to those made in *Gonzales v. Carhart*, in which the Court accepted and found persuasive that “some women come to regret their choice to abort the infant life they once created and sustained,” despite having “no reliable data.” 550 U.S. 124, 159 (2007).

78. *Little Sisters of the Poor Saints Peter and Paul Home v. Pennsylvania*, 140 S. Ct. 2367, 2375 (2020).

79. *Id.*

80. *Id.* at 2376; *Zubik v. Burwell*, 136 S. Ct. 1557, 1559 (2016) (per curiam).

81. *Little Sisters of the Poor*, 578 U.S. at 2376.

82. PEW RSCH. CTR., AMERICA’S ABORTION QUANDARY 7 (2022), <https://perma.cc/9JB2-5PFG> (presenting data on public support for legal abortion and noting that 37% of U.S. adults think abortion should be illegal in all or most circumstances).

83. See *supra* note 81 and accompanying text.

84. Abolition of Abortion in Louisiana Act, H.R. 813, 2022 Leg., Reg. Sess. § 3 (La. 2022).

protect a fertilized egg “by the same laws protecting other human beings”<sup>85</sup>—a position that, had it passed, could have banned IUDs, emergency contraception, and more. While the Court could require a more robust rationale from a state legislature than from the challengers in *Hobby Lobby* and its progeny, *Dobbs* emphasizes deference to states and elected officials.<sup>86</sup> This raises the critical question of whether the Court would even need to overturn *Griswold* to enable restrictions or bans on certain types of contraception. We do not think it would. If some popular contraceptive methods—like those in *Hobby Lobby*—can be categorized as abortifacients, they may fall under the abortion restrictions in place or proposed after *Dobbs*.

And even if *Hobby Lobby* is insufficient precedent, other avenues to restrict or ban contraception remain. State actors have a new blueprint in Texas’s S.B. 8, which has thus far evaded legal challenges by creating a private right of action to achieve ends that would otherwise be unconstitutional through state enforcement. S.B. 8 allows private citizens to sue anyone who aids or abets a pregnant individual in obtaining an abortion after six weeks, and awards a bounty of \$10,000 or more to the person who files suit.<sup>87</sup> This vigilante approach has expanded what is, at least theoretically, constitutionally possible for restricting reproductive rights.<sup>88</sup> And the Supreme Court’s willingness to allow S.B. 8 to go into effect while violating both *Roe* and *Casey*, which were still good law at the time, suggests *Griswold* and *Eisenstadt* are hardly the barriers they may initially seem.<sup>89</sup>

## 2. State interests in fetal life

The connection between a post-*Dobbs* world and potential restrictions on contraception stems from the Court’s narrow focus on the state’s interest in the fetus. This myopia gives more cause for alarm. The *Dobbs* opinion does not consider the potential impact of overruling *Roe* and *Casey* on the health outcomes of pregnant people, including maternal mortality.<sup>90</sup> Nor does it

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85. *Id.* § 2.

86. See *Dobbs v. Jackson Women’s Health Org.*, 142 S. Ct. 2228, 2243 (2022).

87. Texas Heartbeat Act, ch. 62, § 3, 2021 Tex. Gen. Laws 125, 127-29 (codified at TEX. HEALTH & SAFETY CODE ANN. § 171.208 (West 2023)).

88. A lawmaker in Missouri proposed stopping people from crossing state lines to obtain an abortion through the same method used by Texas, a position that would have previously seemed unimaginable. Caroline Kitchener, *Missouri Lawmaker Seeks to Stop Residents from Obtaining Abortions Out of State*, WASH. POST (Mar. 8, 2022, 2:21 PM EST), <https://perma.cc/RVH6-SBMP>.

89. *Whole Woman’s Health v. Jackson*, 142 S. Ct. 522, 539 (2021) (affirming the order of the district court in part, reversing in part, and remanding, permitting S.B. 8 to go into effect).

90. In fact, the Court considers the connection between abortion rights and health unclear: “[A] novel and intangible form of reliance . . . depends on an empirical  
*footnote continued on next page*



contemplate how a state may use this increased interest to limit the freedoms and liberties not only of those who are pregnant but also of anyone who could become pregnant. In light of these omissions, the Court leaves us with expanded justification for surveillance and control and few limits on what the state can do to protect the fetus at “all stages of development.”<sup>91</sup>

We have seen this interest taken to extremes even under *Roe*. In *Jefferson v. Griffin Spalding County Hospital Authority*, the Supreme Court of Georgia held that a viable fetus had Constitutional rights, allowing the state to override the mother’s refusal of a cesarean section.<sup>92</sup> In *Pemberton v. Tallahassee Memorial Regional Medical Center*, a federal district court in Florida authorized law enforcement to take a woman from her home and return her to the hospital for a cesarean section against her will.<sup>93</sup> In this case, the court used against the woman the fact that she wanted to give birth, outweighing her right to refuse a specific method of birth.<sup>94</sup> The Illinois courts in *In re Baby Boy Doe* refused to override a competent woman’s fundamental right to refuse medical treatment,<sup>95</sup> confirmed by the Supreme Court in *Cruzan ex rel. Cruzan v. Director, Missouri Department of Health*,<sup>96</sup> because *Roe* did not provide a state interest in intruding on the woman should she choose to carry her pregnancy to term.<sup>97</sup> After *Dobbs*, with no *Roe*-based safeguards, courts may weigh the interest in a future birth against an individual’s right to control any actions that could impact the fetus. And if the state can force someone to gestate against their will, courts may see everything else as a lesser intrusion on their rights.<sup>98</sup>

These cases clarify that even under *Roe*, states sought not simply to restrict or minimize abortion but also to control pregnancy decisions in the name of the fetus. Post-*Dobbs*, the state’s interest in the fetus—and a court’s willingness to accept that interest as a justification for restricting or ignoring pregnant persons’ rights and autonomous choices—will likely only increase. After all, if the state can tell you that you must carry a fetus to term and give birth, and even *how* you

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question that is hard for anyone—and in particular, for a court—to assess, namely, the effect of the abortion right on society and in particular on the lives of women.” *Dobbs*, 142 S. Ct. at 2277.

91. *Id.* at 2284.

92. 274 S.E.2d 457, 458, 460 (Ga. 1981) (per curiam).

93. 66 F. Supp. 2d 1247, 1250 (N.D. Fla. 1999).

94. *Id.* at 1251.

95. 632 N.E.2d 326, 326 (Ill. App. Ct. 1994).

96. 497 U.S. 261, 278 (1990).

97. *In re Baby Boy Doe*, 632 N.E.2d at 334.

98. *See, e.g., Pemberton*, 66 F. Supp. 2d at 1252 n.9 (“[I]n *Roe* the Court said a third-trimester mother can be forced against her will to bear a child she does not want; this is in fact a substantially greater imposition on the mother’s constitutional interests than requiring a mother to give birth by one method rather than another.”).

must give birth, it is difficult to see why this could not extend into increased surveillance to protect and promote fetal health throughout pregnancy. And with the Court now proclaiming the rational basis test applies to any reproduction-related restriction, a rational connection to a legitimate interest is all the state needs to justify its actions.<sup>99</sup> Given this low legal threshold and the decreasing focus on the adverse impact of such actions on a pregnant person’s rights, the state’s authority to monitor and control behaviors that could be considered risky to fetal health appears unlimited in both duration and scope.

If the Court truly means to protect “all stages of development,”<sup>100</sup> the end of a pregnancy is hardly the only relevant focal point. Medical tests cannot currently establish the existence of a fertilized egg before it implants.<sup>101</sup> Thus, in places that define life as beginning at fertilization, the state may choose to address this window of uncertainty by assuming anyone capable of becoming pregnant *is* pregnant. In other words, the state’s interest could extend for the entire duration of a person’s reproductive life. In this scenario, the state could choose to monitor any activity bearing on the health of the fetus from the onset of menstruation through menopause. And while positioning any fertile person with a uterus in a perpetual state of pre-pregnancy may seem farfetched, it would not be the first time a government entity adopted this position to promote fetal health.<sup>102</sup>

Further, the state’s actions would likely only need to be tenuously linked to scientific evidence, if at all. While arguments remain about when pregnancy begins or whether and when a fetus can feel pain, the Supreme Court has made

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99. See *Dobbs v. Jackson Women’s Health Org.*, 142 S. Ct. 2228, 2284 (2022).

100. *Id.*

101. Azure Grant & Benjamin Smarr, *Feasibility of Continuous Distal Body Temperature for Passive, Early Pregnancy Detection*, 1 PLOS DIGIT. HEALTH e0000034, at 2-3 (2022), <https://perma.cc/63GS-UZ9G> (describing how “[c]urrent clinical and over-the-counter (OTC) pregnancy tests rely on serum or urine measurements of human chorionic gonadotropin” that is only detectable after the date of missed menses, which is a week or more after conception). Thus, currently available medical tests can establish ovulation and whether a fertilized egg has implanted, but not the existence of a fertilized egg prior to implantation.

102. See, e.g., KAY JOHNSON ET AL., CDC, 55 MORBIDITY & MORTALITY WEEKLY REP. NO. RR-6, RECOMMENDATIONS TO IMPROVE PRECONCEPTION HEALTH AND HEALTH CARE—UNITED STATES: A REPORT OF THE CDC/ATSDR PRECONCEPTION CARE WORK GROUP AND THE SELECT PANEL ON PRECONCEPTION CARE 3, 9 (2006), <https://perma.cc/53TY-9JWA> (recommending a “strategic plan to improve preconception health through clinical care, individual behavior change, community-based public health programs, and social marketing campaigns,” and noting that, because most pregnancies are unplanned, the “target population for preconception health promotion is women, from menarche to menopause, who are capable of having children, even if they do not intend to conceive”); see also January W. Payne, *Forever Pregnant*, WASH. POST (May 16, 2006), <https://perma.cc/7FM7-RYUA> (detailing the CDC’s recommendation and using the term “pre-pregnant” to describe the target population of the proposed approaches).

clear that the issue of protecting the fetus is not a scientific or medical issue but a moral one.<sup>103</sup> Taken to a logical extreme, an interest in the fetus at all stages of development, untethered from a need for scientific or medical consensus, could result in excessive monitoring and control. Even exclusively considering real events that took place before *Dobbs* reveals what may be the floor, and not the ceiling, of troubling possibilities: drug use, including lawfully prescribed medications, may be more heavily securitized;<sup>104</sup> out of fear over risks to the fetus, courts could legally enforce a physician's recommendation for bed rest;<sup>105</sup> there could be a state interest not only in where someone is going but also in whether they wore a seatbelt<sup>106</sup> or were careful enough.<sup>107</sup> Broadly construed, the possible array of behaviors weighing on a fetus's health—and the steps required to promote or discourage those behaviors—appears boundless.

And we need not speculate what or who this type of surveillance would likely target because history provides those answers. Even under *Roe*, efforts to police pregnancy were common. Legislation and enforcement often focused on drug use and were disproportionately imposed against people of color. *Ferguson v. City of Charleston* provides a useful illustration.<sup>108</sup> This case concerned a hospital policy that began in 1989 where staff, in collaboration with law enforcement, would test the urine of pregnant patients “suspected of drug abuse” without a warrant or the woman's knowledge or consent.<sup>109</sup> Of the thirty women who

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103. *Dobbs*, 142 S. Ct. at 2258 (“Defenders of *Roe* and *Casey* do not claim that any new scientific learning calls for a different answer to the underlying moral question.”).

104. See, e.g., Cecilia Nowell, *Kim Blalock Took Lawfully Prescribed Pain Killers During Pregnancy—and Was Charged with A Felony*, ELLE (Apr. 6, 2022), <https://perma.cc/2FST-95QS> (summarizing the case of a woman who was charged after her newborn son tested positive for opiates due to her lawful prescription for hydrocodone).

105. See, e.g., Susan Donaldson James, *Pregnant Woman Fights Court-Ordered Bed Rest*, ABC NEWS (Jan. 14, 2010, 8:24 AM), <https://perma.cc/5E55-PKPL> (providing an example of a woman held against her will in a hospital after a Florida court ordered bed rest and medical care to sustain her pregnancy).

106. Andrew Smith, *Lawyer for Sound Beach Woman Argues Her Conviction for Causing Her Baby's Death in Car Crash Could Set Dangerous Precedent*, NEWSDAY (Sept. 8, 2015), <https://perma.cc/3QSZ-C2MV> (describing a woman convicted for killing her own baby because she wasn't wearing a seatbelt when her car crashed into another).

107. *Iowa Police Almost Prosecute Woman for Her Accidental Fall During Pregnancy . . . Seriously*, ACLU OF ME. (Feb. 11, 2010, 5:04 PM), <https://perma.cc/7PQ2-68Z3> (quoting a *Des Moines Register* article describing an incident in which police accused—but did not charge—a pregnant woman of intentionally falling down the stairs).

108. 532 U.S. 67 (2001). Justice Thomas raised *Ferguson* in the *Dobbs* oral argument. Though not at issue or directly linked to the questions in *Dobbs*, Justice Thomas's invocation of the *Ferguson* facts could indicate a willingness to police pregnancies for the health and wellbeing of the fetus. See Transcript of Oral Argument at 49-51, *Dobbs*, 142 S. Ct. 2228 (No. 19-1392).

109. *Ferguson*, 532 U.S. at 69-73, 77.

were tested and “failed” under the policy, twenty-nine were Black,<sup>110</sup> and the medical record of the one white pregnant woman contained the note that she lived “with her boyfriend who is a Negro.”<sup>111</sup> While the drafters described the policy as an effort to get these women into substance abuse programs,<sup>112</sup> most were never offered drug treatment before being sent to jail.<sup>113</sup> Thus, a policy that, on paper, looked like an effort to increase access to treatment, in reality, resulted in Black women in shackles and chains.<sup>114</sup>

*Ferguson* demonstrates that these programs typically require an initial assessment of who participates in risky behavior.<sup>115</sup> Black women have higher maternal mortality rates and worse birth outcomes.<sup>116</sup> While these disparities are due to several factors, including racism, they alone could be used to justify an inappropriate focus on this demographic for heightened surveillance and monitoring under the guise of protecting the fetus and newborn. And the shift from *Roe*’s strict scrutiny to *Dobbs*’s rational basis standard of review will likely provide a shield to any claims of racial profiling. Thus, even if surveillance under a facially neutral law is widespread, history suggests enforcement will mostly harm people of color.

## B. The Potential Promise of Femtech

Unfortunately, the future of reproductive freedoms is unfolding in such a way that the worst possible projections also seem the most likely. After *Dobbs*, this trajectory may extend to restrictions on birth control<sup>117</sup> and increased

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110. We capitalize the “B” in “Black” for the same reasons that Kimberlé Crenshaw articulates in her work. See Kimberlé Williams Crenshaw, *Race, Reform, and Retrenchment: Transformation and Legitimation in Antidiscrimination Law*, 101 HARV. L. REV. 1331, 1332 n.2 (1988) (“When using ‘Black,’ I shall use an upper-case ‘B’ to reflect my view that Blacks, like Asians, Latinos, and other ‘minorities,’ constitute a specific cultural group and, as such, require denotation as a proper noun.”); see also Kimberlé Crenshaw, *Mapping the Margins: Intersectionality, Identity Politics, and Violence Against Women of Color*, 43 STAN. L. REV. 1241, 1244 n.6 (1991) (“By the same token, I do not capitalize ‘white,’ which is not a proper noun, since whites do not constitute a specific cultural group.”).

111. Lynn M. Paltrow, *Pregnant Drug Users, Fetal Persons, and the Threat to Roe v. Wade*, 62 ALB. L. REV. 999, 1024-25 (1999).

112. *Ferguson*, 532 U.S. at 71-72.

113. Paltrow, *supra* note 111, at 1025.

114. *Id.* at 1024-25; see also DOROTHY ROBERTS, *KILLING THE BLACK BODY: RACE, REPRODUCTION AND THE MEANING OF LIBERTY* 159-61 (1997).

115. See ROBERTS, *supra* note 114, at 173-74 (describing the selective scope of the program in *Ferguson* and the manner in which “hospitals decide whom to screen for drug use by applying criteria that are more likely to select Black women”).

116. Juanita J. Chinn, Iman K. Martin & Nicole Redmond, *Health Equity Among Black Women in the United States*, 30 J. WOMEN’S HEALTH 212, 212, 215 (2021).

117. See *supra* Part I.A.1.

surveillance of anyone pregnant or capable of becoming pregnant.<sup>118</sup> But innovation in the booming femtech market<sup>119</sup> could help offset some of the worst possible outcomes by capitalizing on the autonomy-enhancing potential of period- and fertility-tracking apps. Some of these apps could function as an effective form of birth control.<sup>120</sup> And, under the right conditions, apps could shift the nature of surveillance from oppression to empowerment, regardless of whether a user intends to terminate or carry a pregnancy to term.

### 1. Quantifying the menstrual cycle

Period and fertility trackers have the potential to provide a partial solution to restrictions or bans on birth control by harnessing the predictive power of the menstrual cycle. But to understand the promise of these apps in avoiding or achieving pregnancy, one must first understand what they are, how they work, and how they are regulated. These apps include an array of visually similar products that differ primarily in the data and methods used to generate predictions and the product’s “intended use”<sup>121</sup> for contraception, procreation, or basic menstrual tracking. Predictions can include the start and end dates of menstrual periods, the onset of the symptoms of premenstrual syndrome, ovulation, fertile windows, or some combination of these variables.<sup>122</sup> Apps generate these predictions through user inputs. While some collect only dates,<sup>123</sup> some rely on other devices like thermometers to track basal body temperature.<sup>124</sup>

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118. See *supra* Part I.A.2.

119. Press Release, Grand View Rsch., Inc., Women’s Health App Market Worth \$8.9 Billion by 2028, (June 14, 2021), <https://perma.cc/J5XA-DDZJ>; *Women’s Health App Market*, PRECEDENCE RSCH. (Nov. 2021), <https://perma.cc/Q5UT-5WXM>.

120. See 21 C.F.R. § 884.5370(a) (2022) (describing the medical device requirements for a “software application for contraception”).

121. “Intended use” is a term of art relevant to how the FDA makes regulatory decisions about specific products. 21 C.F.R. § 801.4 (2022). For an analysis of when the FDA has relied on evidence other than manufacturer statements to show intended use, see Patricia J. Zettler, Natalie Hemmerich & Micah L. Berman, *Closing the Regulatory Gap for Synthetic Nicotine Products*, 59 B.C. L. REV. 1933, 1938 (2018) (noting that this issue has long been controversial); and Patricia J. Zettler, *The FDA’s Power over Non-Therapeutic Uses of Drugs and Devices*, 78 WASH. & LEE L. REV. 379, 394-97 (2021) (describing how the FDA has interpreted intended use).

122. See *infra* Part II.A.1.

123. Roshonara Ali, Zeynep B. Grtin & Joyce C. Harper, *Do Fertility Tracking Applications Offer Women Useful Information About Their Fertile Window?*, 42 REPROD. BIOMEDICINE ONLINE 273, 275 (2021) (“Most apps only tracked menstrual cycle dates ( $n = 49$  [54.4%]) of which 12 apps (28.6%) measured other fertility indicators such as [basal body temperature] but did not include them in their predictions for ovulation, the fertile window, or both.”).

124. *Id.*; *How Does Natural Cycles Work?*, NAT. CYCLES, <https://perma.cc/DV2T-AJDQ> (archived May 23, 2023).

The science of the menstrual cycle speaks to these apps' possible functionalities and the role of the expansive and intimate data they collect, store, and analyze. Period and fertility trackers can take data and generate predictions because the menstrual cycle is, at least in the abstract, regular and cyclic.<sup>125</sup> For example, counting days is one method of prediction based on the assumption that a menstrual cycle is twenty-eight days long,<sup>126</sup> with ovulation estimated to happen in the middle.<sup>127</sup> In addition to hormone fluctuations, the human body signals fertility through observable physiological changes, such as changes in basal body temperature<sup>128</sup> and cervical mucus.<sup>129</sup> Pregnancy can only occur within a relatively short window of the menstrual cycle,<sup>130</sup> so observing these patterns over time can prove useful for avoiding or achieving pregnancy. All these data are, therefore, relevant to what an app can do and how well it can do it.

For people who menstruate but cannot use hormonal birth control—either out of preference,<sup>131</sup> contraindication,<sup>132</sup> or because it may become unavailable

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125. Most menstrual cycles range from twenty-three to thirty-five days. I. Soumpasis, B. Grace & S. Johnson, *Real-Life Insights on Menstrual Cycles and Ovulation Using Big Data*, HUM. REPROD. OPEN hoaa011, at 5 (2020), <https://perma.cc/ZQ54-BTJR>. However, most people have irregular cycles. *Id.* at 3 (estimating that the frequency of a twenty-eight-day cycle in the population is closer to 12.4% and suggesting that less than 1% of individuals sampled have the same cycle length across four consecutive cycles, and more than half will have cycle lengths that vary by five days or more).
126. See Lauren Worsfold, Lorrae Marriott, Sarah Johnson & Joyce C. Harper, *Period Tracker Applications: What Menstrual Cycle Information Are They Giving Women?*, WOMEN'S HEALTH, at 2 (2021), <https://perma.cc/Y8UF-LVUE>.
127. *Id.*
128. Martin Owen, *Physiological Signs of Ovulation and Fertility Readily Observable by Women*, 80 LINACRE Q. 17, 20 (2013).
129. Richard J. Fehring, *Accuracy of the Peak Day of Cervical Mucus as a Biological Marker of Fertility*, 66 CONTRACEPTION 231, 234 (2002) (finding that the peak day of cervical mucus “is a very accurate estimator of peak fertility in a woman’s menstrual cycle and a fairly accurate estimator of the day of ovulation”).
130. Sperm in the body retain their ability to fertilize an ovum for up to five days. Allen J. Wilcox, Clarice R. Weinberg & Donna D. Baird, *Timing of Sexual Intercourse in Relation to Ovulation: Effects on the Probability of Conception, Survival of the Pregnancy, and Sex of the Baby*, 333 NEW ENG. J. MED. 1517, 1520 (1995). Accounting for survival and the date of ovulation, scientists estimate that a person can get pregnant approximately six days each cycle. *Id.*; see also Clarice R. Weinberg & Allen J. Wilcox, *A Model for Estimating the Potency and Survival of Human Gametes in Vivo*, 51 BIOMETRICS 405, 409-10 (1995) (establishing the fertile period based on survival of sperm in the reproductive tract and ovulation).
131. Emily J. Pfender & M. Marie Devlin, *What Do Social Media Influencers Say About Birth Control? A Content Analysis of YouTube Vlogs About Birth Control*, HEALTH COMMUN, at 6 (2023), <https://perma.cc/4MAW-9JKY> (to locate, select “View the live page”) (“The three primary reasons influencers discontinued hormonal birth control included the desire to be more natural (44%), to improve or protect their mental health (32%), and weight gain (20%).”).
132. A contraindication is “[a]nything (including a symptom or medical condition) that is a reason for a person to not receive a particular treatment or procedure because it may
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after *Dobbs*<sup>133</sup>—an effective contraceptive app can help a user time intercourse to avoid pregnancy. The FDA stringently regulates contraceptive apps, at least as compared to apps intended for other menstrual-tracking uses.<sup>134</sup> The agency defines “software application for contraception” as a device that “provides user-specific fertility information for preventing a pregnancy.”<sup>135</sup> This medical device category “includes an algorithm that performs analysis of patient-specific data (e.g., temperature, menstrual cycle dates) to distinguish between fertile and non-fertile days, then provides patient-specific recommendations related to contraception.”<sup>136</sup>

Unless otherwise exempted, all FDA-regulated devices are subject to general controls described in the Federal Food, Drug, and Cosmetic Act (FDCA).<sup>137</sup> The FDA regulates contraceptive apps as Class II medical devices,<sup>138</sup> meaning these devices pose an intermediate level of risk.<sup>139</sup> As a Class II device, the FDA also imposes special device-specific requirements about the accuracy, reliability, and effectiveness of apps intended to prevent pregnancy, as well as evaluation to show that intended users can correctly use the application based solely on reading the directions.<sup>140</sup> The FDA also requires labeling. For contraceptive devices, those labels must include four specific warnings and precautions in the form of statements (1) clarifying that “no contraceptive method is 100% effective”; (2) specifying that “another form of contraception (or abstinence) must be used” on specified days; (3) describing any “factors” affecting “the accuracy of the contraceptive information”; and (4) warning that “the application cannot prevent sexually transmitted infections.”<sup>141</sup> Thus, taken at face value, the FDA’s regulations ensure that contraceptive apps are accurate and effective, and that consumers know whether to use them and how to do so appropriately.

