

## THE FEMTECH PARADOX: HOW WORKPLACE MONITORING THREATENS WOMEN'S EQUITY

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**ABSTRACT:** As biometric monitoring becomes increasingly common in workplace wellness programs, there are three reasons to believe that women will suffer disproportionately from the data collection associated with it. First, many forms of biometric monitoring are subject to gender bias, among other potential biases, because of assumptions inherent in the design and algorithms interpreting the collected data. Second, the expansion of femtech in particular creates a gender-imbalanced data source that may feed into existing workplace biases against women unless more effective safeguards emerge. Finally, many femtech platforms encourage the kind of information sharing that may reduce women's reasonable expectations of privacy, especially with regard to fertility data, thus increasing the risk of health data privacy invasion. This triple threat to female workers may be offset somewhat by the benefits of health data collection at work and may be remedied at least in part by both legislative and nonlegislative means. The current trend toward greater health data collection in the wake of COVID-19 should provoke a reexamination of how employers collect and analyze women's health data to reduce the impact of these new gender bias drivers.

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Should a woman's boss be able to tell whether she is pregnant from an app on her work-issued phone? Should women be required to provide their employers with access to data about their fertility or symptoms of menopause, as part of wellness programs? To what extent should employers be able to determine whether female employees have terminated their pregnancies if the employees do not volunteer that information themselves? These are some of the questions raised by a largely unregulated yet increasingly common practice: including femtech in workplace wellness programs.

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“Femtech”<sup>1</sup> refers to a growing range of mobile apps and wearables designed to help women<sup>2</sup> take more control of their bodies, giving them greater insights into their own health and reducing their dependence on primary care doctors, obstetricians, and gynecologists. It is part of a broader set of health-related apps and wearables that are increasingly popular with employers, who may offer them as part of a workplace wellness program. A close examination of the potential consequences of data collection through both femtech and facially gender-neutral biometric monitoring suggests that these tools could end up increasing the risks of sex discrimination and sexual harassment in the workplace. Rather than empowering women, as they promise, these technological advances increase the data that might be used to further gender inequality at work.

Women are more likely than men to suffer from the effects of increased monitoring of workers’ bodies. There are significant gender-linked differences in what kinds of data apps and monitors collect, the ways in which the data are collected, the accuracy of the algorithms used to interpret such data, and the likely consequences workers experience as a result of those interpretations. These differences put women at a technologically driven disadvantage in the workplace, a disadvantage that existing federal and state law do little to address or correct.

This Article describes three ways in which health data collection, through femtech as well as more gender-neutral means, may increase the risk of gender bias at work: a triple threat. The first threat is that biometric monitoring, which appears gender neutral, may underserve women because of biases inherent in the design and resulting interpretation of the data collected. Algorithms that interpret health data collected from biometric monitors may reflect gender biases inherent in their design. These gendered differences may make monitoring less effective and potentially more dangerous for women in terms of potential workplace consequences. These consequences include discrimination that may not have a legal remedy and privacy violations.

Two other risks stem from femtech, a narrower slice of the biometric monitoring industry. Femtech increases the likelihood of gender discrimination by providing employers and health data clearinghouses with more specific information about women’s bodies than about men’s bodies. By transferring data collected about a worker’s fertility, pregnancy, abortion, or menopause, femtech may not only feed into existing stereotypes that hurt women at work but may also bolster them with specific details. The third threat is the potential reduction in the reasonable expectations of privacy for female workers who use certain

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1. According to Femtech Insider, the term *femtech* was coined by Ida Tin, the founder of Clue—one of the period tracking apps discussed in this Article—in the course of her discussions with investors. Kathrin Folkendt, “So What Is Femtech, Anyways?!” , FEMTECH INSIDER (Sept. 5, 2019), <http://femtechinsider.com/what-is-femtech> [https://perma.cc/TNN4-MNMT].

2. Throughout this Article, I use the term *woman* primarily to refer to cisgender women rather than transgender women. This distinction is not meant to diminish the concerns of trans women, but rather to recognize that femtech primarily focuses on monitoring cisgender women’s bodies.

kinds of femtech. By encouraging customers to share their experiences with a community of other users, some femtech companies may be making it more difficult to succeed on invasion of privacy claims under any applicable state or federal laws.<sup>3</sup> These are urgent concerns for women at work.

In light of this triple threat, this Article argues that current federal and state privacy and antidiscrimination laws do too little to curb potential misuse of women's health data. Health data collection is likely to increase in future years, fueled in part by a broader acceptance of health monitoring in the workplace as a consequence of the COVID-19 pandemic. To reduce gender discrimination more effectively, policymakers must enact significant changes to the laws governing the collection, distribution, and use of this data in the workplace.

This Article adds a gendered lens to the current debate over workplace monitoring. Some legal scholars have begun to investigate the perils of using biometric monitoring as part of workplace wellness programs<sup>4</sup> and have proposed solutions designed to limit the harms resulting from such monitoring. One earlier article analyzed the harms of misusing biometric and health data in the workplace and offered three possible ways to curb those harms, varying in scope.<sup>5</sup> That article explored the recent advances in both monitoring technology and personalized medicine that increase the range and accessibility of employees' biometric and health data now available to employers as well as the ways in which employers might put that data to use. It examined the ways in which such data might be misused to the disadvantage of both workers and employers, the likelihood of such misuse, and its consequences both to employers and to the surveilled employees. It also described the ways in which current laws fail to protect against such misuse.

That article suggested three potential, practical regulatory and legal reforms that could protect workers against the consequences of such misuse. The most direct option is to broaden the scope of planned federal consumer data privacy legislation to encompass employee data privacy protection as well. Another option is to amend the Affordable Care Act (ACA) to clarify that neither employers nor their business associates can collect biometric and health-related data as part of even "voluntary" workplace wellness programs. The most comprehensive solution, but the one that is least politically feasible, is to decouple health insurance from employment altogether.

Although that article introduced the notion that gender bias might affect the collection and use of biometric data collection, it did not address the specific ways in which gender and other aspects of identity may influence the use of biometric data collection in the workplace, affect its accuracy, and exacerbate existing biases. As the use of biometric monitors becomes more ubiquitous in

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3. See *infra* discussion Section III.A. See generally *infra* Section III.B.

4. Elizabeth A. Brown, *Workplace Wellness: Social Injustice*, 20 N.Y.U. J. LEGIS. & PUB. POL'Y 191, 205 (2017) [hereinafter Brown, *Workplace Wellness: Social Injustice*]; Elizabeth A. Brown, *The FitBit Fault Line: Two Proposals to Protect Health and Fitness Data at Work*, 16 YALE J. HEALTH POL'Y L. & ETHICS 1, 19 (2016).