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be harmful.” *Contraindication*, NAT’L CANCER INST., <https://perma.cc/J6ZV-Q2NB> (archived May 23, 2023).

133. *Supra* Part I.A.1.

134. *See infra* notes 137-47 and accompanying text.

135. 21 C.F.R. § 884.5370(a) (2022).

136. *Id.*

137. *General Controls for Medical Devices*, U.S. FDA (updated Mar. 22, 2018), <https://perma.cc/8T2A-ZNP2> (“General Controls apply to all three classes of medical devices; however, they are the only level of controls that apply to Class I devices.”).

138. 21 C.F.R. § 884.5370(b) (2022).

139. *See* 21 U.S.C. § 360c(a) (indicating that Class I is the lowest risk and subject to the least regulatory control; Class II is an intermediate level of risk; and Class III is the highest risk and generally requires premarket approval).

140. 21 C.F.R. § 884.5370(b).

141. *Id.* § 884.5370(b)(4)(i)(A)-(D).

Beyond contraception, period- and fertility-tracking apps are also beneficial for consumers interested in becoming pregnant<sup>142</sup> and those simply interested in tracking their menstrual cycle independent of reproduction.<sup>143</sup> While distinguishing between fertile and non-fertile days is relevant both to preventing and achieving pregnancy, the FDA currently exercises enforcement discretion over proceptive apps that identify fertile days, so long as they do not claim the user can rely on this information for contraceptive purposes.<sup>144</sup> Enforcement discretion means the FDA does not plan to enforce otherwise applicable regulatory requirements so long as the app does not cross the limits of exemptions.<sup>145</sup> As a result, proceptive devices and any apps

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142. Accurately identifying ovulation can help target intercourse on a user's most fertile days, thereby increasing the chances of conception. See Alexander Freis et al., *Plausibility of Menstrual Cycle Apps Claiming to Support Conception*, 6 FRONTIERS PUB. HEALTH art. 98, at 2 (2018), <https://perma.cc/5H9B-J9H7>; Carlotta Favaro et al., *Time to Pregnancy for Women Using a Fertility Awareness Based Mobile Application to Plan a Pregnancy*, 30 J. WOMEN'S HEALTH 1538, 1538-39 (2021).
143. Consumers may also wish to anticipate menstruation dates to plan activities and vacations or purchase menstrual products. Dates are also useful for monitoring health conditions that fluctuate with hormones and athletic performance. Consumers may wish to use the data to inform conversations with their medical providers or to know their bodies better. See Andrea Ford, Giulia de Togni & Livia Miller, *Hormonal Health: Period Tracking Apps, Wellness, and Self-Management in the Era of Surveillance Capitalism*, 7 ENGAGING SCI., TECH., & SOC'Y, no. 1, 2021, at 48, 49, <https://perma.cc/9S3H-VUC3>; Johanna Levy & Nuria Romo-Avilés, "A Good Little Tool to Get to Know Yourself a Bit Better": A Qualitative Study on Users' Experiences of App-Supported Menstrual Tracking in Europe, 19 BMC PUB. HEALTH art. 1213, at 4-7 (2019), <https://perma.cc/XX4B-BSJU>; Laetitia Della Bianca, *The Cyclic Self: Menstrual Cycle Tracking as Body Politics*, 7 CATALYST: FEMINISM, THEORY, & TECHNOSCIENCE, no. 1, 2021, at 4-6, <https://perma.cc/MQ4Q-PFV2> (describing "cyclic self-fashioning" and how trackers can mediate a user's relationship with their body and others); Michael Morrison, *The Datafication of Fertility and Reproductive Health: Menstrual Cycle Tracking Apps and Ovulation Detection Algorithms*, 11 J. RSCH. GENDER STUD., no. 2, 2021, at 139, 146, <https://perma.cc/5QW8-XB8Q> (explaining that apps can be used to establish connections between menstruation and experiences, which clarify psychological and physical behaviors).
144. Interoffice Memorandum from Michael Bailey, Off. of Device Evaluation, Div. of Reprod., Gastro-Renal & Urological Devices, Obstetrics/Gynecology Devices Branch, U.S. Food & Drug Admin., to Nina Mezu-Nwaba, Off. of Compliance, Div. of Mfg. & Quality, U.S. Food & Drug Admin. (Feb. 14, 2019) (on file with authors) (explaining that conception-only devices, which the FDA classifies under the LHD product code, are devices that have been cleared by the FDA to identify fertile days outside the fertile window as less-fertile, but "do not make claims that a user can rely on this information for the purposes of preventing a pregnancy"); see also *Product Classification: LHD*, U.S. FDA, <https://perma.cc/KLQ9-2VUW> (last updated June 5, 2023).
145. *Id.* (noting that "LHD devices are on the intent-to-exempt list, and 510(k)'s are not expected to be submitted for these devices as long as they do not trip the limits of exemption (21 CFR 884.9)"); *Examples of Software Functions for Which the FDA Will Exercise Enforcement Discretion*, U.S. FDA (updated Sept. 29, 2022), <https://perma.cc/3RQ6-89YM>.



exclusively for tracking and not intended to achieve or avoid pregnancy<sup>146</sup> are not subject to the same heightened scrutiny and controls as contraceptive apps. This leaves non-contraceptive apps to enter the market without the same labeling or documented effectiveness. Regardless, the FDA retains post-market authority even if it has exercised enforcement discretion over a device.<sup>147</sup>

In sum, effective period- and fertility-tracking apps—particularly software applications for contraception—could become critically important after *Dobbs*. In places that restrict or ban access to other forms of birth control, these functionalities may help people retain some level of agency over their reproductive choices, whatever those choices may be. And, given the gravity of an unplanned pregnancy in places that ban or restrict abortion, users of software as contraception have guardrails in place that hold contraceptive apps to more exacting standards than other types of menstrual-tracking apps.

## 2. Empowering self-surveillance

In addition and related to softening the impact of restrictions or bans on birth control, period- and fertility-tracking apps may represent a more empowering vision of reproductive surveillance. Surveillance is not always oppressive, especially when individuals privately surveil themselves to achieve their own ends.<sup>148</sup> This optimistic view of self-monitoring is a function of both menstrual tracking's demonstrable benefits and the ability to engage in it outside of formal medical channels and other avenues more readily subjected to the state's prying eyes.<sup>149</sup> These factors, combined with the growing popularity of digital self-monitoring in modern society,<sup>150</sup> speak to the near-infinite ability of

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146. Section 3060(a) of the 21st Century Cures Act amended Section 520 of the Food, Drug, and Cosmetics Act (FDCA) to remove certain software functions from the FDCA definition of a device, including those that “maintain[] or encourage[] a healthy lifestyle.” 21st Century Cures Act, Pub. L. No. 114-255, § 3060(a), 130 Stat. 1033, 1130-32 (2016) (codified at 21 U.S.C. § 360j(o)). Other functions that were removed include: (1) to provide “administrative support [for] a health care facility”; (2) to “serve as electronic patient records”; and (3) to transfer, store, or display data, or to convert data formats. *Id.*

147. SOLOMON CTR. FOR HEALTH L. & POL’Y, YALE L. SCH., & STRATHMORE HEALTH STRATEGY, A PATH TO PATIENT-CENTERED DIGITAL HEALTH REGULATION 12 (Ryan Knox & Cara Tenenbaum eds., 2021), <https://perma.cc/4P24-69NQ>; see also U.S. FDA, POLICY FOR DEVICE SOFTWARE FUNCTIONS AND MOBILE MEDICAL APPLICATIONS: GUIDANCE FOR INDUSTRY AND FOOD AND DRUG ADMINISTRATION STAFF (2022), <https://perma.cc/WA33-KYT3>.

148. Deborah Lupton, *The Digitally Engaged Patient: Self-Monitoring and Self-Care in the Digital Health Era*, 11 SOC. THEORY & HEALTH 256, 260-62 (2013) (providing examples of empowering digital health monitoring but cautioning that these experiences are not universal).

149. See Paltrow & Flavin, *supra* note 30, at 326-27.

150. Megan Zweig, Jen Shen & Lou Jug, *Healthcare Consumers in a Digital Transition*, ROCK HEALTH (Aug. 27, 2018), <https://perma.cc/VEW8-Y26S> (finding, in several  
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period- and fertility-tracking apps to scale up as post-*Dobbs* conditions require. As a result, these technologies could help all individuals evade or adapt to a state's ever-evolving attempts to promote its interest in fetal health at all stages of development, regardless of how those attempts manifest.

Positioning period- and fertility-tracking apps in a long tradition of liberating self-surveillance helps underscore their enormous post-*Dobbs* potential. Some theorize that for much of recorded history, manually self-monitoring menstrual patterns has been a source of knowledge about the body and perhaps even mathematics, time, and periodicity in nature.<sup>151</sup> Over the last hundred years, medical science has developed its understanding of the importance of observing and recording menstrual cycles to prevent or achieve pregnancy.<sup>152</sup> There are now several accepted fertility awareness-based methods for pregnancy prevention, with some boasting a failure rate between two and five percent with perfect use (similar to male and female condoms).<sup>153</sup> Importantly, fertility awareness-based methods of contraception are not subject to the same moral objections as other hormonal and barrier methods.<sup>154</sup>

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representative studies of approximately 4,000 U.S. adults, that the percentage of respondents using wearable devices or mobile tracking for healthcare purposes increased between 2015-2017); see also Justin McCarthy, *One in Five U.S. Adults Use Health Apps, Wearable Trackers*, GALLUP (Dec. 11, 2019) <https://perma.cc/8EZB-FC8C> (reporting that nearly one in three Americans have worn a fitness tracker or used a health app to track health).

151. See, e.g., Claudia Zaslavsky, *Women as the First Mathematicians*, ISGEM NEWSLETTER, (Int'l Study Grp. on Ethnomathematics), Jan. 1992, <https://perma.cc/WL3L-6VQL> (“Thus far the oldest [calendar] bone, discovered in southern Africa and having 29 incisions, goes back about 37,000 years. Now, who but a woman keeping track of her cycles would need a lunar calendar?”).
152. Carol A Quarini, *History of Contraception*, WOMEN'S HEALTH MED., Sept.-Oct. 2005, at 28, 29; George W. Corner, *Our Knowledge of the Menstrual Cycle, 1910-1950*, 257 LANCET 919, 921 (1951).
153. Rachel Peragallo Urrutia & Chelsea B. Polis, *Fertility Awareness Based Methods for Pregnancy Prevention*, BMJ, at 2 (July 11, 2019), <https://perma.cc/ZMS5-Y2WY>. Contraceptive use failure rates are often described for both perfect use and typical use. See *Contraceptive Use in the United States*, GUTTMACHER INST. (Apr. 2020), <https://perma.cc/G7WS-M93Z> (defining typical-use failure rates as those that “express effectiveness among all women who use the method, including those who use it inconsistently and incorrectly” and perfect-use failure rates as those that “express effectiveness among only those women who use the method both consistently and correctly”).
154. Even the Catholic Church, which is well-known to take anti-birth control positions, has considered fertility awareness-based family planning to be permissible within marriage since 1968. Pope Paul VI, Encyclical Letter, *Humanae Vitae* ¶ 16 (July 25, 1968), <https://perma.cc/7QGX-B2AB> (“[T]he Church teaches that married people may then take advantage of the natural cycles immanent in the reproductive system and engage in marital intercourse only during those times that are infertile, thus controlling birth in a way which does not in the least offend the moral principles which We have just explained.”).

Thus, in a post-*Dobbs* future where birth control becomes a political target, fertility awareness-based methods of contraception will likely remain untouched. And building on available reproductive science, period- and fertility tracking apps can bring these methods, as well as menstrual tracking's other diverse potential uses,<sup>155</sup> into the twenty-first century. Now, instead of tracking these data with cumbersome paper charts and manual calculations, users can realize the benefits of menstrual self-surveillance with the convenience of a smartphone and an algorithm.

A key benefit of menstrual self-monitoring is that it is discreet, operating outside formal medical channels. This keeps certain reproductive choices and information away from medical professionals, who have historically been the most likely to report suspicious miscarriages or poor pregnancy outcomes to law enforcement.<sup>156</sup> Though smartphone-based apps are generally not well-known for their data management,<sup>157</sup> consumers concerned about privacy could seek out apps with more robust privacy protections. And, much like the FDA could help ensure an accurate contraceptive app, the FTC could use its consumer-protection authority to hold app developers to the privacy promises they make to their consumers,<sup>158</sup> as could state consumer-protection agencies.<sup>159</sup> In fact, both state and federal actors have gone after period- and fertility-tracking apps for breaking those promises in the past, demonstrating their interest in protecting consumers in this space and their willingness to exert their authority.<sup>160</sup> As a result, in a perfect world, period- and fertility-

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155. See *supra* note 143.

156. Paltrow & Flavin, *supra* note 30, at 326-27 (noting that in cases where these outcomes “came to the attention of police, prosecutors, and courts,” most were through reports from healthcare professionals, and that “[h]ospital-based health care providers and social workers appear more likely to disclose information about patients of color”).

157. Some have argued that app developers did not previously prioritize privacy or security features and instead focused on the types of attention-grabbing features that inspire downloads. See, e.g., DANIEL J. SOLOVE & WOODROW HARTZOG, BREACHED: WHY DATA SECURITY LAW FAILS AND HOW TO IMPROVE IT 91 (2022).

158. The FTC's mission includes protecting consumers and promoting competition, see *About the FTC*, FTC, <https://perma.cc/86XZ-8RTP> (archived May 25, 2023), which includes regulating privacy, security, and health claims in advertising. See *Mobile Health App Interactive Tool*, FTC (Dec. 2022), <https://perma.cc/B2BT-3UZB>; Press Release, FTC, “Acne Cure” Mobile App Marketers Will Drop Baseless Claims Under FTC Settlements (Sept. 8, 2011), <https://perma.cc/SR24-TGZ2>.

159. See generally CAROLYN CARTER, NAT'L CONSUMER L. CTR., CONSUMER PROTECTION IN THE STATES: A 50-STATE EVALUATION OF UNFAIR AND DECEPTIVE PRACTICE LAWS (2018), <https://perma.cc/SD62-UM8Q> (presenting the results of a fifty-state survey evaluating the strengths and weaknesses of unfair and deceptive acts and practices laws).

160. See, e.g., Press Release, Xavier Becerra, Att'y Gen. of Cal., Attorney General Becerra Announces Landmark Settlement Against Glow, Inc.—Fertility App Risked Exposing Millions of Women's Personal and Medical Information (Sept. 17, 2020), <https://perma.cc/7Z9Z-ZSZK>; Press Release, FTC, FTC Finalizes Order with Flo Health,

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tracking app users could feel confident in their decision to avail themselves of the ease and convenience of a smartphone without losing the privacy inherent in paper charting.<sup>161</sup>

Technology has made the longstanding practice of menstrual self-monitoring more convenient and inconspicuous than ever before. These conditions alone may explain the growing popularity of period- and fertility-tracking apps. But this popularity makes even more sense when we consider these products in the context of the broader “quantified-self” movement and the imperatives it creates. In this movement, digital monitors and trackers offer high-tech yet “natural” ways to understand, optimize, and control the human body.<sup>162</sup> The quantified-self movement positions reproductive bodies within a context of medicalization and risk<sup>163</sup> and operates under the assumption that we can control our bodies through technological self-surveillance.<sup>164</sup> As a result, for many app users, there is a sense that tracking menstrual cycles is not just an optional activity but a requirement of being a good “digitized reproductive citizen.”<sup>165</sup> Accordingly, there is a widespread belief that intense monitoring is not only good but essential to the health of a pregnant person and, ultimately, through other pregnancy and childcare apps, the health of the fetus and born child.<sup>166</sup> By this logic, failing to self-track is merely a result of laziness, incompetence, indifference, or ignorance— possibly even negligence.<sup>167</sup>

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a Fertility-Tracking App that Shared Sensitive Health Data with Facebook, Google, and Others (June 22, 2021), <https://perma.cc/RTH9-CBW3> [hereinafter Press Release, FTC, Flo Health]; Press Release, FTC, Ovulation Tracking App Premom Will Be Barred from Sharing Health Data for Advertising Under Proposed FTC Order (May 17, 2023), <https://perma.cc/Q4T9-GUX6> [hereinafter FTC, Press Release, Premom].

161. *But see infra* Part II.

162. See Deborah Lupton, *Quantifying the Body: Monitoring and Measuring Health in the Age of mHealth Technologies*, 23 CRITICAL PUB. HEALTH 393, 394-95 (2013).

163. See Deborah Lupton, *Quantified Sex: A Critical Analysis of Sexual and Reproductive Self-Tracking Using Apps*, 17 CULTURE HEALTH & SEXUALITY 440, 447 (2015).

164. See Adrienne Evans, Sarah Riley & Martine Robson, *Postfeminist Healthism: Pregnant with Anxiety in the Time of Contradiction*, 17 JURA GENTIUM no. 1, 2020, at 95, 113-16, <https://perma.cc/6JNT-BFQB>.

165. Deborah Lupton, *‘Mastering Your Fertility’: The Digitised Reproductive Citizen*, in NEGOTIATING DIGITAL CITIZENSHIP: CONTROL, CONTEST AND CULTURE 81, 86-89 (Anthony McCosker, Sonja Vivienne & Amelia Johns eds., 2016); Deborah Lupton, *Apps as Artefacts: Toward a Critical Perspective on Health and Medical Apps*, 4 SOC’YS 606, 612 (2014); Deborah Lupton, *‘Precious Cargo’: Foetal Subjects, Risk and Reproductive Citizenship*, 22 CRITICAL PUB. HEALTH 329, 335-36 (2012).

166. Deborah Lupton, *Caring Dataveillance: Women’s Use of Apps to Monitor Pregnancy and Children*, in THE ROUTLEDGE COMPANION TO DIGITAL MEDIA AND CHILDREN 393, 396-97 (Leila Green, Donell Holloway, Kylie Stevenson, Tama Leaver & Leslie Haddon eds., 2021).

167. See Lupton, *supra* note 148, at 262.

When period- and fertility-tracking apps work well, they help consumers be the good “digitized reproductive citizens” envisioned by the quantified-self movement.<sup>168</sup> However, the expectations of that citizenship will likely only expand if abortion is illegal, access to birth control diminishes, and pregnancy surveillance increases alongside the state’s interest in the fetus at all stages of development.<sup>169</sup> The ease and convenience of an app mean that anyone with a smartphone can—and perhaps should—avail themselves of these technologies.<sup>170</sup> The fact that many apps are free to download only increases their potential reach.<sup>171</sup> With accurate and regular menstrual cycle monitoring, app users could keep the tools to avoid pregnancy at their fingertips, even without other forms of birth control. And anyone engaging in regular menstrual monitoring could know they are pregnant early, potentially on the exact day the app alerts them to a late period. For those who wish to terminate, that early notification creates a longer runway to obtain an abortion. For those who carry a pregnancy to term, users could seek prenatal care quickly and engage in behavioral changes to avoid future civil and criminal penalties for real or perceived fetal health-harming behaviors. Viewed in this light, period- and fertility-tracking apps have the unique power to change surveillance from a potential weapon into a beneficial tool.

In its most idealized form, menstrual self-monitoring with period- and fertility-tracking apps is empowering because it yields useful information, is discreet, and fits easily into how we already incorporate technology into other areas of our lives. In a post-*Dobbs* world, many more people may turn to period- and fertility-tracking apps to meet menstrual and reproductive health needs in response to constricting access to reproductive care and expanding state interests. Unlike finite medical resources, period- and fertility-tracking apps are infinitely scalable to anyone with a smartphone. And as reproductive intentions—and consequently the motivation for app use—change over time,<sup>172</sup> this routinized tracking can help all users avoid becoming part of *Dobbs*’s future ruin.

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168. See *supra* note 165 and accompanying text.

169. See Evans et al., *supra* note 164, at 98 (noting that technology enhances normative expectations of discipline that frequently accompany increasing control over an individual’s reproductive rights).

170. PEW RSCH. CTR., MOBILE TECHNOLOGY AND HOME BROADBAND 2021, at 5 (2021), <https://perma.cc/6GRZ-FQCM> (noting that 96% of U.S. adults between the ages of 18 and 29 and 95% between the ages of 30 and 49 own a smartphone).

171. See *infra* Part II.A.1.

172. Sarah Earle, Hannah R. Marston, Robin Hadley & Duncan Banks, *Use of Menstruation and Fertility App Trackers: A Scoping Review of the Evidence*, 47 *BMJ SEXUAL & REPROD. HEALTH* 90, 99 (2021) (indicating that women self-track “for a range of reasons but that their motivations and goals shift over time and can overlap”).

## II. Femtech's Dystopia

When viewed through rose-colored glasses, period- and fertility-tracking apps offer promising solutions to increase bodily autonomy when the outlook for reproductive rights is increasingly bleak. But this optimistic perspective paints a picture of what these apps could become under ideal circumstances, not what they are. When considered through a more realistic lens, period- and fertility-tracking apps and the rules that govern them fall short of creating the conditions required to live up to their potential. This Part forecasts femtech's dystopian future in light of its present reality. It then looks at the current regulatory and legal environment to explore why it is insufficient to prevent the worst possible outcomes.

### A. Femtechnodystopia

Period and fertility trackers could prove useful in addressing the risks of post-*Dobbs* restrictions on birth control and increased reproductive surveillance. However, the same contraceptive functionalities and broad datasets that make these technologies promising can also worsen the assault on reproductive freedoms. Inaccurate apps may increase rates of unintended pregnancy, insecure apps may put data in the hands of nefarious actors or facilitate civil and criminal actions, and consumers may be in the dark about these risks until it is too late

#### 1. Femtech's present perils

Implicit in the discussion of period and fertility tracking's potential usefulness are the underlying assumptions that they are accurate, the data they contain is private and secure, and that consumers know about the risks and limitations of their use. But closer inspection reveals that these conditions are, at best, imperfectly satisfied and, at worst, completely unmet.

##### a. Inaccurate apps

The predictions of period and fertility trackers must be accurate to be useful. While accuracy is important regardless of how a user engages with an app, it is particularly relevant when using an app for contraception since inaccuracy can lead to an unplanned pregnancy. Yet, since researchers first

began studying digital period and fertility tracking,<sup>173</sup> significant problems with accuracy have been at the forefront of their analyses.<sup>174</sup>

Researchers have studied app accuracy from various perspectives, including the information provided to consumers and period, ovulation, or fertile window predictions. Some of the earliest accuracy studies emerged in 2016. At that time, one study found that most free smartphone menstrual cycle tracking apps were inaccurate in predicting menstruation dates, contained misleading health information, or did not function at all.<sup>175</sup> Other research cautioned similarly: Though apps were becoming more widely available, and often for free, they were generally inaccurate in predicting fertile windows and dates of ovulation.<sup>176</sup> One study noted that only 6 of the 30 sampled apps had a perfect accuracy score (meaning app-defined fertile days matched evidence-based fertile days) or had no false negatives (days of fertility classified as infertile) after excluding apps that cautioned users against using them to avoid pregnancy.<sup>177</sup> This finding means that some apps potentially exposed consumers to the risk of unintended pregnancy when using the apps for contraceptive purposes, which we believe is a reasonable mistake for consumers to make considering the noted lack of disclaimers against contraceptive use for the sampled apps.