5. Elizabeth A. Brown, *A Healthy Mistrust: Curbing Biometric Data Misuse in the Workplace*, 23 STAN. TECH. L. REV. 252, 294–95 (2020) [hereinafter, Brown, *A Healthy Mistrust*].

every aspect of public and private life, and as these monitors become more expansive and intrusive in the data they provide, there is a growing need to examine the ways in which such monitoring can change our understanding of sexism, diversity, inclusiveness, health, and wellbeing in an employment context.

Femtech receives comparatively little attention from legal scholars in spite of its potential to exacerbate bias in the workplace and requires more discussion to limit the harm that may result to its users at work. Femtech presents different issues than biometric monitoring in general because of the intersection between the technological focus on women's bodies and the challenges women face based partly on their biological differences. In addition, many recent femtech innovations are prescriptive as well as descriptive, offering women suggestions about what they should be doing in light of the biometric data collected. As a result of these advisory functions, women may experience challenges in establishing that they suffered an adverse action or other legal wrong, because these functions may help justify what should be illegal discrimination by basing it on objective-looking data.

This Article focuses on a new engine of sexism, supercharged by biometric technology, to identify three ways in which women are more likely to suffer from increased biometric monitoring, including femtech. Part I describes the expansion of biometric and health data collection in the workplace, the inherent gender biases in facially neutral biometric monitoring generally, the workplace trends that incentivize their use, and the consequent risks to women. Part II describes examples of femtech that employers may offer as well as how its data may fuel gender bias and the limits of antidiscrimination laws in this respect. Part III addresses the privacy risks created by the communal aspects of some femtech platforms and the ways in which use of those platforms may weaken potential invasion of privacy claims. It also addresses the special issue of abortion privacy. Part IV explores the complications raised by trends toward more expansive health monitoring in the workplace as well as potential solutions.

## **I. BIOMETRIC MONITORING CONTRIBUTES TO GENDER BIAS IN THE WORKPLACE**

While biometric monitoring as part of workplace wellness programs is becoming more common, as described below, it is not as gender neutral as it may first appear. The potential for gender bias exists in at least two stages of biometric monitoring: the initial data collection and the algorithmic interpretation of that data. Both stages create potential disadvantages for women as compared with men, because they reduce the accuracy with which employers might draw collections based on the data collected. The commodification of health data, fueled by data clearinghouses, may accelerate the pace at which employers rely on data to make predictions about their workers. Consequently, employers are likely to make greater use of data that may be more accurate about men than women in various workplace applications in the future.

## A. The Biometric Monitoring Economy Is Growing Fast

Employers are increasingly interested in monitoring their workers' bodies. One driver of physical monitoring is workplace wellness programs, which was a \$52.8 billion industry in 2020.<sup>6</sup> Workplace wellness programs are popular in part because of the skyrocketing cost of health insurance borne by employers.<sup>7</sup> Many employers perceive that workplace wellness programs will improve the health of their workers, leading to savings down the road in terms of reduced absenteeism and lower health care costs.<sup>8</sup> This perception is sometimes accurate, although research has shown that wellness programs do not deliver the kinds of long-term improvements in worker health that employers may expect.<sup>9</sup>

Workplace wellness programs often include some form of biometric data collection. The percentage of large firms collecting biometric data from wearable devices increased 50 percent between 2017 and 2018.<sup>10</sup> Of the companies offering health benefits, 26 percent of small companies and 52 percent of large companies offer biometric screenings to their employees.<sup>11</sup> Health monitoring apps, which also collect biometric data, are another common feature of wellness program offerings.<sup>12</sup> Biometric technology itself is in an explosive growth phase. The global market for biometric technology will grow from \$14.9 billion

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6. *Corporate Wellness Market Size, Share & Trends Analysis Report by Service (Health Risk Assessment, Fitness), by End-Use, by Category, by Region, by Delivery Model, by Region, and Segment Forecasts, 2021–2028*, GRAND VIEW RSCH. (Mar. 2021), <https://www.grandviewresearch.com/industry-analysis/corporate-wellness-market> [<https://perma.cc/NG8U-VG6W>].

7. *Id.*

8. See, e.g., *The Corporate Wellness Solutions Market Is Projected to Reach USD 94.6 Billion by 2026 from USD 61.2 Billion in 2021, at a CAGR of 9.1%*, GLOBE NEWSWIRE (June 24, 2021, 4:32 AM), <https://www.globenewswire.com/news-release/2021/06/24/2252309/0/en/The-corporate-wellness-solutions-market-is-projected-to-reach-USD-94-6-billion-by-2026-from-USD-61-2-billion-in-2021-at-a-CAGR-of-9-1.html> [<https://perma.cc/S572-MXYX>].

9. See, e.g., Zirui Song & Katherine Baicker, *Effect of a Workplace Wellness Program on Employee Health and Economic Outcomes: A Randomized Clinical Trial*, 321 JAMA 1491, 1492 (2019) (finding that employees exposed to wellness programs experienced “no significant effects on clinical measures of health, health care spending and utilization, or employment outcomes after 18 months” compared with a control group); see also Damon Jones et al., *What Do Workplace Wellness Programs Do? Evidence from the Illinois Workplace Wellness Study*, 134 Q. J. ECON. 1747, 1747 (2019) (finding no “significant causal effects of treatment on total medical expenditures, other health behaviors, employee productivity, or self-reported health status after more than two years” of a comprehensive workplace wellness program).

10. KAISER FAM. FOUND., EMPLOYER HEALTH BENEFITS: 2018 ANNUAL SURVEY 198 (2018), <https://files.kff.org/attachment/Report-Employer-Health-Benefits-Annual-Survey-2018> [<https://web.archive.org/web/20210501192227/https://files.kff.org/attachment/Report-Employer-Health-Benefits-Annual-Survey-2018>].

11. *2019 Employer Health Benefits Survey*, KAISER FAM. FOUND. (Sept. 25, 2019), <https://www.kff.org/report-section/ehbs-2019-summary-of-findings/> [<https://perma.cc/47XD-3CRH>].