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173. Researchers conducting a literature review found only six scientific articles published between 2012 and 2015 discussing reproductive-health apps, and none of them focused specifically on period or fertility tracking. Michelle Lynn Moglia & Paula M. Castano, *A Review of Smartphone Applications Designed for Tracking Women's Reproductive Health*, 125 *OBSTETRICS & GYNECOLOGY* 41S, 41S (Supp. 2015), <https://perma.cc/U7JB-APEU>. At least one source suggests that this time range encompasses the period in which menstrual-cycle or period-tracking apps first entered the market. Worsfold et al., *supra* note 126, at 1.
174. Emily Rose Mangone, Victoria Lebrun & Kathryn E. Muessig, *Mobile Phone Apps for the Prevention of Unintended Pregnancy: A Systematic Review and Content Analysis*, 4 *JMIR MHEALTH & UHEALTH* e6, at 11 (2016), <https://perma.cc/L7BR-8354> (noting that if “users rely exclusively on fertility tracking apps for pregnancy prevention, it could lead to a high number of unintended pregnancies”).
175. Michelle L. Moglia, Henry V. Nguyen, Kathy Chyjek, Katherine T. Chen & Paula M. Castaño, *Evaluation of Smartphone Menstrual Cycle Tracking Applications Using an Adapted APPLICATIONS Scoring System*, 127 *OBSTETRICS & GYNECOLOGY* 1153, 1157 (2016).
176. Robert Setton, Christina Tierney & Tony Tsai, *The Accuracy of Web Sites and Cellular Phone Applications in Predicting the Fertile Window*, 128 *OBSTETRICS & GYNECOLOGY* 58, 61 (2016) (observing that “web sites and cellular phone apps to predict fertile windows and dates of ovulation are generally inaccurate and unreliable”); Marguerite Duane, Alison Contreras, Elizabeth T. Jensen & Amina White, *The Performance of Fertility Awareness-Based Method Apps Marketed to Avoid Pregnancy*, 29 *J. AM. BD. FAM. MED.* 508, 511 (2016) (finding that “[t]he majority of fertility apps are neither designed for avoiding pregnancy nor founded on evidence-based [fertility awareness-based methods]”).
177. Duane et al., *supra* note 176, at 511. An app could theoretically demonstrate perfect accuracy by this definition by reducing precision and simply coding every day of the month as a fertile day. However, the larger the predicted fertile window, the less useful the app becomes for any purpose.

The FDA cleared the first contraceptive app in 2018.<sup>178</sup> Given this pivotal moment in technological innovation, one might assume that period- and fertility-tracking apps of all varieties have since improved. However, more recent research suggests that apps have not necessarily become more accurate over time. In a 2021 study, apps still struggled with predictions about menstrual bleeding initiation and duration, ovulation date, and fertile window, especially for any pattern beyond a regular twenty-eight-day cycle.<sup>179</sup> Another 2021 study revealed that many apps generate predictions using menstrual cycle dates alone, which limits accuracy.<sup>180</sup> Using dates alone produces some of the least reliable ovulation estimates.<sup>181</sup> To improve accuracy, apps must account for other physiological signs of ovulation, incorporating the best available evidence about fertility awareness-based methods of contraception.<sup>182</sup> Unfortunately, most apps do not approximate those methods.<sup>183</sup>

But even if an app uses the best available evidence about natural family planning, these methods can have as high as a thirty-four percent failure rate with typical use.<sup>184</sup> The apps often lack the necessary instructions or educational components to use fertility awareness-based methods appropriately.<sup>185</sup> As a result, many people will limit their efficacy further by

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178. Press Release, U.S. FDA, FDA Allows Marketing of First Direct-to-Consumer App for Contraceptive Use to Prevent Pregnancy (Aug. 10, 2018), <https://perma.cc/V84H-37SN>.

179. Worsfold et al., *supra* note 126, at 4, 6. This is particularly concerning because very few people have a perfect twenty-eight-day cycle or ovulate on day fourteen. Jonathan R. Bull, Simon P. Rowland, Elina Berglund Scherwitzl, Raoul Scherwitzl, Kristina Gemzell Danielsson & Joyce Harper, *Real-World Menstrual Cycle Characteristics of More than 600,000 Menstrual Cycles*, 2 NPJ DIGIT. MED. art. 83, at 3 (2019), <https://perma.cc/9DDL-FXXX> (describing considerable variability in menstrual cycle characteristics).

180. Ali et al., *supra* note 123, at 275.

181. *Id.* at 277; *see also* Sarah Johnson, Lorrae Marriott & Michael Zinaman, *Can Apps and Calendar Methods Predict Ovulation with Accuracy?*, 34 CURRENT MED. RSCH. & OP. 1587, 1593 (2018) (finding that calendar apps that attempted to predict users' day of ovulation had a maximal probability of being correct of 21%).

182. *See supra* notes 125-30 and accompanying text.

183. *See* Duane et al., *supra* note 176, at 511 (observing that “[t]he majority of fertility apps are neither designed for avoiding pregnancy nor founded on evidence-based [fertility awareness-based methods]”).

184. Urrutia & Polis, *supra* note 153, at 2.

185. *See* Duane et al., *supra* note 176, at 511 (concluding that successful use of fertility-awareness-based methods (FABMs) can depend on the ability of users to “accurately make and classify daily observations” and “[r]elying solely on an FABM app may not be sufficient to prevent pregnancy”); *see also* Nicole Wetsman, *Why You Should Not Trust Fertility Apps—Yet*, SLATE (Sept. 19, 2018, 9:00 AM), <https://perma.cc/ZD6X-NMDY> (“The quality of the evidence around fertility awareness apps is a particular concern because most people using them probably don’t have prior exposure to the science around fertility awareness methods or realize what they actually need to do in order to use them properly.”). *But see* Della Bianca, *supra* note 143, at 9-10 (describing the results

*footnote continued on next page*



failing to understand the nuances of these contraceptive methods—such as the ways stress, travel, alcohol consumption, and variations in sleep patterns can invalidate a basal body temperature reading.<sup>186</sup> These disappointing findings are all the more concerning because period- and fertility-tracking apps are also likely to discourage hormonal contraception as a result of how those hormones affect a user’s menstrual cycle.<sup>187</sup> And these shortcomings do not even account for users who have no say in if, when, how, or with whom they participate in intercourse capable of producing a pregnancy, for whom even the most perfect app will do nothing.<sup>188</sup>

b. Hemorrhaging data

Many period- and fertility-tracking apps have failed to meaningfully innovate in reproductive science beyond poorly reinventing the rhythm-method wheel. However, this outcome makes more sense in the broader context of the data-sharing economy. Like many technologies, these apps contribute to a large data ecosystem. Within this environment, vast amounts of information are routinely shared or sold to third parties and then aggregated and re-sold to others—including law enforcement and intelligence agencies.<sup>189</sup>

Transacting in consumer data at scale is lucrative,<sup>190</sup> so many developers intentionally design apps specifically to collect, retain, aggregate, and share data.<sup>191</sup> But data about a person who is or is about to become pregnant is even more valuable still: One estimate from 2014 suggests that a pregnant person’s

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of qualitative interviews in which users did not consider apps to be the singular authoritative position on ovulation and instead engaged in other confirmatory measures—like urine test strips—to confirm an app’s prediction).

186. Wetsman, *supra* note 185.

187. Mangone et al., *supra* note 174, at 7.

188. Della Bianca, *supra* note 143, at 5 (noting that apps are configured for a specific set of users, including those with “the power to choose when, and if, to have sexual intercourse that might result in pregnancy”).

189. CAREY SHENKMAN, SHARON BRADFORD FRANKLIN, GREG NOJEIM & DHANARAJ THAKUR, CTR. FOR DEMOCRACY & TECH., LEGAL LOOPHOLES AND DATA FOR DOLLARS: HOW LAW ENFORCEMENT AND INTELLIGENCE AGENCIES ARE BUYING YOUR DATA FROM BROKERS 9-14 (2021), <https://perma.cc/65NA-KRZQ>.

190. The data broker market alone is expected to reach over \$365 billion by 2029. *Data Broker Market: Global Industry Forecast (2022-2029) by Data Category, Data Type, Pricing Model, End Use Sector, and Region*, MAXIMIZE MKT. RSCH. (Aug. 2022) <https://perma.cc/U22T-J24J>.

191. See Trade Regulation Rule on Commercial Surveillance and Data Security, 87 Fed. Reg. 51,273, 51,273-77 (proposed Aug. 22, 2022) (to be codified at 16 C.F.R.); Konrad Kollnig, Anastasia Shuba, Reuben Binns, Max Van Kleek & Nigel Shadbolt, *Are iPhones Really Better for Privacy? Comparative Study of iOS and Android Apps*, 2022 PROC. ON PRIV. ENHANCING TECHS. 6, 6-8, <https://perma.cc/WG9S-QKG7> (analyzing 24,000 apps from iOS and Android and finding that data sharing is common on both platforms).

data are worth fifteen times that of the average person.<sup>192</sup> This increased value is at least partially attributable to the fact that people actively seek new products, develop new brand loyalties, and purchase in bulk during pregnancy and after birth.<sup>193</sup> Period- and fertility-tracking apps can reveal a pregnancy. This ability may partially explain why one 2021 study of thirty fertility-related apps found that most sampled apps contain third-party data trackers and, on average, contain *more* trackers than identified in similar evaluations of other popular apps and websites.<sup>194</sup> Thus, an app store saturated with inaccurate apps is logical when you consider that the point for many is not to be scientifically groundbreaking but to gather and monetize user data.<sup>195</sup>

Nearly all apps expose consumers to privacy and security risks through data collection and subsequent use. These data include the information individuals directly enter and information that an app passively collects without conscious involvement—like location data or keystrokes. Yet period and fertility trackers are unique because of the intimate information they contain. Some data raise no more red flags than a diet tracker, including height, weight, food, and exercise.<sup>196</sup> But this data collection can grow more personal in light of the information relevant to menstrual predictions.<sup>197</sup> As a result, it can include the lengths and specific dates of menstrual cycles and ovulation,<sup>198</sup> basal body temperature patterns, and characteristics of vaginal discharge (such as the consistency of mucus).<sup>199</sup> An app might contain information about a

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192. Matt Petronzio, *How One Woman Hid Her Pregnancy from Big Data*, MASHABLE (Apr. 26, 2014), <https://perma.cc/ZE37-CS4L>; see also *No Body's Business but Mine: How Menstruation Apps Are Sharing Your Data*, PRIV. INT'L (updated Oct. 7, 2020) <https://perma.cc/7S4N-DP5C>. In a 2022 investigation, Gizmodo revealed that thirty-two different data brokers sold data about pregnant or potentially pregnant users. Shoshana Wodinsky & Kyle Barr, *These Companies Know When You're Pregnant—And They're Not Keeping It Secret*, GIZMODO (updated Aug. 18, 2022, 10:00 AM ET) <https://perma.cc/2MMX-GCUU>.

193. See *No Body's Business but Mine*, *supra* note 193; Petronzio, *supra* note 193; Emily Steel, *Financial Worth of Data Comes in at Under a Penny a Piece*, FIN. TIMES (June 12, 2013), <https://perma.cc/S28B-P9U3>.

194. Maryam Mehrnezhad & Teresa Almeida, *Caring for Intimate Data in Fertility Technologies*, 2021 CHI '21: PROCEEDINGS OF THE CHI CONFERENCE ON HUMAN FACTORS IN COMPUTING SYSTEMS art. 409, at 6, <https://perma.cc/49TC-L7MM>.

195. See Marielle S. Gross, Amelia Hood & Bethany Corbin, *Pay No Attention to That Man Behind the Curtain: An Ethical Analysis of the Monetization of Menstruation App Data*, INT'L J. FEMINIST APPROACHES TO BIOETHICS, Fall 2021, at 144, 145, <https://perma.cc/864L-73TT>.

196. Sadaf Khan, *Data Bleeding Everywhere: A Story of Period Trackers*, DEEP DIVES (June 7, 2019), <https://perma.cc/RM2G-AERY>.

197. See *supra* notes 125-30 and accompanying text.

198. Laura Shipp & Jorge Blasco, *How Private Is Your Period?: A Systematic Analysis of Menstrual App Privacy Policies*, 2020 PROC. ON PRIV. ENHANCING TECHS., no. 4, 2020, at 491, 504, <https://perma.cc/24JA-HM64>.

199. Khan, *supra* note 196.

user's cervix (high, soft and open, low, hard and closed).<sup>200</sup> Apps may also collect data about sexual activity, including the time and dates of intercourse, libido, condom use, and whether the user orgasmed.<sup>201</sup> Some apps ask if users consumed alcohol or other substances<sup>202</sup> or track “partying” as activity data.<sup>203</sup> Datasets may also explicitly<sup>204</sup> or implicitly<sup>205</sup> include information about dates of abortions and miscarriages. The fact that some of these data do not relate to menstrual predictions is not a deterrent to their collection and subsequent sale. When also considering the free-form text that a user may type into discussion threads or a notes section, available user data are limited only by the consumer's willingness to enter it.<sup>206</sup>

Consumers may share these data willingly. For example, many period and fertility trackers allow users to share some of their reproductive information with anyone, including medical professionals and intimate partners.<sup>207</sup> Yet, other data sharing may be less obvious. A 2022 analysis of twenty-three popular femtech applications requiring entry of health-related data and intimate information—of which 70% related to pregnancy or period and fertility tracking—underscores how vulnerable these data are.<sup>208</sup> 87% of the sampled apps shared user data with third parties, though only seventy percent discussed data processing transparently, 26% did not discuss it at all, and 35% did not provide information about data security.<sup>209</sup> Where law enforcement is involved, 87% explicitly stated their intention to share user information if

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200. *Id.*

201. See, e.g., Jerry Beilinson, *Glow Pregnancy App Exposed Women to Privacy Threats, Consumer Reports Finds*, CONSUMER REPS. (updated Sept. 17, 2020), <https://perma.cc/F8GG-YASS>; Shipp & Blasco, *supra* note 198, at 509 app. B; Khan, *supra* note 196.

202. *No Body's Business but Mine*, *supra* note 192.

203. *We Asked Five Menstruation Apps for Our Data and Here Is What We Found . . .*, PRIV. INT'L (Dec. 4, 2020), <https://perma.cc/6CU4-WYT7> (reporting on a data access request issued under the EU's General Data Protection Regulation (GDPR) that returned menstruation app entries describing bowel movements, partying, and whether the user took their birth control pills).

204. Ali et al., *supra* note 123, at 279 tbl.3 (finding that two apps in a sample of ninety tracked information about miscarriage).

205. If a user has a missed period and then several weeks later resumes menstruating, this data could imply an abortion or a miscarriage.

206. See Khan, *supra* note 196 (observing that apps collect data from discussion forums).

207. Ali et al., *supra* note 123, at 276 (finding that 42% of the ninety apps included in the sample “allowed users to share their tracked information with others, i.e. their doctor, partner, or anyone else”).

208. Najd Alfawzan, Markus Christen, Giovanni Spitale & Nikola Biller-Andorno, *Privacy, Data Sharing, and Data Security Policies of Women's mHealth Apps: Scoping Review and Content Analysis*, 10 JMIR MHEALTH & UHEALTH e33735, at 9, 12 (2022), <https://perma.cc/YKH2-S3PK>.

209. *Id.* at 11.

required.<sup>210</sup> Even users who delete their period or fertility tracker may encounter problems. 30% of the apps in the study did not allow users to delete past data by request, and 13% did not provide information on requesting to opt-out or withdraw data even by deleting the app.<sup>211</sup> Given the financial value and newfound legal interest in the data contained within period- and fertility-tracking apps,<sup>212</sup> the fact that many are far less private and secure than they might initially seem takes on increasing significance.

c. Consumer ignorance

For consumers to use period and fertility tracking as a form of birth control or to evade reproductive surveillance, they must be able to identify accurate and private apps. Unfortunately, consumers are not well-positioned to understand the risks and limitations.<sup>213</sup> This confusion is due, in part, to how these apps convey information—or remain silent—about accuracy and privacy.

Recall that the FDA requires contraceptive apps to demonstrate certain capabilities and include specific labeling.<sup>214</sup> It does not require similar evidence or labeling for proceptive or other tracking apps. However, just because an app does not market itself for contraception does not mean a consumer will appreciate the distinction and refrain from using it for contraceptive purposes.<sup>215</sup> One 2021 study showed that only slightly more than half of the studied apps (57%) provided users with any caution or disclaimer, “of which five apps (10%) advised against the use of their app for contraception purposes, eighteen apps (35%) cautioned users on the accuracy of the app’s predictions, and only nine apps (18%) stated that their app was not a medical device, and thus should not be used for medical purposes.”<sup>216</sup> Worse still, others falsely claim to function as contraception<sup>217</sup> or remain silent on appropriate use, leaving

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210. *Id.*

211. *Id.*

212. See CAHN & MANIS, *supra* note 4, at 12.

213. Khan, *supra* note 196 (describing interviews with period- and fertility-tracker users in which they did not understand the limits of privacy or efficacy and doubted that anyone would have any use for the data they log).

214. See *supra* notes 138-41 and accompanying text.

215. See Katie Palmer, *How Will Doctors Talk to Patients About Contraception Apps Like Natural Cycles and Clue?*, STAT (Mar. 12, 2021), <https://perma.cc/F22G-FG4R> (“[T]he impetus for creating Clue’s upcoming feature was the company’s discovery that 20% of its users were using the menstrual tracking app for birth control.”).

216. Ali et al., *supra* note 123, at 275.

217. Rhonda Zwingerman, Michael Chaikof & Claire Jones, *A Critical Appraisal of Fertility and Menstrual Tracking Apps for the iPhone*, 42 J. OBSTETRICS & GYNAECOLOGY CAN. 583, 589 (2020).

consumers to decide how to use them without clear guidance.<sup>218</sup> Some apps are silent about other important information, including their method of calculating menstrual predictions.<sup>219</sup> Others will collect data about certain physiological signs and symptoms and not use it in the predictive algorithm, creating additional avenues for confusion about accuracy and methods of prediction.<sup>220</sup>

When apps include medical disclaimers, limitations on liability, and fitness descriptions for specific purposes, it is often in the terms of service. These digital documents are subject to valid criticisms for being difficult to find and understand<sup>221</sup> and are frequently subject to unilateral change.<sup>222</sup> As a result, important accuracy and efficacy information may be obscured by legal jargon and passive voice or hidden at the bottom of tedious walls of text.<sup>223</sup> And the information that terms of service contain may contradict other consumer-facing messaging. For example, a previous FDA investigation into one proceptive app revealed a section of the website that stated “if [users] no longer

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218. Ali et al., *supra* note 123, at 275.

219. Johnson et al., *supra* note 181, at 1589; Della Bianca, *supra* note 143, at 10-11 (describing the software as “blackboxed”).

220. Ali et al., *supra* note 123, at 275 (“Overall, a total of 16 apps (17.8%) allowed users to track fertility indicators, which were not included in ovulation and fertile window predictions.”).

221. DELOITTE, 2017 GLOBAL MOBILE CONSUMER SURVEY: US EDITION: THE DAWN OF THE NEXT ERA IN MOBILE 12 (2017), <https://perma.cc/M23Q-MLGV> (finding 91% of consumers consent to legal terms and services conditions without reading them and that 97% of people aged 18-34 do so); Ali Sunyaev, Tobias Dehling, Patrick L. Taylor & Kenneth D. Mandl, *Availability and Quality of Mobile Health App Privacy Policies*, 22 J. AM. MED. INFORM. ASS'N (ISSUE E1) e28, e31 (2015), <https://perma.cc/KU6F-XVKJ> (finding that “privacy policies have poor availability rates, correlation of app ratings and privacy policy availability is weak, privacy policy scope is lacking, high [reading grade levels] are required to understand privacy policies, and privacy practices are not made transparent in a comprehensive fashion”); Nili Steinfeld, “I Agree to the Terms and Conditions”: (How) Do Users Read Privacy Policies Online? An Eye-Tracking Experiment, 55 COMPUTS. HUM. BEHAV. 992, 996-97 (2016) (finding that when users can accept terms and conditions without looking at them, they generally do not read them, and that users who spend more time looking at a policy will comprehend the terms better than those who do not); Leah R. Fowler, Charlotte Gillard & Stephanie R. Morain, *Readability and Accessibility of Terms of Service and Privacy Policies for Menstruation-Tracking Smartphone Applications*, 21 HEALTH PROMOTION PRAC. 679, 680-82 (2020) (finding that, in a sample of popular menstruation-tracking apps, most terms of service and privacy policies fell short of recommended readability standards, some were impracticably long to read, and some were completely unavailable).

222. Leah R. Fowler, Jim Hawkins & Jessica L. Roberts, *Uncertain Terms*, 97 NOTRE DAME L. REV. 1, 4-5 (2021) (discussing unilateral amendment clauses in health app privacy policies that allow health tech companies to change their terms with little or no notification to consumers); Jessica L. Roberts & Jim Hawkins, *When Health Tech Companies Change Their Terms of Service*, 367 SCIENCE 745, 745 (2020).

223. See Fowler et al., *supra* note 221, at 681 (reporting that one app would require nearly eighty-five scrolls on an iPhone 8 to read to completion).

want to use the pill, IUDs and similar methods” and “find contraception with condoms or diaphragms bothersome,” then “[n]atural family planning with [the app] offers . . . many advantages and absolutely no disadvantages.”<sup>224</sup> The FDA also found that visual cues like using the color green to indicate “not fertile” and red to indicate “fertile,” with alternate contraception only necessary on fertile days, suggest use as contraception, regardless of warranties or disclaimers.<sup>225</sup> But despite the FDA’s investigation, the app has not since obtained FDA clearance to market itself as a contraceptive app. Thus, it appears that the FDA did not ultimately require the app to comply with the regulatory requirements for contraceptive apps, only that it make requested modifications.<sup>226</sup> While the app developer complied with those requests, altering the problematic U.S. marketing and labeling and voluntarily contacting some users about the changes, it is unclear how many misperceptions persist.<sup>227</sup> This example describes a stark contrast between the app’s interface and language the user sees and the terms of service they almost certainly do not read. As a result, it is reasonable to conclude that consumers will not always understand if and when they can use an app as contraception.

Similar consumer-awareness problems exist in the data privacy and security context. Though the FTC and state consumer-protection agencies can hold apps to their promises, consumers may not always be clear about what those promises are. Much like the shortcomings of terms of service impact understanding of accuracy and efficacy, privacy policies likewise limit comprehension of privacy and security information.<sup>228</sup> Further, research reveals that many privacy policies treat the intimate data contained in period- and fertility-tracking apps no differently than any other consumer information.<sup>229</sup> And many privacy policies do not explicitly mention the use and management of reproductive data.<sup>230</sup>

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224. Interoffice Memorandum from Michael Bailey to Nina Mezu-Nwaba, *supra* note 144, at 3.

225. *See id.*

226. *See* Letter from Evan P. Phelps, Counsel, Valley Electronics, LLC, to Sharon M. Andrews, Off. of Device Evaluation, FDA (Aug. 16, 2019) (on file with authors) (demonstrating the company’s view that FDA requirements were satisfied by modifying language and references on their website, making label changes, and reaching out to customers who may have relied upon previous representations of contraceptive effectiveness).

227. *Id.* While the letter states that Valley Electronics reached out to customers, it is unclear what steps the company took and the extent to which it successfully reached any and all customers who may have been misled. *See id.*

228. *See* Fowler et al., *supra* note 221, at 680-82 (analyzing the readability of terms of service and privacy policies).

229. *See* Shipp & Blasco, *supra* note 198, at 504-05.

230. *See id.* at 501.

And even when apps make specific privacy claims—either in privacy policies or marketing materials—disconnects between data protection claims and technological reality persist. For example, after *Dobbs*, there was increased consumer demand for privacy and security features.<sup>231</sup> Some app developers attempted to capitalize on this demand.<sup>232</sup> One app quickly advertised end-to-end encryption the same day the Court issued its opinion, and downloads spiked.<sup>233</sup> On that day alone, downloads increased by 4,400%, and by the end of the weekend, new downloads represented 82% of the app’s lifetime installs.<sup>234</sup> The problem was that the company advertised end-to-end encryption before the app fully offered the feature.<sup>235</sup> A subsequent network traffic analysis revealed that the app still shared identifying user data with a third-party analytics company.<sup>236</sup> In response, the app’s founder said that “several data collection mechanisms” would be “disabled/removed” in an upcoming update, and the company changed its privacy policy to “remove mentions of end-to-end encryption.”<sup>237</sup> However, shortcomings persisted even after the update, which became apparent when reporters and members of the cybersecurity community publicly criticized and analyzed the app’s end-to-end encryption claims.<sup>238</sup>

## 2. A period panopticon

A consumer’s ability to identify an app appropriate for their needs is critically important. We believe consumers should not need to be well versed in the nuances of FDA medical device regulation or be cybersecurity professionals to find good apps. Yet, if the status quo persists, increased reliance

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231. Sarah Perez, *Consumers Swap Period Tracking Apps in Search of Increased Privacy Following Roe v. Wade Ruling*, TECHCRUNCH (June 27, 2022, 12:36 PM PDT), <https://perma.cc/PR79-FK4P> (to locate, select “View the live page”).