12. See Nancy Sansom, *New Apps Improve Employee Wellness*, CORP. WELLNESS MAG., <https://www.corporatewellnessmagazine.com/article/new-apps-improve-employee-wellness> [<https://perma.cc/F9QG-UMPH>].

in 2018 to \$42.9 billion in 2025, at a compound annual growth rate of 16.3 percent, according to recent reports.<sup>13</sup>

In wellness programs, monitoring takes place most often in the form of wearables, which monitor various aspects of the wearer's health by collecting data through sensors. For example, smart watches and phones can measure blood pressure through pulse waveform analysis by using photoplethysmography to detect changes in blood volume.<sup>14</sup> Scholars note that "a series of health parameters, such as body temperature, heart rate, ECG, and PPG can be monitored by commercial wearable products" and that "wearable [blood pressure] products will also likely be an acceptable form of health monitoring utilized by most people" as their efficacy and ease of use continues to increase.<sup>15</sup>

Many employees may accept monitoring through wearables because they are increasingly commonplace. Already, one in five Americans say that they regularly wear a smart watch or wearable fitness tracker, according to the Pew Research Center.<sup>16</sup> Women are more likely than men to say that they use a fitness tracker, with 25 percent of women reporting such use compared with only 18 percent of men.<sup>17</sup> Analysts predict that the greater adoption of wearables other than fitness bands like the Fitbit, including "smart hearables and smart shoes," will prompt sales of 260 million units in 2023 and result in a market worth close to \$30 billion.<sup>18</sup>

Insurers are using remote biometric monitoring more broadly as well. Kaiser Permanente, for example, is expanding its use of smartwatches to track the progress of members who are recovering from cardiac events.<sup>19</sup> The watches send users reminders to exercise and take medication, show Kaiser Permanente how often the members engage in these activities, and record data including pulse and steps taken.<sup>20</sup> This exemplifies an overall change in healthcare delivery toward a greater integration of monitoring and remote data collection. According to a 2019 study by Spyglass Consulting, 88 percent of surveyed health

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13. Chris Burt, *Global Biometrics Revenues to Approach \$43B by 2025: Market Research Briefs*, BIOMETRIC UPDATE (Nov. 28, 2019), <https://www.biometricupdate.com/201911/global-biometrics-revenues-to-approach-43b-by-2025-market-research-briefs> [<https://perma.cc/7B3B-BHTW>].

14. See Mohamed Elgendi et al., *The Use of Photoplethysmography for Assessing Hypertension*, NPJ DIGIT. MED., art. 60, June 26, 2019, at 1, 1.

15. *Id.* at 8.

16. Emily A. Vogels, *About One-in-Five Americans Use a Smart Watch or Fitness Tracker*, PEW RSCH. CTR. (Jan. 9, 2020), <https://www.pewresearch.org/fact-tank/2020/01/09/about-one-in-five-americans-use-a-smart-watch-or-fitness-tracker/> [<https://perma.cc/B5MB-HA4U>].

17. *Id.*

18. *Optimistic Outlook for Wearables: 260 Million Unit Sales in 2023*, CCS INSIGHT (Mar. 20, 2019), <https://www.ccsinsight.com/press/company-news/optimistic-outlook-for-wearables/> [<https://perma.cc/4J5T-6NEB>].

19. Agam Shah, *Kaiser Permanente Bets on Smartwatches to Lower Costs*, WALL ST. J. (Jan. 9, 2020, 5:30 AM), <https://www.wsj.com/articles/kaiser-permanente-bets-on-smartwatches-to-lower-costs-11578565801> [<https://perma.cc/HR7A-XTVP>].

20. *Id.*

care providers are already investing in or evaluating investments in remote patient monitoring technologies.<sup>21</sup>

In addition to using biometric monitoring in wellness programs, employers collect data to improve productivity and safety in the workplace. Amazon has two patents for a wristband monitor that tracks an employee's movements, providing haptic feedback that can, among other things, signal to the employee that she is moving toward the wrong bin in a warehouse.<sup>22</sup> Amazon says that this invention monitors performance and streamlines tasks like order fulfillment.<sup>23</sup> Employers also use biometric monitors to improve workplace safety, presumably to help reduce the costs associated with worker injuries. In one Pennsylvania warehouse, workers wear monitors the size of a smartphone attached to their chests by a harness.<sup>24</sup> These monitors, made by StrongArm, track the workers' movements and provide feedback to their employer. The employer uses this feedback to help reduce the workers' chances of injury. Several large corporations, including WalMart, General Electric, Heineken, and Toyota, use or used StrongArm monitors on at least some of their workers.<sup>25</sup> StrongArm asserts that it does not track individual worker productivity and that its monitors are not used to punish workers,<sup>26</sup> although it is not clear whether StrongArm can control how its clients use the monitors' data. StrongArm reportedly advised one client to move some workers to a slower conveyor belt and to hire other workers who "proved themselves" based on data its monitors collected.<sup>27</sup>

## **B. Facially Neutral Biometric Monitoring Disproportionately Hurts Women**

Although many forms of biometric monitoring such as pulse or sleep tracking appear gender neutral, their application in the workplace may harm women more than men because of gender-linked differences in their collection and interpretation. Biometric monitoring is not unique in this way. There is a growing awareness of the ways in which technology is biased against women as well as the ways such biases cause harm.<sup>28</sup> For example, a 2019 study conducted at the University of Virginia found that despite advanced automotive technology, the

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21. Gregg Malkary, *Trends in Remote Patient Monitoring 2019*, SPYGLASS CONSULTING (Oct. 2019), [http://www.spyglass-consulting.com/wp\\_RPM\\_2019.html?mod=article\\_inline](http://www.spyglass-consulting.com/wp_RPM_2019.html?mod=article_inline) [https://perma.cc/2RR5-F4ZC].

22. Ceylan Yeginsu, *If Workers Slack Off, the Wristband Will Know. (And Amazon Has a Patent for It)*, N.Y. TIMES (Feb. 1, 2018), <https://www.nytimes.com/2018/02/01/technology/amazon-wristband-tracking-privacy.html> [https://perma.cc/9SPY-RANL].

23. U.S. Patent No. 9,881,276 (filed Mar. 28, 2016).

24. Joshua Brustein, *Warehouses Are Tracking Workers' Every Muscle Movement*, BLOOMBERG (Nov. 5, 2019, 2:00 AM), [https://www.bloomberg.com/news/articles/2019-11-05/ami-being-tracked-at-work-plenty-of-warehouse-workers-are?utm\\_source=url\\_link](https://www.bloomberg.com/news/articles/2019-11-05/ami-being-tracked-at-work-plenty-of-warehouse-workers-are?utm_source=url_link) [https://perma.cc/3RF5-GAKE].

25. *Id.*

26. *Id.*

27. *Id.*

28. See generally Lori Andrews, *The Technology Enterprise: Systemic Bias Against Women*, 9 U.C. IRVINE L. REV. 1035 (2019).

risk of injury for women wearing seatbelts in a frontal car crash is 73 percent higher than the risk for men wearing seatbelts.<sup>29</sup> Researchers have pointed to the gender differences in crash test dummies as one exacerbating factor, because no dummy takes into account the biological differences between women's and men's bodies.<sup>30</sup>

### 1. *Gender Affects the Collection of Data*

The collection of biometric data itself may be subject to gender differences because of the way monitors are designed. The development of "smart" work clothing increases the range of wearable sensors that might collect data in the workplace. Workwear of the future may embed sensors, reminders, and even displays that can change color based on the wearer's mood as detected by galvanic skin response.<sup>31</sup>

The wearables themselves could exacerbate potential gender data bias. Although most wearables are marketed as gender neutral, many of them are designed for men's bodies. These include sensor-enhanced jackets that fit men's torsos but are too large for most women,<sup>32</sup> smart glasses or virtual reality headsets whose lenses cannot accurately track the gaze of a person wearing mascara,<sup>33</sup> and smartwatches that are too big for women's wrists.<sup>34</sup> Similarly, facial recognition technology identifies men's faces well, but sometimes has trouble identifying the faces of women of color.<sup>35</sup> Even the smart clothing modeled at the Consumer Technology Association's (CES's) Wearable Tech Summit designed to promote "intelligent wearable strength" was shown on a male model, further signifying the implicit association of work-centric wearables with the male body.<sup>36</sup>

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29. Fariss Samarrai, *Study: New Cars Are Safer, But Women Most Likely to Suffer Injury*, UVATODAY (July 10, 2019), <https://news.virginia.edu/content/study-new-cars-are-safer-women-most-likely-suffer-injury> [<https://perma.cc/Y3ZW-GUPX>].

30. Keith Barry, *Making Cars Safer for Women*, CONSUMER REPS., Feb. 2020, at 52, 53.

31. Ray A. Smith, *Work Clothes, Reimagined for an Age of Wearable Tech*, WALL ST. J. (Jan. 2, 2020, 11:04 AM), <https://www.wsj.com/articles/work-clothes-reimagined-for-an-age-of-wearabl-e-tech-11577981068> [<https://perma.cc/AD6A-P7CS>].

32. See Adi Robertson, *Building for Virtual Reality? Don't Forget About Women*, VERGE (Jan. 11, 2016, 3:07 PM), <https://www.theverge.com/2016/1/11/10749932/vr-hardware-needs-to-fit-women-too> [<https://perma.cc/34CS-24CD>].

33. *Id.*

34. See Kat Ely, *The World is Designed for Men*, MEDIUM (Sept. 8, 2015), <https://medium.com/hh-design/the-world-is-designed-for-men-d06640654491> [<https://perma.cc/PX98-4S5Z>].

35. Tom Simonite, *Photo Algorithms ID White Men Fine—Black Women, Not So Much*, WIRED (Feb. 6, 2018, 6:21 PM), <https://www.wired.com/story/photo-algorithms-id-white-men-fine-black-women-not-so-much/> [<https://perma.cc/BW4S-WZYS>]. In June 2020, Microsoft, IBM, and Amazon announced that they would no longer sell their facial recognition technology to police departments in light of the potential impact that these technologies could have on racial profiling. Jay Greene, *Microsoft Won't Sell Police Its Facial-Recognition Technology, Following Similar Moves by Amazon and IBM*, WASH. POST (June 11, 2020, 2:30 PM), <https://www.washingtonpost.com/technology/2020/06/11/microsoft-facial-recognition/> [<https://perma.cc/49JQ-AV33>].

36. See *Video*, SEISMIC, [https://www.myseismic.com/wp-content/uploads/2018/09/SEISMIC\\_FINA\\_720L.mp4](https://www.myseismic.com/wp-content/uploads/2018/09/SEISMIC_FINA_720L.mp4) [<https://perma.cc/3KWR-KQQS>].

One exception to the male-focused trend of sensor-embedded clothing is the mood-reflecting sweater developed by Sensoree, a San Francisco-based startup. Sensoree's products promote what the company calls "extimacy," or externalized intimacy, by reflecting the wearer's emotions to the outside world.<sup>37</sup> Its Mood Sweater features a relaxed turtleneck collar that lights up and changes color based on changes in the electrical characteristics of the skin associated with stress, pleasure, and other feelings as detected by feedback sensors attached to the wearers' hand. Most of the models shown on the Sensoree "shoppe" website are female.<sup>38</sup> This is not surprising, given persistent tropes that women are more likely to express emotion. Because displays of emotion are traditionally unwelcome in many workplaces, using clothing to project such emotions in the workplace of the future might put women at an even greater disadvantage.

## 2. Biometric Monitor Research Rests on Gender-Biased Data

One of the leading makers of "smart clothing," Hexoskin, claims that its "Smart Shirts are clinically validated to continuously track cardiac, respiratory, sleep, and activity data."<sup>39</sup> The clinical validation on which Hexoskin relies for that statement appears to rest on research conducted mainly on men. The "research" tab on the Hexoskin website links to various studies, the first three of which tested the Hexoskin on men alone. These include a 2017 study of heart rate monitoring effectiveness conducted using only male subjects,<sup>40</sup> a 2017 study of ventilatory response monitoring conducted using only male subjects,<sup>41</sup> and a 2019 master's thesis on remote vital signs monitoring using only male subjects.<sup>42</sup> Interestingly, the only research involving Hexoskin using both male and female subjects found a gender difference in aerobic power, noting that women had faster VO<sub>2</sub> dynamics, or oxygen uptake, during exercise than men.<sup>43</sup> This study, the researchers noted, reached the opposite conclusion from earlier

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37. *Mood Sweater*, SENSOREE, <http://moodswearer.com/#panel1> [https://perma.cc/6JUY-F5RT].

38. *Id.*

39. HEXOSKIN, <https://www.hexoskin.com/> [https://web.archive.org/web/20200621221849/https://www.hexoskin.com/].

40. Chady Al Sayed et al., *Validation of a Wearable Biometric System's Ability to Monitor Heart Rate in Two Different Climate Conditions under Variable Physical Activities*, 6 E-HEALTH TELECOMM. SYS. & NETWORKS 19, 19 (2017).

41. Sara Abdallah et al., *Validation of Hexoskin Biometric Technology to Monitor Ventilatory Responses at Rest and During Exercise in COPD*, Eur. Respiratory Soc'y Int'l Cong. (Sept. 10, 2017) (thematic poster presented at the conference). For an abstract of the conference poster, see S. Abdallah, *Validation of Hexoskin Biometric Technology to Monitor Ventilatory Responses at Rest and During Exercise in COPD*, E-LEARNING RES. (Sept. 10, 2017), <https://www.ers-education.org/lr/show-details/?idP=183909> [https://perma.cc/HSJ6-NLR3].

42. See Mostafa Alizadeh, *Remote Vital Signs Monitoring Using a mm-Wave FMCW Radar* 71 (2019) (M.S. thesis, University of Waterloo), [https://uwspace.uwaterloo.ca/bitstream/handle/10012/14392/Alizadeh\\_Mostafa.pdf?sequence=3&isAllowed=y](https://uwspace.uwaterloo.ca/bitstream/handle/10012/14392/Alizadeh_Mostafa.pdf?sequence=3&isAllowed=y) [https://perma.cc/RG7V-ELYZ].