232. *Id.*

233. Sarah Perez & Zack Whittaker, *Period Tracker Stardust Surges Following Roe Reversal, but Its Privacy Claims Aren’t Airtight*, TECHCRUNCH (updated June 30, 2022, 9:30 AM ET), <https://perma.cc/32EZ-VPRB>; Chase DiBenedetto, *Stardust Claims to Be First Period Tracker App to Offer End-to-End Encryption*, MASHABLE (updated June 26, 2022, 12:11 PM EDT), <https://perma.cc/SJY7-LV3M>.

234. Perez & Whittaker, *supra* note 233.

235. *Id.*

236. *Id.*

237. *Id.*

238. *Id.* (updating the article on June 30, 2022, to describe how, even after the app update, Stardust still had access to locally-generated encryption keys, allowing the company to decrypt user data); *see, e.g.*, Michael Taggart (@mttaggart), TWITTER (July 1, 2022, 11:17 AM), <https://perma.cc/LAC5-E2K4> (to locate, select “View the live page”) (providing a step-by-step examination of the technical aspects of the app’s alleged encryption and ultimately concluding the data are “lightly anonymized” and might be vulnerable to a subpoena or warrant, if the issuing party had the target’s phone).

on period and fertility trackers as birth control may lead to unintended pregnancies due to inaccurate apps and user error. And with more people turning to apps in the absence of other resources, more people's deeply personal data could end up in the wrong hands.

That some period- and fertility-tracking apps could reliably function as birth control is a double-edged sword. The Court in *Dobbs* identified societal, legal, and medical shifts that they concluded would render abortion access nonessential.<sup>239</sup> In the future, the Court may also consider the availability of contraceptive apps as justification for allowing restrictions on more objectional forms of birth control—like those at issue in *Hobby Lobby*.<sup>240</sup> If this happens, more people may turn to period- and fertility-tracking apps, even if these technologies are not their preferred method of contraception.

Consumers' inability to understand the limits of appropriate app uses, combined with increased uptake of apps as a form of contraception, may result in more unintended pregnancies, especially if there are no corresponding changes to the app market. Yet, a consumer who may be forced to rely on these inaccurate and ineffective apps for contraception is simultaneously likely to be in a location with few reproductive options if they become pregnant.<sup>241</sup> Meanwhile, data vulnerabilities may put users in a femtechnodystopic panopticon<sup>242</sup> designed to promote an interest in fetal life at all stages of development.

From an ideological perspective, the possible uses for the data that period- and fertility-tracking apps contain will inevitably expand after *Dobbs*. With new technological tools, anti-choice actors can capitalize on these data to promote their viewpoints through direct advertisements and other means.<sup>243</sup> For example, anti-abortion advocates can already create "digital dossiers" of people seeking pregnancy or abortion care by leveraging the data from

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239. *Supra* notes 53-59 and accompanying text.

240. *Supra* note 66 and accompanying text.

241. See Rovner, *supra* note 45; Christina Cauterucci, *Birth Control Is Next*, SLATE (Apr. 21, 2023, 11:48 AM), <https://perma.cc/2G4L-B6AC>.

242. The panopticon is a reference to a prison structure first invented by Jeremy Bentham and later expanded as a symbol of everyday social control by Michel Foucault. See generally JEREMY BENTHAM, PANOPTICON, OR, THE INSPECTION-HOUSE (1791), excerpted in SELECTED WRITINGS 283, 284-88 (Stephen G. Engelmann ed., 2011) (describing the concept of a panopticon, a type of prison in which the inmates believe they are being watched at all times); MICHEL FOUCAULT, DISCIPLINE AND PUNISH: THE BIRTH OF THE PRISON 200-05 (Alan Sheridan trans., Pantheon Books 1977) (1975).

243. This risk is grounded in reality. In 2015 and 2016, Copley Advertising contracted with Bethany Christian Services and a network of crisis pregnancy centers to use geofencing and advertising services to target anti-abortion messaging to devices detected at medical facilities like reproductive health clinics. See Assurance of Discontinuance Pursuant to G.L. 93A, *supra* note 14, § 5, at 2-4.



websites or chat apps.<sup>244</sup> Those groups could then distribute or sell those dossiers to third parties that share their goals.<sup>245</sup> The data in period- and fertility-tracking apps could augment these efforts by targeting messaging to more people and at earlier reproductive points, well before the decision to gestate or abort arises.

From a legal perspective, these data will likely become important in civil lawsuits if laws like Texas’s S.B. 8 spread. Substantial bounties may entice anyone<sup>246</sup> to leverage consumer data for the dual benefit of receiving a payday and restricting abortion access.<sup>247</sup> The data in period and fertility trackers, especially combined with location data<sup>248</sup> or search history,<sup>249</sup> could help identify individuals involved in performing or aiding and abetting abortions—even if the abortion occurs across state lines.<sup>250</sup> This means that the risks of period- and fertility-tracking data extend beyond app users alone.

Increasingly, data may become evidence in criminal proceedings. Law enforcement in states with more aggressive restrictions on abortions may be interested in preventing abortions or arresting those suspected of having self-induced or otherwise illegal abortions. Indeed, online behaviors—including Google search history—have already been used as evidence of criminal intent in cases involving “suspicious” miscarriages.<sup>251</sup> After *Dobbs*, prosecutors’ reliance on these digital trails may intensify. Period- and fertility-tracking data could include

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244. Abigail Abrams & Vera Bergengruen, *Anti-Abortion Pregnancy Centers Are Collecting Troves of Data That Could Be Weaponized Against Women*, TIME (June 22, 2022, 12:02 PM EDT), <https://perma.cc/F7BX-3VSK>.

245. *Id.*

246. Particularly motivated actors may include abusive partners with access to a menstruation-tracking app’s shared companion account. See Karen E.C. Levy, *Intimate Surveillance*, 51 IDAHO L. REV. 679, 686-87 (2015).

247. See, e.g., Texas Heartbeat Act, ch. 62, § 3, 2021 Tex. Gen. Laws 125, 127-29 (codified at TEX. HEALTH & SAFETY CODE ANN. § 171.208 (West 2023)); Act of May 25, 2022, 2022 Okla. Sess. Laws ch. 321 (codified at OKLA. STAT. tit. 63, § 63-1-745.39) (authorizing individuals to bring civil actions against a person who performs, aids, or abets an abortion and awarding statutory damages of not less than \$10,000).

248. Anya E.R. Prince, *Location as Health*, 21 HOUS. J. HEALTH L. & POL’Y 43, 52-56 (2021) (discussing the types of health information that can be inferred from location data and using the hypothetical example of location data revealing a visit to Planned Parenthood); Joseph Cox, *Data Broker Is Selling Location Data of People Who Visit Abortion Clinics*, VICE (May 3, 2022, 9:46 AM), <https://perma.cc/93AD-UYRR> (to locate, select “View the live page”).

249. See Lil Kalish, *Meet Abortion Bans’ New Best Friend—Your Phone*, MOTHER JONES (Feb. 16, 2022), <https://perma.cc/XM29-74RR>.

250. Alice Miranda Ollstein & Megan Messerly, *Missouri Wants to Stop Out-of-State Abortions. Other States Could Follow.*, POLITICO (Mar. 19, 2022, 7:00 AM EDT), <https://perma.cc/49D9-3BZ4>.

251. Conti-Cook, *supra* note 19, at 3-4.

the date of a user's last menstrual period, revealing gestational age.<sup>252</sup> This information can help establish whether an abortion took place outside of the specified window for legal abortion. Menstrual trackers could reveal a possible abortion if data show an unusually late period that resumes, particularly if it resumes after location data confirm a consumer crossed state lines to a jurisdiction where abortion is legal. While unusual menstrual patterns can mean many things, like irregular periods or simply inconsistent tracking,<sup>253</sup> in our view, bad data are no hurdle to law enforcement suspicion or prosecution.

The exploitation of user data could expand beyond abortion if a state extends its efforts to promote its interest in fetal life at all stages of development. A late period could be evidence that a user knew or should have known they were pregnant. Some period- and fertility-tracking apps allow users to input information about substance use—like if and when a user consumed alcohol.<sup>254</sup> These apps, combined with information in other apps or platforms, may even indicate more mundane but nevertheless potentially fetal-harming activities, such as whether the pregnant person consumed unsafe foods.<sup>255</sup> That data could be used to police pregnant people's behaviors or as evidence of guilt in the case of a bad birth outcome. Such an extreme scenario may not be a stretch because gradations of this problem existed with *Roe* and *Casey* in place. We have already been willing to arrest people for, among other things, falling while pregnant,<sup>256</sup> using legal (and illegal) substances,<sup>257</sup> giving birth at home,<sup>258</sup> or failing to consent to a cesarean section.<sup>259</sup> Period- and fertility-tracking apps, alone or

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252. Menstrual data has already been relevant to abortion restrictions. Missouri used spreadsheets of patients' period data in investigations of Planned Parenthood and so-called "failed abortions." See Abutaleb & Wax-Thibodeaux, *supra* note 16. Immigration and Customs Enforcement under the Trump Administration also tracked menstrual cycles to stop migrants from obtaining lawful abortions. See Wright, *supra* note 16.

253. Kendra Albert, Maggie Delano & Emma Weil, *Okay, Fine, Let's Talk About Period Tracking: The Detailed Explainer*, MEDIUM (June 28, 2022), <https://perma.cc/AS6V-ZQF3>.

254. *No Body's Business but Mine: How Menstruation Apps Are Sharing Your Data*, *supra* note 192.

255. Kira Proehl, Comment, *Pregnancy Crimes: New Worries to Expect When You're Expecting*, 53 SANTA CLARA L. REV. 661, 682 (2013) (raising the possibility of policing pregnancy behaviors that influence fetal health and giving the example of consuming risky foods like unpasteurized cheeses, sushi, and deli meats).

256. Robin Levinson-King, *US Women Are Being Jailed for Having Miscarriages*, BBC (Nov. 12, 2021), <https://perma.cc/DWVG6-ENJW>.

257. Cecilia Nowell, *She Used Drugs While Pregnant. Should She Be in Prison?*, CUT (Sept. 20, 2021), <https://perma.cc/U7VU-75B4>; Cecilia Nowell, *A Mom Was Charged with Child Neglect for Using Medical Marijuana While Pregnant. The Arizona Case Could Set a Precedent.*, WASH. POST: LILY (Sept. 13, 2021), <https://perma.cc/5M97-2NRA>.

258. See Levinson-King, *supra* note 256.

259. Charles Marwick, *Mother Accused of Murder After Refusing Caesarean Section*, 328 BMJ 663 (2004), <https://perma.cc/3ZE6-VYNR>.

analyzed with other smartphone data, simply expand the limits of what can realistically be controlled and criminalized in an era of increasing efforts to police people who are, and are capable of becoming, pregnant.<sup>260</sup>

The risks of an unplanned pregnancy from inappropriate app use and potential nefarious data use are not evenly distributed. Those with the most to lose after *Dobbs*—poor people of color in restrictive states—also have the most to lose in femtech’s dystopian future. The cost of an evidence-based app that the FDA has cleared as software for contraception is nontrivial.<sup>261</sup> For example, Natural Cycles costs \$99.99 per year for an annual subscription or \$12.99 per month plus \$49.99 for their basal thermometer.<sup>262</sup> When considering this expense compared to a free and seemingly identical but inaccurate app, it is foreseeable that many consumers—especially those from economically disadvantaged groups—will unknowingly end up with apps unsuitable for contraceptive purposes. And the problems that data privacy and security vulnerabilities create are also more pronounced for minoritized populations. People of color, especially those with lower socioeconomic status, are more likely to use mobile devices as their primary means of connecting to the internet and less likely to engage in or encounter resources to support privacy-enhancing behaviors.<sup>263</sup> As a result, these minority groups may very well find themselves in a legal and socioeconomic quagmire.<sup>264</sup> Living in a state with restrictive contraceptive options may lead to using free, inaccurate apps that lead to unplanned pregnancies while exposing users to more legal hazards due to the data the app contains. History suggests racial disparities will exist in policing in these scenarios, with Black women, for example, ten times more likely to be

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260. See Shoshana Wodinsky, *Your Phone Is a Goldmine of Hidden Data for Cops. Here’s How to Fight Back*, GIZMODO (June 2, 2020), <https://perma.cc/5NLR-Z6ME> (describing how the wealth of smartphone data collected by advertisers is used by law enforcement to profile and police individuals). See generally LOGAN KOEPKE, EMMA WEIL, URMILA JANARDAN, TINUOLA DADA & HARLAN YU, UPTURN, MASS EXTRACTION: THE WIDESPREAD POWER OF U.S. LAW ENFORCEMENT TO SEARCH MOBILE PHONES (2020), <https://perma.cc/BG62-UL9V> (documenting law enforcement’s widespread use of mobile device forensic tools to access and extract vast amounts of information from smartphones, typically in the context of a search incident to arrest).

261. *But see* Zwingerman et al., *supra* note 217, at 588 (finding no statistically significant difference in app quality between paid and free apps).

262. NC BIRTH CONTROL, <https://perma.cc/C627-LZ8D> (archived May 26, 2023) (to locate, select “View the live page,” then select “NC Birth Control,” and then select “Measure with a thermometer”).

263. MADDEN, *supra* note 33, at 8-9.

264. See, e.g., MICHELE GOODWIN, POLICING THE WOMB: INVISIBLE WOMEN AND THE CRIMINALIZATION OF MOTHERHOOD 114 (2020) (describing a “cruel double bind” where a poor, homeless mother was arrested for leaving her children in her car while she was interviewing for a job because she could not afford the cost of childcare).

reported to Child Protective Services than white women.<sup>265</sup> Thus, enforcement will disproportionately harm poor women of color, regardless of whether they intend to terminate or carry the pregnancy to term.<sup>266</sup>

To summarize, period- and fertility-tracking apps are plagued with problems, and users are often in the dark. Here, femtech's story is not one of promise but peril for privacy, autonomy, and personal sovereignty.<sup>267</sup> Looming on the horizon are even more terrifying possibilities. Faced with fewer options for hormonal birth control, the use of period- and fertility-tracking apps as a form of contraception—as well as unintended pregnancies—may only increase. The data they contain could then, in turn, be used to further anti-choice ideological goals and support civil and criminal actions against pregnant people or those assisting in an abortion. Apps would ensure that people are good “digitized reproductive citizens,”<sup>268</sup> and the data they contain would support or refute whether a person did everything in their power to protect the fetus “at all stages of development.”<sup>269</sup> And while this possible dystopia is not a foregone conclusion, current laws and regulations are ill-equipped to stop it.

## B. Regulatory & Legal Shortcomings

The limits of accuracy, privacy, and consumer understanding of period- and fertility-tracking apps reveal weaknesses that anti-abortion advocates and lawmakers could exploit. The urgency of these problems creates a pressing need for far-reaching and immediate policy solutions. However, upon closer inspection, the current regulatory and legal environment is poorly equipped to intervene. The FDA and FTC appear well-positioned to act, but their approaches are not expansive or proactive enough. And the limits of constitutional law similarly call into question the ability of short-term proposals—like mandating warning labels or limiting law enforcement searches—to withstand legal challenges.

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265. *Id.* at 123.

266. *See supra* notes 29-33 and accompanying text.

267. *See* NANDINI CHAMI, R. VAISHNO BHARATI, ANUSHKA MITTAL & ANKITA AGGARWAL, FEMINIST DIGIT. JUST. & IT FOR CHANGE, DATA SUBJECTS IN THE FEMTECH MATRIX: A FEMINIST POLITICAL ECONOMY ANALYSIS OF THE GLOBAL MENSTRUAPPS MARKET 8 (2021), <https://perma.cc/FG96-5YD4>.

268. *See supra* note 165 and accompanying text.

269. *Dobbs v. Jackson Women's Health Org.*, 142 S. Ct. 2228, 2284 (2022).

1. The limits of agency authority

Considering how agencies regulate, investigate, and take action against period- and fertility-tracking-app developers reveals the core shortcomings of their present approaches. Current app regulations are mostly reactive, occurring only after apps have already entered the market and harmed consumers.<sup>270</sup> The FDA and FTC also presently intervene on a case-by-case basis<sup>271</sup> and are limited by finite resources,<sup>272</sup> making meaningful market-wide changes difficult. State attorneys general have capabilities similar to the FTC. However, we believe it is unlikely that states mounting comprehensive efforts to protect the fetus at all stages of development will mobilize consumer-protection resources for period- and fertility-tracking apps.<sup>273</sup> These inadequacies leave the most vulnerable consumers without near-term solutions.

a. Apps as contraception

Recall that the FDA regulates some apps as medical devices.<sup>274</sup> A minority of period and fertility trackers are software as contraception, for which the FDA imposes special controls for app accuracy, efficacy, and labeling.<sup>275</sup> Only two apps—Natural Cycles and Clue—have obtained FDA clearance for marketing as contraception.<sup>276</sup> Other apps are “proceptive” because they do not make patient-specific contraceptive recommendations based on their

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270. See *supra* notes 144-47 and accompanying text (observing that the FDA exercises enforcement discretion over period- and fertility-tracking apps not intended to be used as contraception, meaning that they do not have to obtain clearance before entering the app market).

271. See, e.g., Zettler et al., *supra* note 121, at 1958 (“[D]etermining a product’s intended use is a product-specific inquiry. The features of the particular product at issue, including the seller’s representations about the product, must be assessed individually.”).

272. Joyce Frieden, *FDA’s Device Center Needs More \$\$, Staff, Says Center Director*, MEDPAGE TODAY (July 22, 2021), <https://perma.cc/F26V-9KBQ>.

273. But see Michelle M. Mello, Trish Riley & Rachel E. Sachs, *The Role of State Attorneys General in Improving Prescription Drug Affordability*, 95 S. CAL. L. REV. 595, 607-09 (2022) (describing how state attorneys general can influence national public health policy—including setting national regulatory systems for companies without legislative or federal involvement—through settlement agreements, and noting that attorneys general can often achieve outcomes in settlement that would not be possible in the actual lawsuit).

274. See *supra* notes 135-41 and accompanying text.

275. See *supra* notes 135-41 and accompanying text.

276. See Press Release, U.S. FDA, *supra* note 178 (announcing that the FDA permitted marketing of Natural Cycles, which was the first mobile app for contraceptive use to be granted marketing authorization); *One Year of Clue Birth Control*, CLUE (Nov. 27, 2022), <https://perma.cc/29SZ-EA32> (“Clue Birth Control received FDA clearance as a medical device making it the world’s first FDA-cleared all-digital fertility awareness-based method of contraception in the USA in February 2021.”).

algorithm's fertility predictions.<sup>277</sup> The FDA exercises enforcement discretion over “proceptive” apps, meaning it does not require the same controls.<sup>278</sup> However, the vast majority of period- and fertility-tracking apps are not FDA-regulated at all, carved out from the definition of a device by legislation that excludes products intended for, among other functions, “maintaining or encouraging a healthy lifestyle.”<sup>279</sup> Thus, the FDA does not scrutinize hundreds of available period- and fertility-tracking apps before those apps reach a consumer's phone.

The dividing line between these three categories of period- and fertility-tracking apps and their radically different regulatory safeguards is the product's “intended use.” “Intended use” is a term of art, statutorily defined as the “objective intent of the persons legally responsible for the labeling of an article (or their representatives).”<sup>280</sup> Here, the FDA has considerable flexibility in its intended use determinations.<sup>281</sup> Evidence of intended use may include, at least in theory, any relevant source of information.<sup>282</sup> For now, however, the FDA is primarily concerned with an app's “labeling claims, advertising materials, or oral or written statements by manufacturers or their representatives.”<sup>283</sup>

On paper, this approach to app regulation could work if consumers could reliably identify an app's intended use. But evidence suggests that useful consumer information is far from accessible or consistently available.<sup>284</sup> And just because an app developer and the FDA do not believe a product is intended to be used as contraception does not mean a consumer will necessarily agree. As a result, consumers may regularly use proceptive and non-device apps as contraception.<sup>285</sup> In fact, before obtaining FDA clearance, Clue's market research revealed that twenty percent of consumers already used Clue's app for

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277. *Supra* note 144 and accompanying text.

278. An example of a proceptive app is Daysy, made by Valley Electronics and registered as a fertility diagnostic, code LHD, which is a pre-amendments device code under enforcement discretion. See *Establishment Registration & Device Listing: Daysy; Daysy USA*, U.S. FDA, <https://perma.cc/4PB9-LY48> (last updated May 22, 2023); *Product Classification: Device, Fertility Diagnostic, Proceptive*, U.S. FDA, <https://perma.cc/43HY-W6VZ> (last updated May 22, 2023).

279. *Supra* note 146 and accompanying text.

280. 21 C.F.R. § 801.4 (2022).

281. Zettler, *supra* note 121, at 394-97.

282. Regulations Regarding “Intended Uses,” 86 Fed. Reg. 41,383, 41,386 (Aug. 2, 2021) (to be codified at 21 C.F.R. pts. 201, 801).

283. U.S. FDA, *supra* note 147, at 6.

284. See *supra* Part II.A.

285. Darius Tahir, *Fertility Tracking Apps: Popular, Hyped—and Often Inaccurate*, POLITICO (July 10, 2019, 12:15 PM EDT), <https://perma.cc/884Q-TTYG>.

contraceptive purposes even though it did not advertise this functionality.<sup>286</sup> While the FDA requires contraceptive apps to comply with helpful labeling requirements about the limits of app use,<sup>287</sup> the inverse is not true. The FDA does not require non-contraceptive apps to say they *cannot* perform contraceptive functions. As a result, under current FDA approaches, consumers may make the reasonable mistake that they can use a non-contraceptive app as birth control. And given the proportion of non-contraceptive apps on the market—and their noted lack of obvious disclaimers<sup>288</sup>—the odds of making this mistake are high.

Differentiating period- and fertility-tracking apps by intended use creates additional regulatory challenges beyond the potential for consumer misunderstanding and misuse. It also creates problems for post-market regulation. In theory, the FDA could immediately start determining that more apps are intended to be used as contraception and require them to comply with relevant controls.<sup>289</sup> But, given the FDA’s historical hands-off approach to “low-risk” health app regulation, such a radical shift strikes us as unlikely.<sup>290</sup> It could even theoretically reclassify contraceptive apps from Class II to Class III,<sup>291</sup> thereby requiring even more stringent controls and premarket approval.<sup>292</sup> However, the

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286. See Palmer, *supra* note 215.

287. See *supra* notes 137-41 and accompanying text.

288. Ali et al., *supra* note 123, at 275; Zwingerman et al., *supra* note 217, at 586 tbl.1, 587 tbl.2.

289. Alexandra M. Taylor, Note, *Fertile Ground: Rethinking Regulatory Standards for Femtech*, 54 U.C. DAVIS L. REV. 2267, 2283-86 (2021) (arguing that the FDA should determine that any app providing user-specific fertility information has a contraceptive intended use and giving specific examples).

290. Stephanie Baum, *FDA Assoc Director of Digital Health: We Are Taking Almost Hands-Off Approach*, MEDCITY NEWS (Mar. 31, 2015, 9:00 AM), <https://perma.cc/WY4R-3SXA> (“We are taking a very light touch, an almost hands-off approach. . . . If you have technology that’s going to motivate a person to stay healthy, that’s not something we want to be engaged in.” (quoting Bakul Patel, FDA Associate Director of Digital Health)). In recent industry guidance, the FDA continues this approach to low-risk general-wellness products. U.S. FDA, GENERAL WELLNESS: POLICY FOR LOW RISK DEVICES: GUIDANCE FOR INDUSTRY AND FOOD AND DRUG ADMINISTRATION STAFF 2 (2019), <https://perma.cc/GM7Z-SL4E> (“[The Center for Devices and Radiological Health] does not intend to examine low risk general wellness products to determine whether they are devices within the meaning of the [Federal Food, Drug, and Cosmetic Act] or, if they are devices, whether they comply with the premarket review and post-market regulatory requirements for devices.”); see also U.S. FDA, *supra* note 147 at 2 (“Some software functions may meet the definition of a medical device, but because they pose a lower risk to the public, FDA intends to exercise enforcement discretion over these devices (meaning it does not, at this time, intend to enforce requirements under the [Federal Food, Drug, and Cosmetic Act]).”).