43. Thomas Beltrame, *Prediction of Oxygen Uptake and Its Dynamics by Wearable Sensors During Activities of Daily Living* 206, 221–22 (2016) (Ph.D. thesis, University of Waterloo), [https://uwspace.uwaterloo.ca/bitstream/handle/10012/11133/Beltrame\\_Thomas.pdf?sequence=3&isAllowed=y](https://uwspace.uwaterloo.ca/bitstream/handle/10012/11133/Beltrame_Thomas.pdf?sequence=3&isAllowed=y) [https://perma.cc/7SCE-4DPD].

research on gender-linked differences in aerobic power. This suggests that it may be wise to consider gender differences in monitoring and in drawing conclusions about physical performance. It is not clear that Hexoskin does so. While Hexoskin makes sensor-laden shirts designed for women, the only differences in design from the men's shirts appear to be the inclusion of shoulder strap adjusters and a built-in, single-size bra.<sup>44</sup> It does not appear to account for women's physical differences in any other way.

### 3. Gender Bias Extends to Algorithms Interpreting Data

The algorithms used to interpret the data that monitors collect are another source of bias and potential inaccuracy. Algorithmic bias stems from the fact that men and women often experience the same physical symptoms at different rates, under different conditions, and for different reasons. Yet, algorithms are not likely to differentiate based on gender. As Caroline Criado Perez points out in her book, *Invisible Women: Data Bias in a World Designed for Men*, standard algorithms routinely exclude women's differences in a wide range of data sets.<sup>45</sup> These exclusions could affect the accuracy of predictions about employee health, based on biometric data collection at work. Such algorithms are based on studies done on young Caucasian men, and do not accurately represent women.<sup>46</sup> Women have higher rates of work-related stress, anxiety, and depression.<sup>47</sup> Data suggesting anxiety in a man can be predictors of a condition such as fibroids in a woman.<sup>48</sup> Working moderately long hours can have a different health effect on men than on women. Women are also more likely to develop heart disease and cancer when they work more than forty hours a week, while men who work between forty-one and fifty hours a week are less likely to suffer from heart disease, chronic lung disease, or depression.<sup>49</sup> Gender-related differences also exist in the presentation and likely outcome of Parkinson's disease,

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44. See *Hexoskin ProShirt-Women's*, HEXOSKIN, <https://www.hexoskin.com/collections/hexoskin-shirts-1/products/hexoskin-proshirt> [https://perma.cc/44NG-KDH6].

45. CAROLINE CRIADO PEREZ, *INVISIBLE WOMEN: DATA BIAS IN A WORLD DESIGNED FOR MEN* 167 (2019); see also Michele Estrin Gilman, *Feminism, Privacy and Law in Cyberspace*, in *THE OXFORD HANDBOOK OF FEMINISM AND THE LAW IN THE UNITED STATES* (Deborah L. Brake et al. eds., forthcoming 2021) (manuscript at 19), <https://ssrn.com/abstract=3779323> (observing that gender bias in data collection contributes to gender bias in algorithmic data analysis).

46. CRIADO PEREZ, *supra* note 45, at 116 (suggesting that "Caucasian men aged twenty-five to thirty, who weigh 70kg," are a "Reference Man" who is intended to "represent humanity as a whole").

47. *Id.* at 73; HEALTH & SAFETY EXEC., *WORK RELATED STRESS DEPRESSION OR ANXIETY STATISTICS IN GREAT BRITAIN 6* (2020), [http://www.hse.gov.uk/statistics/causdis/stress.pdf?utm\\_source=govdelivery&utm\\_medium=email&utm\\_campaign=digest-8-nov-18&utm\\_term=report&utm\\_content=stress-stats](http://www.hse.gov.uk/statistics/causdis/stress.pdf?utm_source=govdelivery&utm_medium=email&utm_campaign=digest-8-nov-18&utm_term=report&utm_content=stress-stats) [https://perma.cc/WQ5K-JN33].

48. See Tara Culp-Ressler, *When Gender Stereotypes Become a Serious Hazard to Women's Health*, THINKPROGRESS (May 11, 2015, 12:00 PM), <https://thinkprogress.org/when-gender-stereotypes-become-a-serious-hazard-to-womens-health-flf130a5e79/> [https://perma.cc/3VN9-4AW8] (describing the experience of a woman whose symptoms were repeatedly diagnosed as anxiety before she demanded an ultrasound revealing potentially fatal uterine fibroids requiring surgery).

49. Allard E. Dembe & Xiaoxi Yao, *Chronic Disease Risks from Exposure to Long-Hour Work Schedules Over a 32-Year Period*, 58 J. OCCUPATIONAL & ENV'T. MED. 861 (2016).

stroke, and brain ischemia as well as in the workings of the heart, lungs, and every human tissue and organ system.<sup>50</sup>

Recent studies confirm that biomedical research continues to exclude and underserve women.<sup>51</sup> The consequences of these differences for women in the workplace are extensive. If the algorithms used to interpret data from biometric monitors ignore gender-linked differences, as this research suggests, then the interpretation of that data will reflect what is going on in male bodies more accurately than in female bodies. What is presented as a universal standard will be a more reliable reflection of men's health than of women's health.

Because of these gendered differences in the collection and interpretation of data from workplace monitoring, women are more likely to have their health data interpreted inaccurately. Employers who believe that they are assessing their workers fairly may be unaware of these differences and the potentially damaging impacts that these facially neutral assessments may have on female workers.

### **C. The Commodification of Health Data Increases the Risks of Employer Misuse**

The harms of these hidden gender differences in biometric data collection will worsen as more employers rely on such data. Three trends make it increasingly easier for employers to do so: (1) the growth of health care clearinghouses and analytics companies; (2) the acquisition of health data aggregators by Apple and Google; and (3) the increasing portability of health data.

Many new companies act as intermediaries between employers and workers to centralize, filter, and manage health data collection. One such company, Castlight, offers a customized worker interface that “securely analyzes claims data, HRA data, biometric data, and more to develop the most accurate picture possible.”<sup>52</sup> The interface sends notifications to “motivate[] users to participate in health programs, optimize care utilization, and improve their daily habits.”<sup>53</sup> Its “digital health ecosystem” offers employers the option to connect a range of health vendors through a single platform.<sup>54</sup> The platform centralizes the employers' ability to track, or help, workers with tobacco cessation, weight management, mental health, “condition management,” heart health, musculoskeletal health, weight coaching, maternal health, “resilience,” nutrition, sleep, and “lifestyle tracking.”<sup>55</sup> While this system may benefit both employers and workers,

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50. See generally CRIADO PEREZ, *supra* note 45, at 72, 167 (noting the “well-documented and chronic gaps in medical data when it comes to women”).

51. See Nicole C. Weitowich et al., *Meta-Research: A 10-Year Follow-Up Study of Sex Inclusion in the Biological Sciences*, *ELIFE* (June 9, 2020), <https://elifesciences.org/articles/56344> [<https://perma.cc/2ZFK-3ZUH>].

52. *How It Works*, CASTLIGHT, <https://www.castlighthealth.com/how-it-works/> [<https://web.archive.org/web/20200409070958/https://www.castlighthealth.com/how-it-works/>].