291. See Taylor, *supra* note 289, at 2287-91.

292. By reclassifying software as contraceptives as Class III, the FDA would require premarket approval, necessitating, among other things, nonclinical laboratory studies and clinical investigations to ensure safety and efficacy. See generally 21 C.F.R. § 814  
*footnote continued on next page*

problem is not the rigor of the standard to which the FDA currently holds contraceptive apps but the quality of the apps outside its purview.<sup>293</sup>

Finally, consider what happens if the FDA discovers<sup>294</sup> or determines an app fits the definition of software as contraception after it has already entered the app market.<sup>295</sup> If the FDA's investigation reveals potentially inappropriate marketing that violates the FDCA, the FDA can send "letters to industry" asking a developer to change its marketing or submit for clearance or approval.<sup>296</sup> Often these requests are sufficient. But anyone—including app developers—could theoretically challenge or ignore FDA rules, letters, or guidance.<sup>297</sup> If this happens, the FDA has little muscle other than sternly worded communication, beyond which the FDA must convince the Department of Justice to litigate.<sup>298</sup> Further, these investigations involve apps already available for download and in the hands of consumers. Removing an app from someone's phone or correcting existing consumer confusion after the fact is far from a straightforward proposition.

b. Slowing the data flow

But policing period- and fertility-tracking apps is not solely the FDA's responsibility. The FDA shares oversight of health apps with the FTC, but each focus on separate—though occasionally overlapping<sup>299</sup>—conduct.<sup>300</sup> The FTC's mission of protecting consumers and promoting competition includes regulating privacy, security, and health claims in advertising.<sup>301</sup> So for example, if a

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(2022) (premarket approval of medical devices); *id.* § 814.20 (2022) (describing components of the application).

293. *See supra* Part II.A.1.

294. These apps are often investigated after reported allegations of regulatory misconduct to ensure that design, marketing, and other statements do not trip the exemptions. *See Reporting Allegations of Regulatory Misconduct*, U.S. FDA (updated Sept. 14, 2021), <https://perma.cc/TJM9-YMZR>; *supra* note 145 and accompanying text.

295. *See, e.g.*, Interoffice Memorandum from Michael Bailey to Nina Mezu-Nwaba, *supra* note 144, at 2, 4 (summarizing the FDA's review of the Days app and website and noting that the FDA found multiple claims and statements that were beyond the scope of a conception-only device).

296. *Letters to Industry*, U.S. FDA (updated Feb. 23, 2023), <https://perma.cc/3KDQ-4L8V>.

297. C. Joseph Ross Daval, *Litigating Authority for the FDA*, 100 WASH. U. L. REV. 175, 178 (2022).

298. *See id.* at 177 (citing 28 U.S.C. § 516; 28 U.S.C. § 519; and 5 U.S.C. § 3106); John R. Fleder, *The Role of the Department of Justice in Enforcement Matters Relating to the Food and Drug Administration*, 46 FOOD DRUG COSMETIC L.J. 781, 784-92 (1991) (describing the Department of Justice's role in the FDA's enforcement actions).

299. *See supra* note 158 and accompanying text.

300. SOLOMON CTR. FOR HEALTH L. & POL'Y, YALE L. SCH., & STRATHMORE HEALTH STRATEGY, *supra* note 147, at 9.

301. *See What the FTC Does*, FTC, <https://perma.cc/X348-2ZWZ> (archived May 27, 2023); *see, e.g.*, Press Release, FTC, *supra* note 158.



menstruation-tracking app markets that it will not share health data with third parties and then subsequently does,<sup>302</sup> the FTC can file suit to enjoin the prohibited behavior.<sup>303</sup> However, the FTC, like the FDA, has limited resources and targets enforcement at companies that it deems pose the greatest risk to consumers.<sup>304</sup> While period- and fertility-tracking apps are certainly important, they are hardly the only or even the biggest threat facing consumers today—technological or otherwise.

Importantly, the FTC does not currently establish normative privacy standards or require privacy policies.<sup>305</sup> The FTC cannot currently prohibit period- and fertility-tracking apps from sharing health data beyond preventing companies from engaging in unfair or deceptive acts or practices—such as misrepresenting health data privacy protections. This may surprise consumers who expect heightened protections for health information. However, even though many believe the law affords health data special protections because of their sensitive nature, it often does not.<sup>306</sup> For example, data in most consumer health apps are not generally entitled to the privacy and security assurances we expect in other health contexts, like those involving the Health Insurance Portability and Accountability Act (HIPAA).<sup>307</sup> These assurances include administrative,<sup>308</sup> physical,<sup>309</sup> and technical safeguards.<sup>310</sup> However, these

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302. See Press Release, FTC, Flo Health, *supra* note 160, at 4 (alleging that, “despite promising to keep users’ health data private, Flo shared sensitive health data from millions of users of its Flo Period & Ovulation Tracker app with marketing and analytics firms, including Facebook and Google”); Press Release, FTC, Premom, *supra* note 160.

303. See *supra* notes 158–60 and accompanying text.

304. FTC, FTC REPORT TO CONGRESS ON PRIVACY AND SECURITY 3–6 (2021), <https://perma.cc/FX8K-AZ5U> (describing the FTC’s priorities in privacy and security and noting that they “focus most of [their] limited resources on the most egregious practices and cases against major players in the marketplace in order to have a broader impact”).

305. Jessica Rich, Opinion, *Give the F.T.C. Some Teeth to Guard Our Privacy*, N.Y. TIMES (Aug. 12, 2019), <https://perma.cc/R4Z2-STVU>; see also SOLOMON CTR. FOR HEALTH L. & POL’Y, YALE L. SCH., & STRATHMORE HEALTH STRATEGY, *supra* note 147, at 34.

306. Leah R. Fowler, *COVID-19 & the Myth of Health Data Privacy*, 31 KAN. J.L. & PUB. POL’Y 373, 380–83 (2022) (describing common misunderstandings about HIPAA and health data generally).

307. Health Insurance Portability and Accountability Act of 1996 (HIPAA), Pub. L. No. 104–191, § 264, 110 Stat. 1936, 2033–34 (codified at 42 U.S.C. § 1320d–2 note) (directing the Secretary of Health and Human Services to prepare “recommendations on standards with respect to the privacy of individually identifiable health information”).

308. 45 C.F.R. § 164.308 (2022) (including “policies and procedures to prevent, detect, contain, and correct security violations”).

309. *Id.* § 164.310 (2022) (including “policies and procedures to limit physical access to . . . electronic information systems and the facility or facilities in which they are housed”).

310. *Id.* § 164.312 (2022) (including encryption and decryption).

protections are not required because most period- and fertility-tracking apps are not HIPAA-covered entities or a covered entity's business associate.<sup>311</sup>

But the FTC has other tools in its toolkit that it could leverage immediately. For example, the FTC's new aggressive approach to the Health Breach Notification Rule (HBNR) could prove useful in filling the current health data privacy gap that HIPAA creates.<sup>312</sup> The HBNR applies to certain businesses and nonprofits not covered by HIPAA.<sup>313</sup> It requires those organizations to notify their customers, the FTC, and, in cases involving more than 500 people from one state, the media if there is a breach of unsecured, individually identifiable health records.<sup>314</sup> The HBNR is important for period- and fertility-tracking-app protections for at least two reasons. The first is that the HBNR applies to these apps while HIPAA generally does not.<sup>315</sup> The HBNR defines a "personal health record" as any health record that can be "drawn from multiple sources and that is managed, shared, and controlled by or primarily for the individual."<sup>316</sup> So for example, a period-tracking app that combines calendar data with a user's menstrual data likely involves a personal health record.<sup>317</sup> The second is that the FTC intends to interpret the term "breach" to mean both hacking as well as a company's disclosure of covered information without the person's authorization.<sup>318</sup> As a result, the HBNR could also help limit how extensively apps share consumer data with third parties.

While the HBNR is helpful, it is not perfect. The HBNR does not establish privacy or security standards like HIPAA does, nor does it outright prohibit third-party data sharing. Instead, it passively promotes encryption and

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311. *See id.* § 160.103 (2022); *id.* §§ 160.102(a)-(b) (applying HIPAA rules to covered entities and their business associates); *see also* sources cited *infra* note 315 (explaining that apps are not covered by HIPAA).

312. *Complying with the FTC's Health Breach Notification Rule*, FTC (Jan. 2022), <https://perma.cc/SS54-NE6G>.

313. Theoretically, a company could be subject to both HIPAA and the HBNR. The FTC provides an example of a company that is a HIPAA business associate which also offers personal health record services to the public. *Id.*

314. *Id.*

315. *See, e.g.*, Press Release, FTC, Premom, *supra* note 160 (applying the HBNR to one such app); *see also* *Complying with the FTC's Health Breach Notification Rule*, *supra* note 312 (noting that "many companies that collect people's health information," such as trackers and apps, "aren't covered by HIPAA"); Off. for C.R., Dep't of Health & Human Servs., Health App Use Scenarios & HIPAA 1-2 (2016), <https://perma.cc/7P2D-4B6R>.

316. 16 C.F.R. § 318.2(d) (2022) (defining "personal health record").

317. The FTC website gives the example of a diet app that allows users to enter daily weights and an API for pulling calorie counts from restaurant menus as an example of a covered personal health record. *Complying with the FTC's Health Breach Notification Rule*, *supra* note 312.

318. 16 C.F.R. § 318.2(a) (2022) (defining "breach of security"); *Complying with the FTC's Health Breach Notification Rule*, *supra* note 312.

incentivizes developers to write privacy marketing and policies that accurately reflect privacy practices.<sup>319</sup> However, notification after the fact may mean little to a consumer who has already been harmed by a breach. And, if law enforcement is involved and determines that notification would impede a criminal investigation, the Rule would permit delaying any notifications—to the media, the FTC, and even the affected individual.<sup>320</sup> Thus, the HBNR may prove ineffective everywhere to address the privacy harms this Article contemplates but would prove completely impotent in states with the most expansive criminalization of abortion- and pregnancy-related behaviors. For a motivated municipality, like so-called “sanctuary cities for the unborn,”<sup>321</sup> avoiding notification requirements for an entire town is just a warrant away.

Though the FDA and the FTC appear to have the necessary tools to police the period- and fertility-tracking-app market, they fall short because, at least for now, they look at apps individually and reactively, if at all. As a result, the status quo will likely remain unchanged, the market will remain saturated with problematic apps that share user data, and consumers will be left to navigate the resulting minefield without help from federal agencies.

## 2. Constitutional obstacles

Immediate regulatory solutions fail to improve the market for period and fertility trackers. Meanwhile, the Constitution creates roadblocks to short-term solutions by protecting company interests—and failing to protect consumer interests—against government regulation. The First Amendment provides strong barriers to government intervention through speech and religious protections, especially when a sensitive issue such as abortion is involved. The Fourth Amendment’s protections against government searches and seizures do little to protect sensitive data contained within period- and fertility-tracking apps.

### a. Mandated warning labels

Reports indicate that the Biden administration considered asking the FTC to “push makers of apps that track menstrual cycles to warn users that the data could be used to identify women in the early stages of pregnancy.”<sup>322</sup> While the

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319. The HBNR does not apply when data are encrypted. Further, when consumers are aware of data-sharing practices, that data sharing does not constitute a breach. *Complying with the FTC’s Health Breach Notification Rule*, *supra* note 312.

320. *Id.*

321. Harmeet Kaur, *Small Towns in Texas Are Declaring Themselves “Sanctuary Cities for the Unborn,”* CNN (Jan. 25, 2020, 9:53 AM EST), <https://perma.cc/2KPS-8VVY>.

322. Charlie Savage, *Bracing for the End of Roe v. Wade, the White House Weighs Executive Actions*, N.Y. TIMES (updated June 27, 2022), <https://perma.cc/KX63-G3GE>.

government could certainly encourage a warning, requiring a warning is another matter altogether. Mandating warning labels on products is a classic public health measure that is purely informational, maintaining individual autonomy and choice while placing minimal burdens on the manufacturer.<sup>323</sup> This approach could limit the impact of apps omitting or hiding pertinent information in lengthy and unwieldy terms of use agreements or privacy policies. It could also produce more equitable protection by minimizing the need for high levels of health and digital literacy. But a mandated label's chances of withstanding legal challenges are increasingly low.

Speech restrictions applied to commercial products typically fall under the category of commercial speech. Historically, the law afforded commercial speech fewer protections than standard speech—for much of the country's history, no protection at all.<sup>324</sup> Over time, the Court recognized that commercial speech is important for consumers to make informed decisions and began to apply some First Amendment protections.<sup>325</sup> The link to consumer interests meant that judicial scrutiny was less stringent when the government was compelling corporations to provide accurate, uncontroversial information to enable consumer decisionmaking.<sup>326</sup> Conversely, courts applied more exacting scrutiny if the government restricted commercial speech in order to discourage the use of a product or service the government had deemed risky or harmful.<sup>327</sup> However, what qualifies as factual and uncontroversial, as opposed to the government's effort to promote an ideological stance on a controversial topic, has become less distinct in recent years.<sup>328</sup>

The Supreme Court raised doubt about the viability of warning labels for period- and fertility-tracking apps with its treatment of a state requirement to provide factual information to consumers in *National Institute of Family Life*

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323. See *Zauderer v. Off. of Disciplinary Couns.*, 471 U.S. 626, 651 (1985) (discussing how First Amendment protections are not offended by a state requiring factual information to prevent the deception of consumers).

324. See *Va. State Bd. of Pharm. v. Va. Citizens Consumer Council, Inc.*, 425 U.S. 748, 758-60 (1976).

325. See *id.* at 765 (“Advertising, however tasteless and excessive it sometimes may seem, is nonetheless dissemination of information as to who is producing and selling what product, for what reason, and at what price. . . . It is a matter of public interest that [private economic] decisions, in the aggregate, be intelligent and well informed. To this end, the free flow of commercial information is indispensable.”).

326. *Zauderer*, 471 U.S. at 651.

327. *Cent. Hudson Gas & Elec. Corp. v. Pub. Serv. Comm’n*, 447 U.S. 557, 564-66, 571-72 (1980) (striking down a ban on promotional advertising by an electrical utility that was intended to reduce energy usage).

328. See *Nat’l Inst. of Family & Life Advocs. v. Becerra (NIFLA)*, 138 S. Ct. 2361, 2387 (2018) (Breyer, J., dissenting) (“*Zauderer* turned on the ‘material differences between disclosure requirements and outright prohibitions on speech.’” (quoting *Zauderer*, 471 U.S. at 650)).

*Advocates v. Becerra (NIFLA)*.<sup>329</sup> This case concerned Crisis Pregnancy Centers (CPCs), which present as clinics providing reproductive services so pregnant women will seek their services and staff can convince the women not to obtain an abortion.<sup>330</sup> Or, in some cases, CPC staff will purposefully create delays to prolong the pregnancy with the hope that abortion will no longer be available under state timeline restrictions.<sup>331</sup> Given this undeniable deception, California passed the Reproductive FACT (Freedom, Accountability, Comprehensive Care, and Transparency) Act.<sup>332</sup> The Act required CPCs to post a notice that California provides free or low-cost services, including abortion; list a phone number for more information; and, where applicable, disclose that a CPC is not licensed to provide medical services.<sup>333</sup>

Despite requiring indisputably factual information, the Court held that the California law violated the First Amendment.<sup>334</sup> The Court reasoned that the mandated disclosure did not require “purely factual and uncontroversial information” because it related to abortion, which is a controversial topic.<sup>335</sup> Never mind that the mandated disclosure hoped to remedy CPCs’ well-known deceptive acts. The *NIFLA* decision is surprising because the fact that a mandated disclosure involves a controversial topic should have no bearing on the analysis. As traditionally applied, the judiciary’s inquiry of factual and uncontroversial information pertains to whether the *information* was controversial, not whether it related to a controversial *topic*.<sup>336</sup> Now, “controversial” takes on a new meaning, which does not bode well for the ability of a mandated disclosure for period and fertility trackers to survive a legal challenge.<sup>337</sup> While a warning for apps could be seen as directly related to

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329. *Id.* at 2371 (majority opinion) (describing the mandated factual notice as content-based speech regulation because the “government-drafted” language goes against the organization’s goal of preventing women from obtaining information about abortion services and is, thus, subject to strict scrutiny).

330. Brief of 51 Reproductive Rights, Civil Rights, and Social Justice Organizations as Amici Curiae in Support of Respondents at 1-3, *NIFLA*, 138 S. Ct. 2361 (No. 16-1140), 2018 WL 1168249.

331. *See id.* at 17-22, 26-27.

332. Reproductive FACT Act, ch. 700, 2015 Cal. Stat. 5351 (codified at CAL HEALTH & SAFETY CODE §§ 123470-123473 (West 2023)), *invalidated in part by NIFLA*, 138 S. Ct. 2631.

333. *NIFLA*, 138 S. Ct. at 2368.

334. *Id.* at 2378.

335. *Id.* at 2372 (quoting *Zauderer v. Off. of Disciplinary Couns.*, 471 U.S. 626, 651 (1985)).

336. *Id.* at 2388 (Breyer, J., dissenting).

337. *Cf. Am. Beverage Ass’n v. City & Cnty. of San Francisco*, 916 F.3d 749, 761 (9th Cir. 2019) (en banc) (Ikuta, J., dissenting from most of the reasoning and concurring in the result) (arguing *NIFLA* should apply to strike down a warning about the health dangers of consuming sugar-sweetened beverages, in part due to its relation to a “controversial topic”).

the services they provide, the connection to reproduction—and more importantly, its potential use as contraception or as a way to obtain an abortion before restrictions set in—could be seen as “controversial.”

Another critical aspect of this case is the Court’s shift in focus from the consumer to the company. Commercial speech first received First Amendment protection due to its ability to inform consumers to empower autonomous decisionmaking.<sup>338</sup> Yet, in *NIFLA*, the Court demonstrated little to no concern for the people being misled and coerced by CPCs. Instead, the majority expressed concern for the centers and their anti-abortion agenda.<sup>339</sup> In the Court’s framing, the First Amendment’s protections for commercial speech are not about providing consumers with accurate information but are rather about preventing state-mandated speech that goes against corporate beliefs and interests.<sup>340</sup> In doing so, the Court recasts the provision of factual information to consumers as “suppress[ing] unpopular ideas” and “increas[ing] state power.”<sup>341</sup>

This approach to warning labels raises serious doubts about the constitutional validity of mandating warning labels for period- and fertility-tracking apps.<sup>342</sup> For many apps, the primary financial interest centers on gathering data and repurposing it for sale. Thus, informing users of the inaccuracies of the apps and their lack of data security surely goes against the apps’ economic interests by discouraging use and data input. As the *NIFLA* dissent suggests, most disclosure laws are against the company’s interests.<sup>343</sup> But, in particular, the dissent highlights the degree to which the majority’s approach to consumer disclosure may specifically impact consumer protection, the very concern we raise with these apps.<sup>344</sup> And the potential for apps to mislead or even abuse the legal landscape of reproductive restrictions may be of no consequence considering the Court’s lack of concern over CPCs’

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338. See *supra* notes 324–27 and accompanying text.

339. See *NIFLA*, 138 S. Ct. at 2371 (noting that the disclosure is about availability of services including abortion, “the very practice that petitioners are devoted to opposing”).

340. *Id.* at 2376 (framing factual disclosures as the state co-opting the centers).

341. *Id.* at 2374 (quoting *Turner Broad. Sys., Inc. v. FCC*, 512 U.S. 622, 641 (1994)). The majority even raised the Third Reich’s insertion of ideology into medical discourse in comparison. *Id.*

342. Among other more general First Amendment concerns. See *id.* at 2380 (Breyer, J., dissenting) (“This constitutional approach threatens to create serious problems.”).

343. See *id.* (predicting “considerable litigation over the constitutional validity of much, perhaps most, government regulation” because companies will be tempted to challenge “virtually every disclosure law”).

344. *Id.* (“[T]he majority’s view, if taken literally, could radically change prior law, perhaps placing much . . . consumer protection law at constitutional risk, depending on how broadly its exceptions are interpreted.”).

deceptive efforts to achieve their ideological goals.<sup>345</sup> Even with the evidence of deception in *NIFLA*, the Court considered the state efforts to be based on nothing more than “purely hypothetical” harm.<sup>346</sup> A potential finding of a government interest would still face hurdles under heightened scrutiny, given the Court’s emphasis that the government should undertake its own information campaign rather than “co-opt” the company to deliver its message.<sup>347</sup> This case demonstrates the degree to which the Court may be more likely to find a government viewpoint and content-based speech restrictions, be more skeptical of government interests, and be more stringent about what qualifies as accurate information.

A final limitation of mandated disclosures is the potential connection to religious beliefs. As we saw with *Hobby Lobby* and its progeny, the Court has been willing to protect religious liberty above reproductive rights in cases well beyond abortion.<sup>348</sup> App developers could claim a religious objection to any mandated disclosure because a consumer might use the information to access abortion services or engage in other “immoral” behavior.<sup>349</sup> As we saw in *Hobby Lobby*, mere belief, no matter how tenuous, could be sufficient to trigger religious liberty protections.<sup>350</sup> This type of claim would be even easier to make for apps created by religious institutions.<sup>351</sup>

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345. *See id.* at 2375 (majority opinion) (acknowledging, but disregarding, California’s interest in providing low-income women with information about state-sponsored services); *see also* R.J. Reynolds Tobacco Co. v. FDA, 696 F.3d 1205, 1218 n.13 (D.C. Cir. 2012) (“[W]e are skeptical that the government can assert a substantial interest in discouraging consumers from purchasing a lawful product, even one that has been conclusively linked to adverse health consequences.”).

346. *NIFLA*, 138 S. Ct. at 2377 (quoting *Ibanez v. Fla. Dep’t of Bus. & Pro. Regul.*, 512 U.S. 136, 146 (1994)).

347. *Id.* at 2376. The relative novelty of these apps and current lack of a warning also make it difficult to provide “substantial evidence” that warnings would have a material impact on advancing the government’s interest. *See R.J. Reynolds*, 696 F.3d at 1219 (dismissing international data demonstrating possible effectiveness).

348. *Supra* notes 66–81 and accompanying text (discussing *Hobby Lobby*, *Zubik*, and *Little Sisters of the Poor*).

349. *See* *Little Sisters of the Poor Saints Peter and Paul Home v. Pennsylvania*, 140 S. Ct. 2367, 2376 (2020) (quoting *Little Sisters of the Poor Home for the Aged v. Burwell*, 794 F.3d 1151, 1167 (10th Cir. 2015), *vacated and remanded sub nom. Zubik v. Burwell*, 136 S. Ct. 1557 (2016)).

350. *Supra* note 66 and accompanying text.

351. *See, e.g.,* Burke, *supra* note 12 (describing two Catholic colleges’ involvement in the creation of apps for natural family planning using methods consistent with Catholic teaching).

b. Data privacy and the limits of the Fourth Amendment

While the First Amendment provides a substantial hurdle to infringing on the rights of period- and fertility-tracking app developers, the Fourth Amendment, on the other hand, provides insufficient protections for the users of those apps. Criminalization of abortion and fetal-harming behavior could make period- and fertility-tracking apps a logical destination for law enforcement investigation. But the Fourth Amendment protects against arbitrary or unreasonable searches and seizures.<sup>352</sup> Thus, another potential immediate solution could be reliance on the Fourth Amendment to provide constitutional protections for sensitive data where reproductive rights and freedoms no longer can. Unfortunately, we are dubious as to the extent the Fourth Amendment can provide a useful solution.

The pertinent question in Fourth Amendment doctrine is typically whether there was a reasonable expectation of privacy.<sup>353</sup> The Court has not specifically declared which privacy expectations are entitled to protection but instead has relied on guiding principles.<sup>354</sup> The Amendment is meant to secure “the privacies of life” against arbitrary government intrusion and create obstacles to prevent police surveillance that is “too permeating.”<sup>355</sup> Despite the advances in surveillance technology, the Court has emphasized the need to apply “Founding-era understandings.”<sup>356</sup> The tie to history in determining what qualifies as a reasonable expectation is problematic in the context of period- and fertility-tracking apps. Since *Dobbs* declares no historical right to abortion and courts can apply similar reasoning to contraception,<sup>357</sup> it would be difficult to argue for a historically supported expectation of privacy for the reproductive information these apps contain. Moreover, the state interest in the fetus “at all stages of development,”<sup>358</sup> or the belief that abortion is the destruction of human life, could create more exigent circumstances that would justify viewing warrantless searches and seizures as reasonable.