53. *Id.*

54. See *Ecosystem*, CASTLIGHT, <https://www.castlighthealth.com/ecosystem/> [<https://web.archive.org/web/20200623185401/https://www.castlighthealth.com/ecosystem/>].

55. *Id.*

the wide scope of data collection that Castlight facilitates makes it easier for employers to collect and use such data in the workplace. Employers may use that data to identify workers with certain expensive health conditions, who may then be first in line for reductions in force.

Castlight may, for example, mine employee health data to determine what percentage of employees are pregnant or trying to become pregnant. It developed a product that predicts which employees might get pregnant based on scans of insurance claims and fertility-related searches on its health app.<sup>56</sup> Castlight's chief research and development officer explained to the *Wall Street Journal* that the employee could then start receiving targeted messaging.<sup>57</sup> If the identified employee is female, based on her age and possibly on the ages of her children, Castlight would send the employee advice about prenatal care and how to select an obstetrician.<sup>58</sup>

A second factor is the aggregation of health data, in which some of the largest corporations are investing. Apple and Google are expanding their collection and centralization of health data, aided by the collection of health data through the Apple Watch and Fitbit devices, respectively. Apple's expansion of health data collection includes an effort to incentivize people to use their Apple Watch at the gym. In early 2020, it launched Apple Watch Connected, a program in partnership with Orangetheory, YMCA, Crunch Fitness, and Basecamp Fitness to offer perks for Apple users who record their gym activity through specialized apps.<sup>59</sup>

Google's acquisition of Fitbit reflects a similar expansion of health data collection. In November 2019, Google announced that it was buying Fitbit for \$2.1 billion and noted that the global reach and resources Google offered was part of Fitbit's interest in the sale.<sup>60</sup> Two weeks earlier, Google was found collecting the health histories of millions of Americans, in a partnership with the largest nonprofit health system in the United States called Project Nightingale.<sup>61</sup> Through the acquisition of Fitbit, Google expanded its access to data, increasing its unprecedented power to share the data as it sees fit.

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56. Rachel Emma Silverman, *Bosses Tap Outside Firms to Predict Which Workers Might Get Sick*, WALL ST. J. (Feb. 17, 2016, 7:58 PM), <https://www.wsj.com/articles/bosses-harness-big-data-to-predict-which-workers-might-get-sick-1455664940> [<https://perma.cc/9KJ6-AMYP>].

57. *Id.*

58. *Id.*

59. I. Bonifacic, *Apple Watch Connected Program Rewards You for Wearing It to the Gym*, ENGADGET (Jan. 23, 2020), <https://www.engadget.com/2020/01/23/apple-watch-connected-gym-partnerships/> [<https://perma.cc/96C6-WCWR>].

60. Press Release, Fitbit, Fitbit to be Acquired by Google (Nov. 1, 2019), <https://investor.fitbit.com/press-releases/press-release-details/2019/Fitbit-to-Be-Acquired-by-Google/default.aspx> [<https://perma.cc/FX8U-P8Q4>].

61. Liz Brown, *Google Is Secretively Collecting Health Data, and American Workers Should Be Worried*, QUARTZ (Nov. 26, 2019), <https://qz.com/work/1755466/googles-access-to-health-data-should-worry-american-workers/> [<https://perma.cc/5M34-85SC>].

Another powerful synthesis occurred when Apple announced its first partnership with a federal agency, the Department of Veterans Affairs, enabling veterans to access their health records on iPhones.<sup>62</sup> Apple provides these records by partnering with more than 400 health systems in addition to the hundreds of Veterans Affairs hospitals and clinics that make up the country's largest medical system.<sup>63</sup> These health records include data that Apple gathers from health-tracking apps, which Apple facilitated in 2018 by making a Health Records application programming interface (API) available to developers and researchers.<sup>64</sup> Such government partnerships may help Apple convince other users that the health data Apple aggregates is secure.<sup>65</sup>

A third factor increasing the potential for employer misuse of health data is a new openness to increased portability of health data. In March 2020, a new rule made it easier for patients to provide access to their health records to others. This rule, issued by the Department of Health and Human Services (DHHS), makes some medical records less private as part of the 21st Century Cures Act.<sup>66</sup> The changes make medical records accessible through APIs, which in turn make it easier for app developers to build health-focused apps that make use of the data. In 2019, over two dozen healthcare organizations and technology companies urged the DHHS to finalize rules that would allow API access to patient health records.<sup>67</sup> Doug Fridsma, CEO of the American Medical Informatics Association, described the draft rules as "what's going to define health information exchange and the health IT space for the next five to 10 years."<sup>68</sup>

Health data collection is often described misleadingly as a depersonalized process. It is incorrect to assume that data stripped of personally identifying information, such as the user's name or email address, cannot subsequently be tracked back to an individual user. When those data are combined with other unique data, such as the user's geographic location or contacts, it is possible to

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62. Christina Farr, *Apple Opens up Its Health Records Service to Veterans with iPhones*, CNBC (Nov. 6, 2019, 12:57 PM), <https://www.cnbc.com/2019/11/06/apple-opens-up-its-health-records-service-to-veterans-with-iphones.html> [<https://perma.cc/4ZFU-9VDA>].

63. *Id.*

64. *Apple Opens Health Records API to Developers*, APPLE (June 4, 2018), <https://www.apple.com/newsroom/2018/06/apple-opens-health-records-api-to-developers/> [<https://perma.cc/ZYF8-VJSQ>].

65. Farr, *supra* note 62.

66. See Press Release, U.S. Dep't of Health & Hum. Servs., HHS Finalizes Historic Rules to Provide Patients More Control of Their Health Data (Mar. 9, 2020), <https://www.hhs.gov/about/news/2020/03/09/hhs-finalizes-historic-rules-to-provide-patients-more-control-of-their-health-data.html> [<https://perma.cc/D6ZL-KVH7>].

67. See Letter from Aledade et al. to Russell Vought, Acting Dir., U.S. Off. Mgmt. & Budget, & Alex Azar, Sec'y, U.S. Dep't Health & Hum. Servs. (Jan. 30, 2020), <https://www.pewtrusts.org/-/media/assets/2020/01/multistakeholder-letter-to-omb-hhs-on-apis-final-1302020.pdf> [<https://perma.cc/J373-YTCD>].

68. Mike Miliard, *Interoperability: Do We Have the Value Proposition Upside Down?*, HEALTHCARE IT NEWS (Apr. 10, 2019, 3:05 PM), <https://www.healthcareitnews.com/news/interoperability-do-we-have-value-proposition-upside-down> [<https://perma.cc/6VVN-YNPF>].

reidentify data that have been previously deidentified.<sup>69</sup> As more and more companies collect data from individual users, reidentification will become increasingly effective and commonplace.<sup>70</sup> The increasing aggregation of health data makes reidentification easier because there are a greater number of data points to combine. It may be even easier to de-aggregate femtech data given the gender and age specificity of likely users.