Meanwhile, third-party doctrine likely limits app user privacy rights. In *United States v. Miller*, the Supreme Court held that the government did not violate the Fourth Amendment when it obtained bank documents for an investigation of tax evasion.<sup>359</sup> According to the Court, because Miller shared his

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352. U.S. CONST. amend. IV.

353. See *Katz v. United States*, 389 U.S. 347, 351-52 (1967).

354. *Carpenter v. United States*, 138 S. Ct. 2206, 2213-14 (2018).

355. *Id.* at 2214 (first quoting *Boyd v. United States*, 116 U.S. 616, 630 (1886); and then quoting *United States v. Di Re*, 332 U.S. 581, 595 (1948)).

356. *Id.*

357. *Dobbs v. Jackson Women’s Health Org.*, 142 S. Ct. 2228, 2257-58 (2022).

358. *Id.* at 2284.

359. 425 U.S. 435, 436-37 (1976).



information with a third party (i.e., the bank), he assumed the risk that this information might later be shared with the government.<sup>360</sup> The Court reaffirmed this stance in *Smith v. Maryland* when it found that phone company consumers have no expectation of privacy in the phone numbers they dial.<sup>361</sup> It follows, then, that users of period- and fertility-tracking apps will have difficulty claiming a reasonable expectation of privacy—which would require a warrant—when they voluntarily share their private information with a third party.

The voluntary provision of sensitive data in period- and fertility-tracking apps distinguishes this from recent cases where the Court limited the ability of police to use digital information. For example, in *Riley v. California*, the Supreme Court declined to extend the exception for warrantless searches incident to arrest to include the contents of a cell phone.<sup>362</sup> Despite the arrestee having expired registration tags, a suspended license, two loaded handguns, and items associated with the “Bloods” street gang, the Court held that cell phone data differentiated the search from prior cases because of the “vast quantities of personal information” on a cell phone.<sup>363</sup> The Court reasoned similarly in *Carpenter v. United States*, where it held that the third-party doctrine did not apply to cell phone location data because it considered it “qualitatively different.”<sup>364</sup> The Court distinguished between “dialed digits” and a “comprehensive record of the person’s movements.”<sup>365</sup> But these cases include extensive cell phone data involuntarily obtained by law enforcement incident to arrest. Despite *Carpenter’s* invocation of the need to protect “intimate” data, in that case, the Court was considering “unique” cell phone location data “held by a third party”—not voluntarily given to an app the user chose to download and input data into regularly.<sup>366</sup> It is also worth reiterating that the Court may view “intimate” data related to reproduction as a distinct and separate consideration given the significant “moral” interests—including what some may deem murder—at stake.

While the *Ferguson* case described above in Part I.A does not involve cell phone data, its mention in the *Dobbs* oral argument could suggest its relevance.<sup>367</sup> But despite the Court finding a Fourth Amendment violation in *Ferguson*, it was law enforcement’s implementation of a warrantless search program when there

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360. *Id.* at 443.

361. 442 U.S. 735, 742-43 (1979).

362. 573 U.S. 373, 386 (2014).

363. *Id.* at 378-79, 386.

364. 138 S. Ct. 2206, 2216-17 (2018).

365. *Id.* at 2217.

366. *Id.* (emphasis added).

367. Transcript of Oral Argument at 49, *Dobbs v. Jackson Women’s Health Org.*, 142 S. Ct. 2228 (2022) (No. 19-1392); see *supra* notes 108-09 and accompanying text.

was a reasonable expectation of privacy that was central to the outcome.<sup>368</sup> In the case of period- and fertility-tracking apps, the distinguishing characteristic remains the voluntary provision of data, which eliminates the expectation of privacy. Thus, these cases demonstrate why the Fourth Amendment is unlikely to help users of period- and fertility-tracking apps.

Period- and fertility-tracking apps after *Dobbs* reveal that femtech has outgrown the regulatory and legal frameworks in which it originated. The evolving reproductive rights landscape takes preexisting risks related to accuracy, privacy, and consumer misunderstandings and mutates them into far more complex problems. The gap between the new questions this disconnect creates and the answers we can generate with the tools we have underscores the need for new approaches.

### III. A Different Future For Femtech

The risks of period- and fertility-tracking apps after *Dobbs* have grown too large for current regulatory and legal approaches to address, creating a need for more innovative solutions.<sup>369</sup> This Part begins by thinking broadly about policy changes at the federal level through either agency rulemaking or legislation, but discounts them as realistic standalone possibilities. It then turns to voluntary solutions that, though not as far-reaching, could influence beneficial market behaviors and complement the long game of achieving nationwide protections.

#### A. The Difficulty of Mandating Change

A history of hands-off and light-touch approaches to regulating consumer health technologies has fostered conditions that promote innovation,<sup>370</sup> but may also harm consumers. Nowhere is that potential harm more apparent than in the new challenges facing femtech in the deteriorating reproductive rights landscape.<sup>371</sup> But new problems require new solutions, and new solutions at the federal level generally require either agency rulemaking or legislative action. Unfortunately, legal, political, and logistical realities may slow or stop even the most comprehensive efforts.

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368. *Ferguson v. City of Charleston*, 532 U.S. 67, 82-84 (2001).

369. *See supra* Part II.B.

370. David A. Simon, Carmel Shachar & I. Glenn Cohen, *Skating the Line Between General Wellness Products and Regulated Devices: Strategies and Implications*, 9 J.L. & BIOSCIENCES Isac015, at 5-8 (2022), <https://perma.cc/34SX-4KWN> (describing the benefits of how “[b]oth Congress’ and FDA’s approach to [general wellness products] has enabled a large quantity of innovation to occur without strict controls”).

371. *See supra* Part II.

## 1. Litigation

Agencies could increase efforts to bring about more comprehensive solutions in the period- and fertility-tracking-app market. But extending an agency’s reach, either unilaterally or through rulemaking, is an invitation for resistance from the entities that have already invested in and profit from the status quo. Here we consider the risks inherent in more far-reaching approaches and evaluate the possibility of challenges to actions against individual apps and, more broadly, to the FDA’s and the FTC’s authority to act. In light of recent litigation, we have two concerns. The first is concern that motivation to report or challenge app developers for perceived bad behavior—especially publicly—will wain given that app developers can retaliate. The second is skepticism about app developers’ willingness to comply with increased efforts at FDA or FTC oversight if they perceive it to be an administrative overreach in light of recent trends in the law toward limiting agency authority.

### a. Developer pushback

Most apps in the period- and fertility-tracking-app market are not medical devices because they are not intended to be used in a manner consistent with the definition of a medical device.<sup>372</sup> But “intended use” is a flexible construct, and the FDA could likely find that more apps are intended to be used as contraception.<sup>373</sup> However, for products not subject to general or special controls, the FDA generally first investigates and evaluates most apps after an individual or company reports a problem.<sup>374</sup> The FDA, therefore, relies on individuals or competitors to bring issues to their attention to initiate a review.

A recent defamation case, *Valley Electronics AG v. Polis*,<sup>375</sup> illustrates our worry about continued willingness to report violations or speak publicly about problematic behavior. In this case, a group of researchers funded by Valley Electronics AG published a study showing that their fertility monitor<sup>376</sup>—especially when combined with the associated app—could be used

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372. *Supra* text accompanying note 279.

373. *See Taylor, supra* note 289, at 2272, 2283-86.

374. *See Reporting Allegations of Regulatory Misconduct, supra* note 294 (describing the process for reporting and investigating allegations of regulatory misconduct and noting that such reports can help make the FDA aware of problems it may not learn of otherwise because, for instance, the device in question did not go through the FDA premarket approval or clearance process).

375. *Valley Electronics AG v. Polis*, No. 20-CV-2133, 2021 WL 3919244, at \*1 (E.D.N.Y. Aug. 6, 2021), *aff’d*, No. 21-2108-cv, 2022 WL 893674 (2d Cir. Mar. 28, 2022).

376. Valley Electronics is the maker of Daysy, a proceptive product. *See supra* note 278 and accompanying text.

for both conception and contraception at rates higher than previously reported.<sup>377</sup> The company used the study's findings to advertise 99.4% effectiveness at preventing pregnancy on social media,<sup>378</sup> even though these products did not have FDA clearance for marketing as contraception.<sup>379</sup>

But there were problems with the study, and a researcher called for a retraction citing deficiencies in its effectiveness calculations and other methodological concerns.<sup>380</sup> After the retraction,<sup>381</sup> the researcher shared her findings on her blog and with the media—given that the lay public rarely reads scientific studies—hoping to counter the effect of Valley's marketing.<sup>382</sup> In response, Valley filed a defamation lawsuit based on the researcher's opinions and commentary.<sup>383</sup> A federal judge threw out the case,<sup>384</sup> but Valley appealed.<sup>385</sup> In 2022, the appellate court affirmed the judgment, concluding that the researcher's statements were nonactionable opinions.<sup>386</sup>

This dispute might initially read as frivolous and, from a legal standpoint, it is. However, the power of defamation cases is not in who ultimately wins but in the threat of protracted legal battles.<sup>387</sup> Experts warn that lawsuits like this can make scientific criticism less likely.<sup>388</sup> And this chilling effect calls into

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377. See *Valley Electronics*, 2021 WL 3919244, at \*2; Martin C. Koch et al., *Improving Usability and Pregnancy Rates of a Fertility Monitor by an Additional Mobile Application: Results of a Retrospective Efficacy Study of Daysy and DaysyView App*, 15 REPROD. HEALTH art. 37, at 2, 4, 6-9 (2018), <https://perma.cc/8ZP5-DY4M>.

378. See Chelsea B. Polis, *Published Analysis of Contraceptive Effectiveness of Daysy and DaysyView App Is Fatally Flawed*, 15 REPROD. HEALTH art. 113, at 1, 2 fig.1 (2018), <https://perma.cc/QX26-LHKZ>.

379. *Valley Electronics*, 2021 WL 3919244, at \*2; *supra* note 278 and accompanying text.

380. Polis, *supra* note 378, at 1-3.

381. See Martin C. Koch et al., *Retraction Note: Improving Usability and Pregnancy Rates of a Fertility Monitor by an Additional Mobile Application: Results of a Retrospective Efficacy Study of Daysy and DaysyView App*, 16 REPROD. HEALTH art. 54 (2019), <https://perma.cc/2FLC-X939>.

382. See *Valley Electronics*, 2021 WL 3919244, at \*2-5.

383. *Id.* at \*2.

384. *Id.* at \*1.

385. *Valley Electronics AG v. Polis*, No. 21-2108-cv, 2022 WL 893674, at \*1 (2d Cir. Mar. 28, 2022).

386. *Id.* at \*2.

387. Lawsuits like this are also referred to as "Strategic Lawsuits Against Public Participation" (SLAPP). They are not intended to prevail on the merits, but to harass and financially pressure defendants and quash constitutional rights. Some states, but not all, have anti-SLAPP laws. See, e.g., *Anti-SLAPP Legal Guide*, REPS. COMM. FOR FREEDOM OF THE PRESS, <https://perma.cc/4HKL-JM36> (archived May 27, 2023) (providing a guide to anti-SLAPP laws in the United States).

388. See Kate Sheridan & Casey Ross, *In a Defamation Lawsuit, the Hype Around Digital Health Clashes with Scientific Criticism*, STAT (Mar. 2, 2022), <https://perma.cc/AU8N-XDS4>.

question not only whether a sufficient number of people will report problems to the FDA to support heightened FDA scrutiny but the scientific community's continued willingness to raise awareness and educate the public.

b. The limits of rulemaking

If current regulatory approaches cannot go far enough, even when stretched to their limits, one way to extend an agency's possible reach is through rulemaking. The FDA can engage in notice and comment rulemaking to issue a new rule or revise an existing rule, including reclassification.<sup>389</sup> The FTC can likewise engage in rulemaking to augment its ability to protect consumers of period- and fertility-tracking apps and beyond, albeit through a more burdensome and difficult process.<sup>390</sup> But, concerning the ability of the FDA and FTC to regulate through future rulemaking has been made more difficult with a series of decisions that some say portend the death of the administrative state.<sup>391</sup> And, given trends in constitutional law, one litigious app developer could be all it takes to not only halt expanded regulatory oversight authority but to potentially eliminate it.

The risk we contemplate centers primarily on *West Virginia v. Environmental Protection Agency*.<sup>392</sup> In *West Virginia*, the Supreme Court struck down an EPA rule under the Clean Air Act that shifted energy to clean power sources to reduce carbon emissions.<sup>393</sup> The seemingly clear connection between reducing carbon emissions from coal-powered plants and the Clean Air Act was less important to the Court than the rule's "economic and political significance."<sup>394</sup> In *West Virginia*, the Court ushered in a new era of the "major

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389. See *Comment on Proposed Regulations and Submit Petitions*, FDA (Mar. 22, 2023), <https://perma.cc/BT9Q-KH5D>; *Reclassification*, FDA (Dec. 1, 2021), <https://perma.cc/4Q5D-YVKH>.

390. See Jeffrey S. Lubbers, *It's Time to Remove the "Mossified" Procedures for FTC Rulemaking*, 83 GEO. WASH. L. REV. 1979, 1982-85, 1997-98 (2015) (observing that "[t]he FTC's rulemaking procedures go far beyond the relatively streamlined notice-and-comment procedures mandated in Section 553 of the [Administrative Procedure Act] to which most agencies are subject" and using data from prior rulemaking to demonstrate that these requirements add considerable time to the process).

391. See, e.g., Eric W. Orts, Opinion, *Supreme Illegitimacy*, REGUL. REV. (Oct. 10, 2022), <https://perma.cc/U8L8-4PT5> (opining that the new major questions doctrine announced in *West Virginia* "casts an ominous pall over the nation's regulatory future" (quoting Richard L. Revesz, *SCOTUS Ruling in West Virginia v. EPA Threatens All Regulation*, BLOOMBERG L. (July 8, 2022, 1:00 AM), <https://perma.cc/D3BC-ZK8M>); see also Lisa Heinzerling, *How Government Ends*, BOSTON REV. (Sept. 28, 2022) <https://perma.cc/M2LW-7MY7> (observing that "[t]he Supreme Court is poised to fulfill Steve Bannon's promise to destroy the administrative state").

392. *West Virginia v. EPA*, 142 S. Ct. 2587 (2022).

393. *Id.* at 2593, 2615-16.

394. *Id.* at 2608 (quoting *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 160 (2000)).

questions doctrine,” which may limit agency power to issue regulations with significant impacts unless Congress clearly grants such authority.<sup>395</sup>

Applying the Court’s reasoning to apps, the FDA’s authority to regulate period- and fertility-tracking apps—as opposed to food, drugs, or other medical devices—is even less clear than the EPA’s authority to reduce carbon emissions. And the issue undoubtedly relates to a significant political and economic issue, given the connection to pregnancy, contraception, and abortion.<sup>396</sup> So while the risks period- and fertility-tracking apps pose in a post-*Dobbs* world may incentivize different FDA action with respect to finding a contraceptive intended use, the Court’s pronouncement of the “major questions doctrine” limits agency authority to respond to emerging threats that are not explicitly contemplated by Congress.<sup>397</sup> This may present a difficult case for FDA authority since the definition of medical devices is for products “intended for use in the *diagnosis of disease or other conditions*, or in the cure, mitigation, treatment, or prevention of *disease*.”<sup>398</sup> One might argue that even if the

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395. *Id.* at 2608-10 (quoting *Brown & Williamson*, 529 U.S. at 160).

396. *See, e.g.*, State of Texas’s Original Complaint at 11-12, *Texas v. Becerra*, No. 22-CV-185, 2022 WL 3639525 (N.D. Tex. Aug. 23, 2022), ECF No. 1, 2022 WL 2763763 (classifying whether the Emergency Medical Treatment and Labor Act can be enforced by HHS with regard to abortion as “a major question of deep economic and political significance” and citing *West Virginia v. EPA* for the proposition that “Congress intends to make major policy decisions itself, not leave those decisions to agencies” (first quoting *King v. Burwell*, 576 U.S. 473, 486 (2015); then quoting *Brown & Williamson*, 529 U.S. at 160; and then quoting *West Virginia*, 142 S. Ct. at 2609)).

397. *See West Virginia*, 142 S. Ct. at 2613. For instances of “economic and political significance,” the Court now requires “clear congressional authorization.” *Id.* at 2613-14 (first quoting *Brown & Williamson*, 529 U.S. at 160; and then quoting *Util. Air Regul. Grp. v. EPA*, 573 U.S. 302, 324 (2014)).

398. *See* 21 U.S.C. § 321(h)(1)(B) (emphasis added). A similar argument is being made to undermine the FDA’s approval of mifepristone—a drug approved by the FDA for medication abortion—by claiming the agency acted outside of the scope of its authority because pregnancy does not qualify as a serious or life-threatening illness as required by statute, an argument with which one district judge has agreed. *All. for Hippocratic Med. v. FDA*, No. 22-CV-223-Z, 2023 WL 2825871, at \*19-20 (N.D. Tex. Apr. 7, 2023). Food and drug law scholars filed an amicus brief disagreeing with this assertion, pointing to other sources of authority for the FDA’s ability to approve “drugs intended to treat serious or life-threatening conditions, whether or not they were understood colloquially to be ‘illnesses.’” Brief of Food and Drug Law Scholars as Amici Curiae in Support of Defendants’ Opposition to Plaintiffs’ Motion for Preliminary Injunction at 4-5, *All. for Hippocratic Med.*, 2023 WL 2825871 (No. 22-CV-223-Z), 2023 WL 2974513, ECF No. 70-1; *see also* Patricia J. Zettler, Eli Y. Adashi & I. Glenn Cohen, *Alliance for Hippocratic Medicine v. FDA—Dobbs’s Collateral Consequences for Pharmaceutical Regulation*, 388 NEW ENG. J. MED. e29, at 2 (2023), <https://perma.cc/A7SY-X4YU> (explaining that FDA authority includes “conditions or diseases that can be serious for certain populations” (quoting *New Drug, Antibiotic, and Biological Drug Product Regulations; Accelerated Approval*, 57 Fed. Reg. 58,942, 58,946 (Dec. 11, 1992) (codified at 21 C.F.R. pts. 314, 601))).

regulations contemplate pregnancy as a condition, apps *tracking* periods and predicting fertility are not diagnosing anything.<sup>399</sup> Regardless, it would be difficult to argue this qualifies as “clear congressional authorization,” and, as the Court stated in *West Virginia*, a “plausible textual basis” is insufficient.<sup>400</sup> Indeed, Congress’s more recent action to exempt health apps intended to maintain or encourage a healthy lifestyle from the definition of a device<sup>401</sup> could lead the Court to determine that Congress specifically rejected the FDA’s authority to regulate period- and fertility-tracking apps at all.<sup>402</sup>

Our concerns about the FDA’s authority to regulate period- and fertility-tracking apps are, at least for now, hypothetical. The FTC, however, might be a more immediate target. The FTC recently attempted to take action against a company, Kochava, for sharing sensitive data that included identifiable user location.<sup>403</sup> Of particular concern for the FTC, and relevant here, was the inclusion of location data associated with reproductive health.<sup>404</sup> In response, Kochava denied the FTC’s claims but, perhaps more importantly, challenged whether the nondelegation and major questions doctrines prevented the FTC from adjudicating the matter administratively.<sup>405</sup> While a district court concluded that neither doctrine applied,<sup>406</sup> the matter is far from settled. *Axon Enterprise v. FTC* raised similar “fundamental, even existential” challenges that the “agencies, as currently structured, are unconstitutional in much of their work.”<sup>407</sup> The Supreme Court sidestepped these broader questions, instead

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399. The majority in *West Virginia* also rejected the notion that cases qualifying under the “major questions doctrine” were simply matters of statutory interpretation. *See West Virginia*, 142 S. Ct. at 2609 (“The dissent attempts to fit the analysis in these cases within routine statutory interpretation, but . . . the approach under the major questions doctrine is distinct.”).

400. *Id.* (quoting *Util. Air Regul. Grp.*, 573 U.S. at 324).

401. 21st Century Cures Act, Pub. L. No. 114-255, § 3060(a), 130 Stat. 1033, 1130 (2016) (codified at 21 U.S.C. § 360j(o)); Medical Devices; Medical Device Classification Regulations to Conform to Medical Software Provisions in the 21st Century Cures Act, 86 Fed. Reg. 20,278, 20,279 (Apr. 19, 2021) (to be codified at 21 C.F.R. pts. 862, 866, 880, 884, 892).

402. *See West Virginia*, 142 S. Ct. at 2614 (“[W]e cannot ignore that the regulatory writ EPA newly uncovered conveniently enabled it to enact a program that, long after the dangers posed by greenhouse gas emissions ‘had become well known, Congress considered and rejected’ multiple times.” (quoting *Brown & Williamson*, 529 U.S. at 144)).

403. Complaint for Permanent Injunction and Other Relief at 1, *FTC v. Kochava, Inc.*, No. 22-cv-00377, 2023 WL 3249809 (D. Idaho May 4, 2023), 2022 WL 4080538, ECF No. 1.

404. *Id.* at 6.

405. Complaint at 2, *Kochava, Inc. v. FTC*, No. 22-cv-00349, 2023 WL 3250496 (D. Idaho May 3, 2023), ECF No. 1.

406. *Kochava, Inc.*, 2023 WL 3249809, at \*13.

407. *Axon Enter., Inc. v. FTC*, 143 S. Ct. 890, 897 (2023).

determining only that the challenges could be heard in federal court.<sup>408</sup> But in his concurrence, Justice Thomas expressed “grave doubts about the constitutional propriety of Congress vesting administrative agencies with primary authority to adjudicate core private rights with only deferential review on the back end.”<sup>409</sup> In light of the Court’s decision in *West Virginia*, and given that at least one justice has explicitly expressed doubts about the scope of the FTC’s authority, we expect more challenges to come that may limit the ability of the FTC to undertake steps to protect consumers.<sup>410</sup>

Legal trends suggest that expanded agency action may rest on unstable ground. App developers may push back against bad press or perceived overreach. And concerningly, all it may take is one motivated company to test the boundaries of regulatory authority altogether.

## 2. Legislation

If legal challenges hamstring agency rulemaking, perhaps new legislation can provide a more far-reaching answer. Congress could step in to augment privacy protections through several different avenues. For example, Congress could modernize HIPAA<sup>411</sup> to encompass consumer health technologies like period and fertility trackers within the definition of a covered entity.<sup>412</sup> Congress could also pass the American Data Privacy and Protection Act (ADPPA), which would govern how companies treat consumer data, with special protections for sensitive data.<sup>413</sup> Other legislative proposals emerged in

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408. *Id.*

409. *Id.* at 906 (Thomas, J., concurring).

410. *See West Virginia v. EPA*, 142 S. Ct. 2587, 2615 (2022) (“But just because a cap-and-trade ‘system’ can be used to reduce emissions does not mean that it is the kind of ‘system of emission reduction’ referred to in Section 111 [of the Clean Air Act].” (quoting 42 U.S.C. § 7411(a))); *Axon Enter.*, 143 S. Ct. at 906 (Thomas, J., concurring).

411. Health Data Use and Privacy Commission Act, S. 3620, 117th Cong. §§ 3-4 (2022) (proposing a commission to research health data use and make recommendations concerning the modernization of health data privacy).

412. Celia Rosas, Note, *The Future is Femtech: Privacy and Data Security Issues Surrounding Femtech Applications*, 15 HASTINGS BUS. L.J. 319, 335-37 (2019); Allysan Scatterday, Note, *This is No Ovary-Action: Femtech Apps Need Stronger Regulations to Protect Data and Advance Public Health Goals*, 23 N.C. J.L. & TECH. 636, 665 (2022).

413. American Data Privacy and Protection Act, H.R. 8152, 117th Cong. (2022). Sensitive data includes “information that describes or reveals the past, present, or future physical health . . . or healthcare condition . . . of an individual.” *Id.* § 2(24)(A)(ii). Sensitive data also includes “[i]nformation identifying the . . . sexual behavior of an individual in a manner inconsistent with the individual’s reasonable expectation regarding disclosure of such information.” *Id.* § 2(24)(A)(ix). The ADPPA would also incorporate privacy by design and create duties of loyalty, transparency obligations, consumer rights, youth protections, and private rights of action, among others. JONATHAN M. GAFFNEY, ERIC N. HOLMES & CHRIS D. LINEBAUGH, CONG. RSCH. SERV., LSB10776, OVERVIEW OF THE  
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response to the leaked *Dobbs* opinion, including the My Body, My Data Act (MBMDA).<sup>414</sup> The MBMDA would create new national standards for reproductive data, including limits on the data that can be collected, retained, or disclosed.<sup>415</sup> On some level, these proposals would all have some benefits, such as making data collection more expensive or burdensome and therefore less profitable, decreasing the amount of data or the number of bad apps. But we believe these efforts will fall short because implementing comprehensive privacy legislation is complex even beyond passage and because law enforcement exceptions will likely continue to limit their effectiveness.

a. The challenges of implementation

Even under the best circumstances, implementing comprehensive privacy legislation is much more difficult than passing a law, which is already hard enough. Looking abroad to international examples helps underscore the continued challenges that plague implementation, even in jurisdictions with older and more comprehensive privacy laws than the United States.

Imagine a hypothetical in which Congress could pass something as sweeping as the European Union’s (EU’s) General Data Protection Regulation (GDPR).<sup>416</sup> The GDPR applies protection principles—like fairness, transparency, minimization, integrity, and accountability—to create a framework for processing personal data<sup>417</sup> and creates conditions for consent.<sup>418</sup> It applies to any entity that offers products to or processes data from citizens or residents of the EU, even if that entity is not physically located in the EU.<sup>419</sup> While a full discussion of the GDPR is outside the scope of this Article, the GDPR’s website proudly proclaims it to be the “toughest privacy and security law in the world.”<sup>420</sup>

The GDPR confers significantly greater privacy protections than current and proposed U.S. laws, but it is not a panacea. Illegal data sharing still happens. For example, a recent exposé on real-time bidding, a practice related to purchasing consumer data for direct advertising, revealed that people in the

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AMERICAN DATA PRIVACY AND PROTECTION ACT, H.R. 8152, at 2-3 (2022). Full discussion of the ADPPA is outside the scope of this Article.

414. My Body, My Data Act of 2022, H.R. 8111, 117th Cong. (2022).

415. *Id.* § 2. The MBMDA also contains rights of access and deletion, privacy policy requirements, and a private right of action. *Id.* §§ 3-4, 5(b).

416. Council Regulation 2016/679, 2016 O.J. (L 119) 1, <https://perma.cc/5ZSH-SY3U>.

417. *Id.* art. 5.

418. *Id.* art. 7.

419. *Id.* art. 3.

420. Ben Wolford, *What is GDPR, the EU’s New Data Protection Law?*, GDPR.EU, <https://perma.cc/BK7M-35EN> (archived May 28, 2023).

United States, on average, have their online activity and real-world location exposed 747 times per day.<sup>421</sup> In Europe, people experience an average of 376 similar exposures per day.<sup>422</sup> In other words, data protection may be better under the GDPR, but it is not perfect. Even though the GDPR has been in full force for several years,<sup>423</sup> companies and trade groups struggle to operationalize the GDPR's frameworks. Cases reveal that the GDPR's requirements are divorced from technological realities and complexities, especially for advertising and third-party data sharing.<sup>424</sup> Resource shortages create significant backlogs of cases.<sup>425</sup> And Data Protection Authorities<sup>426</sup> struggle with pragmatic enforcement.<sup>427</sup>

GDPR violations are also evident in period- and fertility-tracking apps, further suggesting that heightened legal data protections via legislation do not always translate to improved data protection on the ground.<sup>428</sup> One investigative report showed, among other findings, that none of the period- and fertility-tracking apps included in the study “were able to provide the necessary information on all privacy rights, as determined by the GDPR.”<sup>429</sup> Another article reporting on the results of Data Subject Access Requests—also a

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421. IRISH COUNCIL FOR C.L., THE BIGGEST DATA BREACH: ICCL REPORT ON SCALE OF REAL-TIME BIDDING DATA BROADCASTS IN THE U.S. AND EUROPE 1 (2022), <https://perma.cc/74EK-BGD7>.

422. *Id.*

423. The EU adopted the GDPR in 2016, and it launched in full force in 2018. *The History of the General Data Protection Regulation*, EUR. DATA PROT. SUPERVISOR, <https://perma.cc/39MX-FCBN> (archived May 28, 2023).

424. Gegevensbeschermingsautoriteit [Belgian Data Prot. Auth.] (litig. ch.), Feb. 2, 2022, n° DOS-2019-01377, *In re Complaint Relating to Transparency and Consent Framework (IAB Europe) 2022*, p. 85-86, <https://perma.cc/846A-UPHD> (describing one “accept all” button applying to all adtech vendors on a website as failing to satisfy the GDPR’s definition of consent); see also Shoshana Wodinsky, *The Hidden Failure of the World’s Biggest Privacy Law*, GIZMODO (Feb. 4, 2022), <https://perma.cc/75GK-B8J5>.

425. Ilse Heine, *3 Years Later: An Analysis of GDPR Enforcement*, CTR. FOR STRATEGIC & INT’L STUD. (Sept. 13, 2021), <https://perma.cc/P3XY-S2JA>.

426. Data Protection Authorities are “independent public authorities that supervise, through investigative and corrective powers, the application of the data protection law. They provide expert advice on data protection issues and handle complaints lodged against violations of the General Data Protection Regulation and the relevant national laws. There is one in each EU Member State.” *What Are Data Processing Authorities (DPAs)?*, EUR. COMM’N, <https://perma.cc/8NFL-GNFH> (archived May 29, 2023).

427. Benjamin Mueller, *Two Recent Cases Show How the GDPR Is Failing European Businesses*, CTR. FOR DATA INNOVATION (Feb. 3, 2022), <https://perma.cc/38DR-9BSC>.

428. See Shipp & Blasco, *supra* note 198, at 497-503 (evaluating app privacy policies, data collection, user rights, and privacy practices in the context of compliance with the GDPR); CHAMIE ET AL., *supra* note 267, at 8; *No Body’s Business but Mine: How Menstruation Apps Are Sharing Your Data*, *supra* note 192.

429. See Shipp & Blasco, *supra* note 198, at 499.

GDPR right—for five different menstruation tracking apps found that one app did not provide the requested data, one did not respond, and one refused to let the consumer publish the data.<sup>430</sup>

In the years since its passing, the GDPR has not perfectly solved the problem of privacy and security for third-party data sharing generally. Nor has it guaranteed consumer data rights in period- and fertility-tracking apps specifically. These are not fatal flaws or arguments against the GDPR. These realities raise doubts about the potential success of proposed legislative initiatives at home. While the ADPPA, MBMDA, and momentum to modernize HIPAA are all steps in the right direction for data privacy, they are not the GDPR. And they merely represent the start of a difficult conversation, not the end. Thus, even if we could overcome the obstacles of technology-industry lobbying<sup>431</sup> and state opposition<sup>432</sup> to achieve groundbreaking privacy protections today, that enormous victory would inevitably be imperfect, and working out the kinks of operationalizing those protections would still be years away.

b. The criminalization complication

Put simply, the only real solution to the types of privacy and security problems this Article contemplates is to avoid creating the need for a reproductive surveillance state in the first place. This plain fact raises a final important limitation to legislative efforts: Privacy laws often inevitably contain exceptions for law enforcement. As a result, in states seeking to criminalize abortion and behaviors during pregnancy, even the most comprehensive laws will fail those who need them most.

Consider how law-enforcement exceptions manifest in the current laws and legislative proposals. HIPAA contains exceptions for law enforcement that permit the disclosure of protected health information without written authorization in response to court orders, subpoenas, or administrative requests and to report crimes.<sup>433</sup> The ADPPA does not preempt state criminal

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430. *We Asked Five Menstruation Apps for Our Data and Here Is What We Found . . .*, *supra* note 203.

431. Benjamin Powers, *How Big Tech Is Quietly Pushing for Watered-Down State Privacy Laws*, MESSANGER (updated Apr. 11, 2022), <https://perma.cc/9QB2-TZTG>.

432. Letter from Ashkan Soltani, Exec. Dir., Cal. Priv. Prot. Agency, to Speaker Nancy Pelosi and Minority Leader Kevin McCarthy (Aug. 15, 2022), <https://perma.cc/7X84-36ZL>.

433. 45 C.F.R. § 164.512(f) (2022) (permitting a covered entity to disclose protected health information without written disclosure for a law enforcement purpose to a law enforcement official under specified conditions). *But see HIPAA Privacy Rule and Disclosures of Information Relating to Reproductive Health Care*, U.S. DEP'T HEALTH & HUM. SERVS., <https://perma.cc/Y6F4-ZMK9> (last updated June 29, 2022) (“The Privacy Rule permits but *does not require* covered entities to disclose [protected health information]

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laws or laws, rules, regulations, or requirements related to public safety<sup>434</sup> and has permissive exceptions for law enforcement, judicial proceedings, and investigations.<sup>435</sup> Even the MBMDA, drafted with *Dobbs* and menstruation tracking in mind, does not preempt, displace, or supplant any state law and does not prohibit disclosure to law enforcement.<sup>436</sup> Instead, as one drafter clarified, the MBMDA's primary mechanism of keeping reproductive data out of the hands of law enforcement is reducing the amount of data a company can store and collect without consent.<sup>437</sup> These are important loopholes with critical consequences.

Law enforcement exceptions are not necessarily malicious or bad. Privacy laws inevitably run up against the need to balance individual privacy interests with the very real security risks of "Going Dark."<sup>438</sup> Going Dark refers to the inability of those in charge of protecting the public to access evidence needed to prosecute crime, even with lawful authority.<sup>439</sup> But this concept takes on new contours in states that would protect a fertilized egg "by the same laws protecting other human beings."<sup>440</sup> If a fetus has full personhood rights, the data in period and fertility trackers could speak to whether the law would consider a pregnant person to be a child abuser or murderer. Even if the victim is a fetus and the law is new and contentious, a violent crime is still a violent crime. While it is theoretically possible to draft privacy protections impermeable to legal reach,<sup>441</sup> it makes already difficult policy proposals even more unlikely to garner the broad partisan support needed to pass.<sup>442</sup> So as

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about an individual, without the individual's authorization, when such disclosure is required by another law and the disclosure complies with the requirements of the other law.").

434. American Data Privacy and Protection Act, H.R. 8152, 117th Cong. § 404(b)(2)(F)-(H) (2022).

435. *Id.* § 203(e)(3)(A)(vi).

436. My Body, My Data Act of 2022, H.R. 8111, 117th Cong. § 8(b)(1) (2022).

437. Emily Tisch Sussman, *This Bill Wants to Stop Anti-Abortion Groups from Getting Your Private Data. Period*, MARIE CLAIRE (July 13, 2022), <https://perma.cc/58B6-49Y9> (quoting Representative Sara Jacobs as stating that, "[b]asically, the idea is if these companies aren't allowed to collect and store the data, then the data is not there for a search warrant or something of that nature").

438. *Going Dark: Encryption, Technology, and the Balances Between Public Safety and Privacy: Hearing Before the S. Comm. on the Judiciary*, 114th Cong. (2015) (statement of Sally Quillian Yates, Deputy Att'y Gen., and James B. Comey, Dir., FBI), <https://perma.cc/S55H-FPRQ>.

439. *Id.* at 1-3.

440. Abolition of Abortion in Louisiana Act, H.R. 813, 2022 Reg. Sess. § 2(2) (La. 2022).

441. *See, e.g.*, 42 U.S.C. § 241(d)(1)(D)-(E) (describing certificates of confidentiality for research subjects).

442. Virginia tried and failed to pass legislation that would prohibit the issuance of a warrant "for the search and seizure of menstrual health data stored on a computer,"  
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long as the government retains the ability to access consumer data in appropriate circumstances, even if the American public disagrees on what those appropriate circumstances are, vulnerabilities will likely persist. And so long as the state vigorously asserts an interest in the fetus at all stages of development through its police powers, even the most ambitious legislative reforms will not prevent reproductive surveillance.

Other options exist. For example, scholars have proposed a duty of loyalty for companies that process consumer information,<sup>443</sup> special protections for intimate information that limit its collection and use and provide remedies for victims,<sup>444</sup> and even more aspirational reforms for period and fertility trackers inspired by intersectional feminist perspectives.<sup>445</sup> Many of these goals are even reflected in proposed legislation.<sup>446</sup> To the extent law and regulation can bring about these changes, we believe they should. We do not argue for inaction, but realism about what even important and path-breaking legislative achievements will entail. Lessons from the GDPR should caution us that there is no silver bullet, and challenges will remain for years, even after surmounting the initial hurdle of passing a law. And in states that criminalize reproductive choices, even the most ambitious approaches will still likely fall short.

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computer network, or other device containing electronic or digital health information.” S. 852, 2023 Gen. Assemb., Reg. Sess. (Va. 2023). The bill was tabled after Governor Youngkin’s deputy secretary of public safety and homeland security expressed concern that the measure could restrict subpoena powers. Laura Vozzella & Gregory S. Schneider, *Youngkin Opposes Effort to Shield Menstrual Data from Law Enforcement*, WASH. POST (Feb. 14, 2023, 6:24 PM EST) <https://perma.cc/UZ9R-4FUA> (quoting the deputy secretary as saying that while “[c]urrently any health information or any app information is available via search warrant” and the administration “believe[s] that should continue [to] be the case,” the bill would “ultimately open the door to put further limits on search warrants down the road, and that would be incredibly problematic”).

443. Neil Richards & Woodrow Hartzog, *A Duty of Loyalty for Privacy Law*, 99 WASH. U. L. REV. 961, 964 (2021).

444. Danielle Keats Citron, *A New Compact for Sexual Privacy*, 62 WM. & MARY L. REV. 1763, 1771-72 (2021) [hereinafter Citron, *New Compact*]; Danielle Keats Citron, *Sexual Privacy*, 128 YALE L.J. 1870, 1944-54 (2019).

445. Michele Estrin Gilman, *Feminism, Privacy, and Law in Cyberspace*, in THE OXFORD HANDBOOK OF FEMINISM AND LAW IN THE UNITED STATES, (Deborah L. Brake, Martha Chamallas & Verna L. Williams eds., forthcoming 2023) (manuscript at 15), <https://perma.cc/5TUP-88XP>; Gilman, *supra* note 11, at 113.

446. *See, e.g.*, American Data Privacy and Protection Act, H.R. 8152, 117th Cong. § 102 (2022) (describing a duty of loyalty); *id.* § 2(24)(A)(ix) (including information about sexual behavior as a category of “sensitive covered data”).

## B. The Hail Mary of Influencing Change

Agencies and legislators could theoretically improve accuracy and privacy and help enhance consumer understanding of period- and fertility-tracking apps.<sup>447</sup> But, realistically speaking, they probably will not.<sup>448</sup> The priorities of state and federal agencies are subject to logistical realities and political influence.<sup>449</sup> Mandated interventions are also frequently subject to legal challenges.<sup>450</sup> These hurdles create delay and, in some cases, meaningful reform may be a doomed proposition in light of the current ideological split of the Supreme Court. The uncertainty and improbability of these approaches mean that, alone, they are insufficient to protect consumers, especially in states that criminalize reproductive choices. Unfortunately, then, we cannot pin our hopes exclusively on the government. But our choices are not perfectly binary. The technology industry, interest groups, and even individual consumers may be more agile and better positioned to avoid the worst possible outcomes in the short term while we aspire to bigger and more enduring changes.

### 1. Technology industry solutions

Viewed idealistically, the technology industry is responsible for any misconduct facilitated by their platforms.<sup>451</sup> And, at the very least, the technology industry can moderate that bad behavior should it choose. The First Amendment protects individuals from government prohibitions on protected speech, but private industry is not the government.<sup>452</sup> Companies—including those with a substantial market share like Apple, Google, and Meta<sup>453</sup>—can and do prohibit various types of speech all the time. For now, these platforms' terms may specify that they will remove abusive, offensive, or factually misleading information and products.<sup>454</sup> As a result, these companies

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447. *Supra* Parts II.B, III.A.

448. *Supra* Parts II.B, III.A.

449. *Supra* Part III.A.

450. *Supra* Parts II.B, III.A.

451. See Gilman, *supra* note 445, at 15.

452. See *Manhattan Cmty. Access Corp. v. Halleck*, 139 S. Ct. 1921, 1926 (2019) (“The Free Speech Clause of the First Amendment constrains governmental actors and protects private actors.”).

453. J. Clement, *Google, Amazon, Meta, Apple, and Microsoft (GAMAM)—Statistics & Facts*, STATISTA (Oct. 18, 2022), <https://perma.cc/YHK5-VM5C> (to locate, select “View the live page”) (describing the five tech giants that dominate digital markets and quantifying their respective market share and value).

454. For example, Apple specifies that it can remove apps that include content that is “offensive, insensitive, upsetting, intended to disgust, in exceptionally poor taste, or just plain creepy.” *App Store Review Guidelines*, APPLE: DEV., <https://perma.cc/4BMX-NXTT> (last updated Oct. 24, 2022). Google Play likewise prohibits inappropriate

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can suspend or ban accounts, products, or advertisements from their respective platforms when they break the rules.<sup>455</sup>

Big Tech companies, the largest and most influential technology companies,<sup>456</sup> can thus be powerful moderators of which apps have access to their stores and platforms. This power could prove important in limiting the availability of inaccurate, ineffective, or insecure period- and fertility-tracking apps in ways the government cannot or will not. It can also shift consumer understanding about products by limiting which products can advertise and how. And this ability is not purely theoretical, even as applied to religiously contentious or politically charged products. In 2019, Google responded to significant public outcry by removing an app promoting conversion therapy, a discredited and harmful practice claiming to change the sexual orientation, gender identity, or gender expression of LGBTQ people,<sup>457</sup> developed by a Texas-based Christian group.<sup>458</sup> However, whether Google could get away with this type of viewpoint censorship in the future is an open question.<sup>459</sup>

Assuming ongoing content-moderation lawsuits<sup>460</sup> fizzle out or resolve in favor of technology companies, app stores could take this power a step further and require more detailed accuracy and efficacy information to list a product for download.<sup>461</sup> App stores could require certain acceptable use and efficacy information and display it in the app store,<sup>462</sup> taking inspiration from the FDA's required labels for contraceptive apps.<sup>463</sup> They could then use that

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content, *Inappropriate Content*, PLAY CONSOLE HELP, <https://perma.cc/2EZ8-KA6V> (archived May 29, 2023), and Meta “prohibits ads that include content debunked by third-party fact checkers,” *Misinformation*, META: TRANSPARENCY CTR., <https://perma.cc/Q8HQ-8NNS> (archived May 29, 2023).

455. *App Store Review Guidelines*, *supra* note 454; *Inappropriate Content*, *supra* note 454; *Misinformation*, *supra* note 454.

456. See Linda Rosencrance, *Big Tech*, TECH TARGET, <https://perma.cc/N4MZ-QZ7E> (last updated Mar. 2021).

457. *Conversion Therapy*, GLAAD, <https://perma.cc/SB8L-HQW9> (archived May 29, 2023).

458. Ryan Browne, *Google Removes Anti-Gay App that Promoted Conversion Therapy After Backlash*, CNBC (updated Mar. 29, 2019, 8:49 AM EDT), <https://perma.cc/SMN3-DJLS>.

459. See, e.g., *NetChoice, LLC v. Paxton*, 49 F.4th 439, 444-45 (5th Cir. 2022) (allowing Texas's H.B. 20, which “prohibits large social media platforms from censoring speech based on the viewpoint of its speaker” to go into effect).

460. *Id.*; see also *NetChoice, LLC v. Att’y Gen.*, 34 F.4th 1196, 1203 (11th Cir. 2022) (holding that even the largest social media companies “are ‘private actors’ whose rights the First Amendment protects” (quoting *Manhattan Cmty.*, 139 S. Ct. at 1926)). At the time of this writing, petitions for writ of certiorari in these decisions are pending before the Supreme Court. See *Petition for Writ of Certiorari, NetChoice, LLC v. Paxton* (No. 22-555) (Dec. 15, 2022).

461. Leah R. Fowler, *Health App Lemons*, 74 ALA. L. REV. 65, 106, 110-12 (2022).

462. *Id.*

463. *Supra* note 141 and accompanying text.

information in search-result algorithms to put better apps at the top, where consumers are more likely to download them.<sup>464</sup>

Admittedly, going above what is required is not typically a corporate strategy for large publicly traded companies. But there is reason to believe influential private actors can and would voluntarily engage in mitigation efforts, in part because they already have with privacy labels<sup>465</sup> and manifests.<sup>466</sup> And beyond privacy, companies like Apple and Google have an interest in ensuring quality apps on their platforms. This priority is already reflected in their terms.<sup>467</sup> Beyond being a component of corporate social responsibility and cultivating consumer goodwill, companies also have to protect the economic interests of themselves and their shareholders. Apple and Google control over 95% of the app store market outside of China,<sup>468</sup> and both offer period- and fertility-tracking products.<sup>469</sup> Identifying and removing apps engaging in harmful practices that could sour the product category's reputation can help better products succeed.<sup>470</sup>

In addition to policing the products available on their platforms or requiring app store evidence labels, Big Tech companies can fill the gaps created by the lack of federal action through independent, private-sector regulatory programs. Private-sector regulatory programs can establish rules and procedures, promulgate codes of conduct to which members would agree and adhere,<sup>471</sup> and even establish avenues for consumer complaints and corrective action.<sup>472</sup> These approaches appeal to the technology industry because they are voluntary and

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464. Fowler, *supra* note 461, at 110-12.

465. Apple was the first to introduce a privacy label in 2020. Thomas Germain, *Google Adds Privacy Labels to Apps. But Will They Help?*, CONSUMER REPS. (Apr. 26, 2022) <https://perma.cc/M4HM-Z74B>. Google rolled out a similar feature in 2022. *Id.*

466. *What's New in Privacy on the App Store*, APPLE: DEV. (June 5, 2023), <https://perma.cc/T38R-RXLL>.

467. See *App Store Review Guidelines*, *supra* note 454; *Inappropriate Content*, *supra* note 454.

468. David Curry, *App Store Data (2023)*, BUS. APPS (updated May 15, 2023) <https://perma.cc/75AH-4973>.

469. See Donna Lu, *The Femtech Gold Rush*, NEW SCIENTIST, June 1, 2019, at 20, 20; Rita El Khoury, *Google Fit's Health Data Is Now More Beautiful and More Functional (APK Download)*, ANDROID POLICE (July 29, 2021), <https://perma.cc/Y9QC-NJ4V>.

470. Fowler, *supra* note 461, at 70, 81-82.

471. One example is the collaboration between the Executives for Health Innovation and the Center for Democracy and Technology, who worked together to develop the Consumer Privacy Framework for Health Data. ALICE LEITER, EXECs. FOR HEALTH INNOVATION, *THE CASE FOR ACCOUNTABILITY: PROTECTING HEALTH DATA OUTSIDE THE HEALTHCARE SYSTEM 4* (2022), <https://perma.cc/NRA7-5CDD>. The Framework "proposes that the data use standards, and entities' adherence to them, be governed by a new independent private-sector regulatory program." *Id.*

472. *Id.* at 10.



because participating companies can enjoy the financial and reputational benefits of setting themselves apart from competitors.<sup>473</sup> Logistically, private-sector programs are promising because they are faster, nimbler, and more adaptable than regulatory or legislative efforts.<sup>474</sup> There is also already a blueprint for such initiatives. For example, in October 2022, the Biden Administration announced plans to facilitate discussions with fifty representatives from consumer product associations, manufacturing companies, and technology think tanks to create a cybersecurity product label for Internet of Things devices like security cameras and routers.<sup>475</sup> Similar stakeholders could replicate this initiative with femtech.

Importantly, a technology company does not need to be as powerful as Big Tech to influence change, nor do smaller companies need to wait for the government to step in. App developers can make more accurate and privacy-protective products independent of external coercion. This may ultimately be the most promising and realistic avenue for fast reform.

All period- and fertility-tracking apps should be safe and accurate and delineate the scope of appropriate uses in a way that consumers can understand. Further, app developers should consider diverse and inclusive perspectives in product design.<sup>476</sup> Specifically, they should include medical professionals among the array of stakeholders providing input to ensure efficacy and medical soundness.<sup>477</sup> These efforts, in turn, can help developers provide better, more inclusive period and fertility trackers with fewer biases, inaccuracies, and stereotypes.<sup>478</sup>

Investing in the upfront work to develop an accurate and inclusive period and fertility tracker is admittedly an expensive proposition. But other funding

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473. *Id.*

474. *Id.* at 13; see also Suzanne Smalley, *White House to Unveil Ambitious Cybersecurity Labeling Effort Modeled After Energy Star*, CYBERSCOOP (Oct. 11, 2022), <https://perma.cc/3YNS-EGXW> (quoting U.S. Cyberspace Solarium Commission Executive Director Mark Montgomery as saying, regarding a proposed voluntary cybersecurity certification and labeling program, that “[t]he feds should be looking for a non-governmental organization to execute this as the certification will require an agility and persistence that will be hard for a federal agency to maintain with all their other requirements.”).