## II. FEMTECH DATA TRACKING MAY EXPAND AND EXACERBATE GENDER DISCRIMINATION AT WORK

Employers also have an increasing range of ways to access data about women's reproductive health. One is engaging benefits providers that focus on fertility and reproductive health. Another is providing femtech apps and monitors as part of a broader workplace wellness program. Both offer valuable services to working women and their families. Femtech apps may also have troubling consequences for the women who opt into them. If employers can identify which of their employees are using these services and associate the data with individuals, the risks of bias and discrimination increase. Existing antidiscrimination laws do too little to protect women employees from such bias and discrimination, as explained further below.

### A. Sexist Assumptions and Stereotypes Limit Opportunities for Women

To understand the potential impact of femtech data in the workforce, it is helpful first to note how prevalent sexism is in the workplace. Women are made to feel inferior through patronizing treatment, hostile behavior, ridicule, ostracism, exclusion, and work sabotage.<sup>71</sup> These forms of nonsexual hostility are much more common than unwanted sexual overtures.<sup>72</sup> Judges, however, often resist ruling that women have experienced harassment "because of sex" where the conduct at issue was driven by sexism and stereotyping.<sup>73</sup>

Many scholars consider sexism to be the root cause of sexual harassment. In an open letter on sexual harassment, Professor Vicki Schultz, on behalf of several leading discrimination law scholars, posited that harassment has more to do with reinforcing gendered status than with sexual desire or sexuality.<sup>74</sup>

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69. See Daniel Kondor et al., *Towards Matching User Mobility Traces in Large-Scale Datasets*, 6 IEEE TRANSACTIONS ON BIG DATA 714 (2020), <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8470173>.

70. *Id.*

71. Vicki Schultz, *Open Statement on Sexual Harassment from Employment Discrimination Law Scholars*, 71 STAN. L. REV. ONLINE 17, 19–20 (2018), <https://review.law.stanford.edu/wp-content/uploads/sites/3/2018/06/71-Stan.-L.-Rev.-Online-Schultz-2.pdf> [<https://perma.cc/6XQP-ET4Y>].

72. See CHAI R. FELDBLUM & VICTORIA A. LIPNIC, U.S. EQUAL EMP. OPPORTUNITY COMM'N, SELECT TASK FORCE ON THE STUDY OF HARASSMENT IN THE WORKPLACE (2016), [https://www.eeoc.gov/eeoc/task\\_force/harassment/upload/report.pdf](https://www.eeoc.gov/eeoc/task_force/harassment/upload/report.pdf) [<https://perma.cc/2K3M-MMRL>].

73. Vicki Schultz, *Reconceptualizing Sexual Harassment*, 107 YALE L.J. 1683, 1749–55 (1998) (discussing cases in which courts failed to find that harassment occurred because of sex).

74. See generally Schultz, *supra* note 71.

Harassment reinforces sexual stereotypes and segregation by discouraging women from the workplace and confirming the idea that they do not belong there.<sup>75</sup> As the authors put it, “harassment is often less about hooking up than about putting women down.”<sup>76</sup> For that reason, some men may be inclined to use their masculine sense of self to get and keep prized work roles and may find women’s health data underscoring their sex and gender differences useful in that context.

Women who have children face additional discrimination.<sup>77</sup> Stereotypes and cost assumptions about women—and especially pregnant women and mothers—persist.<sup>78</sup> Employers perceive mothers to be less successful, while perceiving fathers to be more successful.<sup>79</sup> Discriminatory patterns emerge as soon as a woman announces her pregnancy. Women who are expecting in the workplace experience more interpersonal penalties, such as avoidance, although pregnant customers tend to be treated with more kindness.<sup>80</sup>

Women of color are also at a greater disadvantage because racism can also exacerbate sexism. Women of color are at greater risk of harassment than white women, often on the basis of both sex and race.<sup>81</sup> At the same time, women of color have a more difficult time than white women proving that they have been subject to discrimination.<sup>82</sup>

Older women may suffer further in the workplace because of common symptoms of menopause as well as the intersectional effects of ageism. According to one study, 25 percent of women will experience serious menopause symptoms.<sup>83</sup> Menopause symptoms may include forgetfulness, depression, anxiety, sleep deprivation, and cognitive impairment.<sup>84</sup> Menopause usually occurs when women are in their late forties and early fifties, and generally lasts between seven and fourteen years. These are the times when women are most likely to

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75. *Id.* at 23.

76. *Id.* at 21.

77. Eden King, *What Mothers Face at Work: Why the “Opt Out” Explanation Is Insufficient*, AM. PSYCH. ASS’N: PSYCH. SCI. AGENDA (Sept. 2015), <https://www.apa.org/science/about/psa/2015/09/mothers-work> [https://perma.cc/645C-MC7A].

78. *See id.*

79. *Id.*

80. *Id.*

81. Jennifer L. Berdahl & Celia Moore, *Workplace Harassment: Double Jeopardy for Minority Women*, 91 J. APPLIED PSYCH. 426, 432 (2006) (“Minority women were significantly more harassed than minority men, majority women, and majority men when both ethnic and sexual harassment were combined into an overall measure of harassment.”).

82. *See* Rachel Kahn Best et al., *Multiple Disadvantages: An Empirical Test of Intersectionality Theory in EEO Litigation*, 45 LAW & SOC’Y REV. 991, 1009 tbl.4 (2011) (finding in a representative sample of judicial opinions that nonwhite female plaintiffs won in only 13 percent of federal equal employment opportunity law cases, compared with 17 percent for nonwhite male plaintiffs, 35 percent for white female plaintiffs, and 36 percent for white male plaintiffs).

83. Deborah Garlick, *Menopause in the Workplace: Introducing Good Practice*, ENDOCRINOLOGIST, Spring 2019, at 16.

84. G.A. Greendale et al., *Effects of the Menopause Transition and Hormone Use on Cognitive Performance in Midlife Women*, 72 NEUROLOGY 1850, 1850–57 (2009), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2690984/pdf/6598.pdf> [https://perma.cc/X7XH-GY62].

move into top leadership positions, as the average age of a CEO is 53.46.<sup>85</sup> Yet discussing the effects of menopause at work is still taboo in most workplaces, leaving menopausal women without realistic alternatives. On one hand, they may be too afraid of embarrassment to ask their employers to make allowances for the symptoms of menopause. On the other hand, they risk losing their jobs if their symptoms become too severe.<sup>86</sup> The fact that menopause is not considered a disability under the ADA makes this more challenging, because employers have no legal obligation to make any accommodations for women experiencing these symptoms.<sup>87</sup>

Women face difficulty countering stereotypes and combating harassment when they are in the minority. This is usually the case, especially at higher levels of influence, because women are underrepresented at the highest levels of the U.S. workforce. While women make up 45 percent of employees at the largest companies in the United States, their representation decreases at senior leadership levels.<sup>88</sup> Women hold only a quarter of all C-suite positions, according to a Korn Ferry study of the largest corporations in the country.<sup>89</sup> The fact that women make up 55 percent of CHROs somewhat skews these statistics higher than they might be.<sup>90</sup> Only six percent of CEOs in the United States are women.<sup>91</sup> Interestingly, the health care industry has the lowest percentage (one percent) of female CEOs compared with all other industries.