475. Press Release, White House, Fact Sheet: Biden-Harris Administration Delivers on Strengthening America’s Cybersecurity (Oct. 11, 2022), <https://perma.cc/ZDS8-6KRP> (describing “[d]eveloping a new label to help Americans know their devices are secure”).

476. Mikki Kressbach, *Period Hacks: Menstruating in the Big Data Paradigm*, 22 TELEVISION & NEW MEDIA 241, 244–45 (2021); Adrienne Pichon, Kasey B. Jackman, Inga T. Winkler, Chris Bobel & Noémie Elhadad, *The Messiness of the Menstruator: Assessing Personas and Functionalities of Menstrual Tracking Apps*, 29 J. AM. MED. INFORMATICS ASS’N 385, 389, 394–95 (2022); see also Gilman, *supra* note 445, at 28–29.

477. See Gilman, *supra* note 445, at 28, 30.

478. *Id.* at 28–30.

avenues exist outside of traditional approaches to data monetization, like advertising, and they need not happen at the exclusion of low-resource or vulnerable populations. Federally funded research grants or foundation awards may become available. Reproductive rights organizations or private donors may seek opportunities to fund accurate and private apps.<sup>479</sup> Apps that choose to charge a fee can do so on a sliding scale that accounts for a consumer's ability to pay.<sup>480</sup> Insurance companies can likewise step up and improve access to evidence-based apps.<sup>481</sup>

More opportunities exist to innovate with privacy and data security. App designers can include clear, easy-to-understand disclaimers or regular pop-up messages about possible data uses—like the potential for app data to identify early pregnancies or suspicious menstrual patterns—without a federal mandate. Developers can promote anonymity by not requiring registration or an email address.<sup>482</sup> Those same apps could encrypt data or ensure that all data are only stored on a user's phone, meaning the lack of email addresses would not raise additional problems with the HBNR in the event of a breach.<sup>483</sup> Relatedly, app developers can also limit risks by, to the greatest extent possible, collecting less data that are not specifically relevant to menstrual predictions.<sup>484</sup> While it is impossible to build a period and fertility tracker that uses *no* intimate data, less data mean less information is shared with third-party data collectors and make it less likely that hackers and other interested parties use data for nefarious purposes.<sup>485</sup> As lawmakers have underscored for Google's location data practices, the decision to collect and retain data is

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479. See Citron, *New Compact*, *supra* note 444, at 1830.

480. See Gilman, *supra* note 11, at 113.

481. Lauren Tonti, *Femtech Fatale: Access to Femtech in Public Health Insurance Systems*, 30 EUR. J. PUB. HEALTH ckaa165.1032 (Supp. 5 2020), <https://perma.cc/3SXX-72QX>. In recent years, Medicare, employers, and other payers have demonstrated a willingness to expand coverage of digital health services. SOLOMON CTR. FOR HEALTH L. & POL'Y, YALE L. SCH., & STRATHMORE HEALTH STRATEGY, *supra* note 147, at 8.

482. See *We Asked Five Menstruation Apps for Our Data and Here Is What We Found . . .*, *supra* note 203.

483. The HBNR only applies to unsecured data. The HBNR does not require apps that encrypt personal health records to notify victims of a breach. *Complying with the FTC's Health Breach Notification Rule*, *supra* note 312.

484. See *supra* notes 201-06 and accompanying text.

485. Citron, *New Compact*, *supra* note 444, at 1821 (“With less collection comes less risk. Less collection would curtail downstream damage. It would also reduce the incidence of data breaches leaking intimate data to blackmailers, extorters, and reputation destroyers.”).

exactly that—a choice.<sup>486</sup> Companies can make different choices with respect to collecting and sharing data.<sup>487</sup>

Relatedly, app developers must also anticipate law enforcement’s role in policing pregnant bodies. Product designers could build in a “warrant flag,” which would notify the user if the app was under government surveillance.<sup>488</sup> They can also develop a product that does not collect user data on a centralized server or does so in an unreadable way.<sup>489</sup> A company will not need to worry about complying with a warrant if they do not have relevant or usable data in the first place. This concept is the central thrust of the MBMDA,<sup>490</sup> though companies should not wait for a law to change how they collect data that could end up in law enforcement’s hands.

Apps like the ones this Part contemplates are not unthinkable. Two German examples of publicly funded, non-extractive alternative femtech apps already exist.<sup>491</sup> There is *Periodical*,<sup>492</sup> an ad-free and open-source menstruation tracker initiated as a community project with no external funding,<sup>493</sup> and *drip*, which was developed with funding from Germany’s Ministry of Education.<sup>494</sup> Both apps promote privacy by only storing data on the user’s device.<sup>495</sup> *Euki*—developed by Women Help Women,<sup>496</sup> an

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486. Letter from 42 Members of Congress to Sundar Pichai, CEO, Google LLC (May 24, 2022), <https://perma.cc/JEV7-M7LC>.

487. *See, e.g.*, Government’s Motion to Compel Apple Inc. to Comply with this Court’s February 16, 2016 Order Compelling Assistance in Search at 6, 9, *In re Search of an Apple iPhone Seized During the Execution of a Search Warrant on a Black Lexus IS300*, California License Plate 35KGD203, No. 16-cm-00010 (C.D. Cal. Feb. 19, 2016), ECF No. 1 (noting how Apple refused to comply with an order compelling it to assist federal agents in unlocking an iPhone related to a 2015 terrorist attack in San Bernadino).

488. As Cahn and Manis write:

A ‘warrant flag’ is an automated message warning users when the system is being monitored by the government. Such a system is indispensable when operators receive a warrant that includes a gag order, preventing them from notifying users. However, when operators already have a warrant flag system installed, an automated warning will go out whenever they *fail* to take action and reset a periodic timer. While the government can order operators to remain silent, they legally *can’t* force operators to reset warrant flags, making it a lawful way to communicate.

CAHN & MANIS, *supra* note 4, at 12 n.59.

489. *Id.* at 12.

490. My Body, My Data Act, H.R. 8111, 117th Cong. § 2 (2022); Sussman, *supra* note 437.

491. *See* CHAMIE ET AL., *supra* note 267, at 3, 15.

492. *Periodical*, GOOGLE PLAY, <https://perma.cc/Z7RT-LY4T> (archived May 29, 2023).

493. *See id.* (to locate, select “View the live page,” then select “About this app”); CHAMIE ET AL., *supra* note 267, at 3, 15.

494. CHAMIE ET AL., *supra* note 267, at 3, 15.

495. *Id.* at 15.

496. *Euki App*, WOMEN HELP WOMEN, <https://perma.cc/UW8U-XLJW> (archived May 29, 2023).

international activist non-profit—does not collect or store any data and has no back-end system.<sup>497</sup> It also anticipates nefarious uses by allowing users to enter “0000” to display a false screen when opening the app under duress.<sup>498</sup> These initiatives provide examples of what is possible for app developers and collaborators willing to think outside the box.

While undertaking these efforts to improve accuracy and efficacy, protect consumer data, and foster informed decisionmaking is valuable in itself, there are also commercial benefits to reap. In the days following the *Dobbs* decision, download patterns suggest that people were not deleting their period trackers. Instead, they were migrating to what they perceived to be better apps.<sup>499</sup> Period- and fertility-tracking apps advertising heightened data protections experienced a surge in new downloads.<sup>500</sup> The remarkable migration of consumers to products that advertise superior privacy supports the proposition that innovative apps can stand out among competitors.<sup>501</sup> In a post-*Dobbs* future, highly effective apps that promote and protect a user’s ability to understand and control their own body and data will have an advantage over those that do not.

## 2. Group and individual action

Reproductive-rights organizations and groups viewing technology as a new frontier of reproductive-rights activism will find significant opportunities for meaningful reform. By adopting period and fertility trackers as a priority issue, these groups can raise consumer awareness about the risks and limitations of existing apps, especially when they partner with academic researchers.<sup>502</sup> Organizations can also identify constituent needs; raise money to fund alternative products; and highlight and promote apps that are accurate, effective, and protect privacy to the maximum extent possible.<sup>503</sup>

Some groups are already active, particularly in the data-privacy space. The success of grassroots organizations like Our Data Bodies illustrates how

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497. *Frequently Asked Questions*, EUKI APP, <https://perma.cc/YVN5-EDYS> (archived May 29, 2023).

498. *Id.*

499. *See supra* notes 231-38 and accompanying text (describing consumer migration to apps that advertised enhanced privacy protections, even if subsequent reporting revealed that privacy practices did not align with privacy promises).

500. Perez, *supra* note 232 (“Clue’s app saw a 2,200% increase in installs over the weekend after it made comments in the press that it won’t divulge sensitive information to states.”).

501. *See id.*

502. An example of such a partnership is the One Mind PsyberGuide. ONE MIND PSYBERGUIDE, <https://perma.cc/RE7G-2ZLP> (archived May 29, 2023).

503. *See Gilman, supra* note 11, at 112-13 (envisioning a diverse range of stakeholders involved in product development, including medical professionals, technology users, and non-corporate entities like nonprofits and foundations).

interviewing, community organizing, and capacity building can contribute to developing more inclusive data privacy laws.<sup>504</sup> Dedicated action by motivated groups with well-defined policy proposals is also demonstrably successful.<sup>505</sup> The Cyber Civil Rights Initiative (CCRI), a group dedicated to combating online abuses that threaten civil rights and civil liberties, has assisted with drafting model criminal laws and working with members of Congress to develop new approaches in the context of nonconsensual pornography.<sup>506</sup> CCRI even defends related state laws from First Amendment challenges in court<sup>507</sup> and assists the technology industry in developing policies.<sup>508</sup> The right organization could build on and replicate these and other efforts to address the problems of period and fertility trackers and post-*Dobbs* reproductive surveillance.

Finally, individuals acting alone have an important part to play. A significant body of literature suggests that consumers are unlikely to shop for terms in digital contracts, suggesting they cannot influence the market's trajectory as a so-called "informed minority,"<sup>509</sup> especially in contracts of adhesion.<sup>510</sup> But health apps and advertising may be different.<sup>511</sup> Download patterns after *Dobbs* provide circumstantial evidence that many consumers

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504. See Gilman, *supra* note 445, at 22-24.

505. For example, Accountable Tech's rulemaking petition, ACCOUNTABLE TECH, PETITION FOR RULEMAKING TO PROHIBIT SURVEILLANCE ADVERTISING, <https://perma.cc/3BTF-GCHK> (archived May 29, 2023), is cited as influencing the FTC to issue its advance notice of proposed rulemaking concerning trade regulation rules on commercial surveillance and data security. Trade Regulation Rule on Commercial Surveillance and Data Security, 87 Fed. Reg. 51,273, 51,276 n. 47 (advance notice of proposed rulemaking published Aug. 22, 2022) (to be codified at 16 C.F.R. ch. I).

506. *History / Mission / Vision*, CYBER C.R. INITIATIVE, <https://perma.cc/P6AD-JAGB> (archived May 29, 2023); *Legislative Reform*, CYBER C.R. INITIATIVE, <https://perma.cc/A5CJ-E3HZ> (archived May 29, 2023) (detailing CCRI's work on amicus briefs, model laws, existing laws, and other technical assistance).

507. *Legislative Reform*, *supra* note 506.

508. *Tech Policy*, CYBER C.R. INITIATIVE, <https://perma.cc/4Q4H-K842> (archived May 29, 2023) (describing prior work offering expert advice to technology industry leaders and providing a form for corporate leaders to request expertise related to user privacy and safety).

509. Yannis Bakos, Florencia Marotta-Wurgler & David R. Trossen, *Does Anyone Read the Fine Print? Consumer Attention to Standard-Form Contracts*, 43 J. LEGAL STUD. 1, 3 (2014) (testing the informed-minority hypothesis empirically and presenting data that suggest the minority is not large enough to influence the market).

510. See, e.g., Uri Benoliel & Shmuel I. Becher, *The Duty to Read the Unreadable*, 60 B.C. L. REV. 2255, 2257-59 (2019); Ian Ayres & Alan Schwartz, *The No-Reading Problem in Consumer Contract Law*, 66 STAN. L. REV. 545, 546-47 (2014); Florencia Marotta-Wurgler, *Will Increased Disclosure Help? Evaluating the Recommendations of the ALI's "Principles of the Law of Software Contracts"*, 78 U. CHI. L. REV. 165, 179-81 (2011); Omri Ben-Shahar & Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 U. PA. L. REV. 647, 671-72 (2011).

511. See Fowler et al., *supra* note 222, at 15-19.

shop for privacy promises.<sup>512</sup> These trends further suggest that the array of available privacy terms is less homogenous than one might assume,<sup>513</sup> creating the conditions necessary for informed minorities to influence the market.

Even if an informed minority does not or cannot exist, other more realistic consumer governance mechanisms may be in play. There is room for what others have called a “crusading minority”—those diligent activist consumers who see seller injustice and bad behavior and complain, file reports, post bad reviews, and sue.<sup>514</sup> Activist consumers are not constrained by traditional understandings of cost-benefit analysis, reading or understanding the fine print in consumer contracts, or any baseline requirement for a critical mass of like-minded consumers.<sup>515</sup> Instead, they act on more idiosyncratic motivations and respond to expectations instead of stipulated terms.<sup>516</sup> By being sufficiently loud and creating a public relations crisis, sometimes just one person is enough.<sup>517</sup> And in a world where social media is inescapable, this approach may prove particularly effective at influencing change and raising consumer awareness.

Economic theories about consumer “minorities”—be they informed or crusading—bring us to yet another avenue to avert femtech’s dystopian future: Consumers can protect themselves—to an extent. Users should be critical about what apps they select, using research to inform app choice.<sup>518</sup> Those who use apps for contraceptive purposes should push back on automation bias, which is the tendency to trust technology over and above individual judgment.<sup>519</sup> Instead, users should know what data the app’s algorithm uses to generate

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512. Perez, *supra* note 231.

513. See NANCY S. KIM, WRAP CONTRACTS: FOUNDATIONS AND RAMIFICATIONS 53 (2013) (describing how form contracts in an industry generally all include the same terms).

514. See Yonathan A. Arbel & Roy Shapira, *Consumer Activism: From the Informed Minority to the Crusading Minority*, 69 DEPAUL L. REV. 233, 235 (2020) [hereinafter Arbel & Shapira, *Consumer Activism*]; see also Yonathan A. Arbel and Roy Shapira, *Theory of the Nudnik: The Future of Consumer Activism and What We Can Do to Stop It*, 73 VAND. L. REV. 929, 935-36 (2020).

515. See Arbel & Shapira, *Consumer Activism*, *supra* note 514, at 255.

516. *Id.* at 255-58.

517. *Id.* at 258. For example, in May 2022, a security researcher tipped off a journalist, resulting in an exposé about a data marketplace, Narrative, selling information about consumers of period and fertility trackers. This effort motivated the company to take those datasets down, even though it had done nothing illegal. Joseph Cox, *Data Marketplace Selling Info About Who Uses Period Tracking Apps*, VICE (May 17, 2022, 10:05 AM), <https://perma.cc/5KV8-CSGA> (to locate, select “View the live page”).

518. See Catherine Roberts, *These Period Tracker Apps Say They Put Privacy First. Here’s What We Found*, CONSUMER REPS. (updated Aug. 30, 2022), <https://perma.cc/V8PC-7ZS5>.

519. Kate Goddard, Abdul Roudsari & Jeremy C. Wyatt, *Automation Bias: A Systematic Review of Frequency, Effect Mediators, and Mitigators*, 19 J. AM. MED. INFORMATICS ASS’N 121, 121-22, 124 (2012).

predictions. They should also appreciate what variables can invalidate readings, such as the influence of alcohol and sleep on basal body temperature.<sup>520</sup> A firm understanding of the menstrual cycle and the physiological signs of ovulation will help users evaluate the strengths and limitations of fertility awareness as a form of contraception for them.

Users should configure their devices to help augment privacy where feasible, such as using two-factor authentication, ad blockers, and turning off geolocation tracking.<sup>521</sup> Several privacy advocates have published privacy guides for various pro-choice stakeholders,<sup>522</sup> and so has the Department of Health and Human Services.<sup>523</sup> Others, though, have rightly cautioned that even the most robust and impractical individual privacy-enhancing precautions may be powerless in a world as connected as ours.<sup>524</sup> At least as far as period- and fertility-tracking apps are concerned, limiting the intimate data consumers share is an unworkable solution for products that depend on those data to inform menstrual cycle predictions.<sup>525</sup> To that end, users should research apps that only store data locally on the user's device and do not participate in third-party data sharing.<sup>526</sup> They should also be intensely skeptical of developer claims that all user data are anonymized,<sup>527</sup> that the app

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520. *Supra* notes 185-86 and accompanying text.

521. Gilman, *supra* note 11, at 111; see also SEETA PEÑA GANGADHARAN, TAWANA PETTY, TAMIKA LEWIS & MARIELLA SABA, *OUR DATA BODIES, DIGITAL DEFENSE PLAYBOOK: COMMUNITY TOOLS FOR RECLAIMING DATA* 89 (2018), <https://perma.cc/ARW4-B54R>.

522. See, e.g., Daly Barnett, *Digital Security and Privacy Tips for Those Involved in Abortion Access*, ELEC. FRONTIER FOUND. (May 4, 2022), <https://perma.cc/XL2X-6TQ3>; Shoshana Wodinsky, *11 Online Privacy Tips for Getting an Abortion*, GIZMODO (May 6, 2022), <https://perma.cc/ZDU8-LXLE>; Sarah Emerson & Emily Baker-White, *In a Post-Roe America, Googling "Abortion" Could Put You At Risk. Here's How To Protect Yourself*, BUZZFEED NEWS (May 4, 2022, 6:35 AM), <https://perma.cc/W692-W37Q>; Lily Hay Newman, *How to Protect Your Digital Privacy if Roe v. Wade Falls*, WIRED (May 5, 2022, 6:02 PM), <https://perma.cc/L4S3-QK95>; CAHN & MANIS, *supra* note 4, at 13-15.

523. *Protecting the Privacy and Security of Your Health Information When Using Your Personal Cell Phone or Tablet*, U.S. DEP'T HEALTH & HUM. SERVS., <https://perma.cc/JUH3-ZF4N> (last updated June 29, 2022).

524. Janet Vertesi, Opinion, *I Hid My Pregnancy from the Internet So I Know: Online Privacy Is Nearly Impossible*, L.A. TIMES (May 16, 2022, 3:10 AM PT), <https://perma.cc/NBP8-5T3J>; Janet Vertesi, Opinion, *My Experiment Opting Out of Big Data Made Me Look Like a Criminal*, TIME (May 1, 2014, 12:01 AM EDT), <https://perma.cc/2Z59-WDC6>; Anya E.R. Prince, *I Tried to Keep My Pregnancy Secret*, ATLANTIC (Oct. 10, 2022), <https://perma.cc/855P-ZLY6>.

525. See *supra* notes 125-30 and accompanying text.

526. See Cox, *supra* note 517.

527. See Kristin Cohen, *Location, Health, and Other Sensitive Information: FTC Committed to Fully Enforcing the Law Against Illegal Use and Sharing of Highly Sensitive Data*, FTC: BUS. BLOG (July 11, 2022), <https://perma.cc/WR3K-FHN9>.

employs end-to-end encryption,<sup>528</sup> or that the company will delete user data.<sup>529</sup> Importantly, consumers should never consent to warrantless law enforcement searches of a mobile phone, even if the search is ostensibly unrelated to abortion and no matter how minor the alleged offense is.<sup>530</sup>

While digital self-defense measures cannot hurt, we believe the onus should not be on the consumer to self-educate and complete due diligence or opt out of these technologies entirely. Instead, as this Part offers, the responsibility can and should be shared among other stakeholders. And as scary a proposition as it is to put faith in many of the same actors who profit from the status quo, it is preferable to waiting for mandated solutions that will take longer to implement, may never come, and possibly be deficient even if they do.

### Conclusion

Period and fertility tracking existed long before smartphones and long before *Roe*, marked on paper charts and perhaps even etched in bone.<sup>531</sup> But the *Dobbs* decision bursts forth into an era that is simultaneously more empowering and more terrifying. Old laws and ancient practices crash into new technologies and political realities, forming the conditions for a level of surveillance and enforcement more at home in dystopian fiction than in a modern, pluralistic society. As is often the case with innovation, the opportunity for misuse is proportional to its enormous potential.

Period and fertility trackers are, on their face, promising tools in the fight to preserve bodily autonomy as others would systematically strip it away. However, without significant reform to guarantee accuracy and efficacy, augment privacy and security, and enhance consumer understanding, these technologies are also dangerous. But apps do not exist in a vacuum, and neither do their solutions. A legal and regulatory environment specifically designed to let technology flourish and, increasingly, limit the federal government's reach, hamstrings even basic proposals that would protect all consumers and influence the entire product category. As a result, in place of far-reaching

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528. See Leigh McGowran, *Period Tracker Stardust Rolls Back Encryption Claims Amid Scrutiny*, SILICON REPUBLIC (June 28, 2022), <https://perma.cc/D43P-G69S>.

529. Complaint at 8, 10, *Lawson v. Meta Platforms, Inc.*, No. 22-CIV-02723 (Cal. Super. Ct. July 5, 2022) (alleging a tool “allowed [Facebook employees] to circumvent Facebook’s normal privacy protocols in order to access user-deleted data” and that Facebook shared deleted data with law enforcement).

530. See generally KOEPKE ET AL., *supra* note 260.

531. See Zaslavsky, *supra* note 151; Marguerite R. Duane & Erin Adams, *A Brief History of Scientific Advances and Development of Natural or Fertility Awareness Based Methods (FABMs): Part I*, FACTS ABOUT FERTILITY (June 19, 2018), <https://perma.cc/CF4Y-45QH> (noting that menstrual charting as a form of family planning dates back to at least the 1930s).



change, these shortcomings leave us with patchwork, piecemeal, and retroactive approaches that fail the most vulnerable among us.

We must push back against the urge to conclude that the best solution is to tell people to delete their apps. No serious policy proposal can involve asking everyone capable of becoming pregnant to opt out of the digital economy in whole or part. Such a position is not only unrealistic, but it also shifts responsibility onto individuals and could exacerbate disparities by preventing those most in need from accruing any potential benefit from technological advancement. Millions of Americans find these apps beneficial. These consumers deserve high-quality products, not instructions to stop using these—or any other—electronic tools. Thus, our Article argues that a pragmatic combination of top-down and bottom-up approaches is needed to ensure that our warnings of femtech’s dystopian future do not come to pass like so many other warnings about reproductive freedoms.

Period- and fertility-tracking apps are the most obvious consumer technologies but by no means the only ones that could be instrumentalized to criminalize abortion<sup>532</sup> and other behaviors during pregnancy. As a result, femtech in the post-*Dobbs* legal landscape is but one stark example of a much bigger technological threat. Technology in a world with an anemic right to privacy endangers everyone. But it will take dedicated action today—and a belief that we should remain steadfastly committed to avoiding the worst possible outcomes by whatever means available—to keep femtechnodystopia from becoming a trial balloon for other, more far-reaching control.

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532. Purchase patterns, location, web search history, and text messages are a few examples. Geoffrey A. Fowler & Tatum Hunter, *For People Seeking Abortions, Digital Privacy is Suddenly Critical*, WASH. POST (updated June 24, 2022, 4:23 PM EDT), <https://perma.cc/9DTD-2RKR>; Joseph Cox, *Location Data Firm Provides Heat Maps of Where Abortion Clinic Visitors Live*, VICE (May 5, 2022, 12:24 PM), <https://perma.cc/B3E8-NUFD> (to locate, select “View the live page”); Manuela López Restrepo, *Does Your Rewards Card Know if You’re Pregnant? Privacy Experts Sound the Alarm*, NPR (Aug. 13, 2022, 5:00 AM ET), <https://perma.cc/5AGG-F5MJ>.