Given the prevalence of sexism in its many forms in the workplace, it is reasonable to conclude that giving managers more information about their female employees' periods, fertility, pregnancy, and reproductive health overall may lead to greater disadvantages for women in the workplace. Even subconscious bias can have significant effects, especially when it is fed by an increasing amount of "evidence" about women's reproductive lives. Fertility benefit providers and femtech apps in wellness programs are both likely to provide just that kind of data.

## **B. Fertility Benefit Providers Provide Support to Employees and Data to Employers**

Employers offer increasingly sophisticated benefits relating to fertility and reproductive health, often as part of workplace wellness programs<sup>92</sup> or through

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85. Jeneva Patterson, *It's Time to Start Talking About Menopause at Work*, HARV. BUS. REV. (Feb. 24, 2020), <https://hbr.org/2020/02/its-time-to-start-talking-about-menopause-at-work> [<https://perma.cc/S8D2-YUVA>].

86. Garlick, *supra* note 83.

87. See discussion of *Sipple v. Crossmark Inc.* *infra* Section II.E.

88. Jane Stevenson & Dan Kaplan, *Women C-Suite Ranks Nudge Up—a Tad*, KORN FERRY, <https://www.kornferry.com/insights/articles/women-in-leadership-2019-statistics> [<https://perma.cc/5YUQ-QCQL>].

89. *Id.*

90. *Id.*

91. *Id.*

92. Charles Bens, *What Is Workplace Wellness, Really?*, CORP. WELLNESS MAG., <https://www.corporatewellnessmagazine.com/article/workplace-wellness-really> [<https://perma.cc/59TV-QHMB>].

service providers. The provision of fertility benefits is an expanding sector. Progyny, a company that manages fertility benefits for employees at large companies, experienced a 118 percent growth in revenue between 2018 and 2019.<sup>93</sup> That immense growth is partly due to Progyny's expansion into emotional support for users with infertility. In 2018, Progyny introduced a new benefit for members consisting of a dedicated portal and a "digital emotional support tool."<sup>94</sup> Through this tool, Progyny offers "interactive mindfulness exercises you can do with your partner, as well as science-based games and activities to ease your mind."<sup>95</sup> The emotional support tool also provides "community forums where you can give and receive support from other members."<sup>96</sup> In addition, Progyny connects members with "their very own Patient Care Advocate (PCA)," who "acts as a private resource for discussing all things fertility," including providing "emotional support."<sup>97</sup> In short, Progyny encourages employees to engage with staff, online tools, and community members for emotional support relating to fertility issues.

Fertility benefit providers like Progyny appeal to employers directly by emphasizing how its services help employees. To employers, Progyny emphasizes that this emotional support is as important as financial support. It warns employers that fertility "[t]reatments are emotionally and physically exhausting. Many employees abandon their dreams of becoming parents because the financial, emotional and physical toll is just too high."<sup>98</sup>

While employers may have altruistic purposes for providing these benefits, they may have other motives as well. Consider what an employer might do with the information that some of its employees are seeking infertility treatment, which the employer believes to be emotionally and physically draining. Could the employer use this information, even subconsciously, against those employees? Might those employees be less likely to receive more challenging assignments, which could help them get promotions in the future? Should the employees have an expectation of privacy about their infertility treatments when their employer has engaged a provider like Progyny? While it is possible that some antidiscrimination laws, discussed below, may protect those employees at least in theory, it is prudent to ask what risks increase with the rise of employer-sponsored access to providers like Progyny, especially as these providers develop more extensive interactions with employees.

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93. Heather Landi, *Progyny Brings in \$9.6M in Profits but Misses Wall Street Estimates*, FIERCE HEALTHCARE (Mar. 6, 2020, 8:23 AM), <https://bit.ly/2TGeqqY> [<https://perma.cc/PRQ2-S6U5>].

94. *Id.*

95. *Progyny Difference*, PROGYNY, <https://progyny.com/for-employees/progyny-difference/> [<https://perma.cc/49G9-GSSL>].

96. *Id.*

97. *Id.*

98. *Fertility Challenges and Your Employees*, PROGYNY, <https://progyny.com/for-employers/fertility-challenges-and-your-employees/> [<https://perma.cc/UAG5-JSU4>].

### C. Femtech Collects Wide-Ranging Data on Women's Reproductive Health

Employers may also access gender-linked information about their employees through apps and monitors designed for women. Femtech includes a wide range of technology, including app-based trackers, sensor-laden monitors, and connected software that collect and provide information about all aspects of women's health.<sup>99</sup> Many femtech companies are among the minority of women-led start-ups attracting significant investment.<sup>100</sup> Some femtech innovations are breathtaking. One innovation making headlines is a "smart tampon" that can help diagnose endometriosis, cervical cancer, and other disorders. This tampon, developed by the startup Nextgen Jane, uses menstrual blood to detect abnormalities correlated with these diseases, which gynecologists often diagnose too late.<sup>101</sup> Another is a wearable 3D breast ultrasound scanner that can fit inside a bra to provide better scanning and lesion location and earlier breast cancer diagnosis.<sup>102</sup>

Most femtech apps focus on the aspects of women's health linked to reproduction, including menstruation, fertility, pregnancy, and menopause. Employers are valuable customers, providing access to far more end users than direct marketing could reach. Several femtech providers appeal directly to employers, emphasizing the retention and recruitment benefits of their services. Ovia, for example, appeals to firms by noting that "a changing workforce is demanding more from employers."<sup>103</sup> It offers a customizable interface that provides "[a]lerts when a potential medical or mental health issue is detected, with navigation to support" and "online monitoring with custom analytics dashboard."<sup>104</sup> In other words, employers who offer Ovia to their workers receive a dashboard about the usage of and data collected by the Ovia app.

The expansion of femtech, especially as part of workplace wellness programs, may expand the data an employer can collect about its female employees' reproductive health. Employers may be able to use femtech to identify which workers are trying to get pregnant, have miscarriages, have abortions, or are going through menopause. Employees may be unaware of the potential downsides of opting in to femtech apps, especially when the countervailing benefits of those apps is substantial.

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99. Grace Gould, *The Expert*, EVENING STANDARD (London), Apr. 11, 2019, at 31.

100. Gene Marks, *'Femtech' Startups on the Rise as Investors Scent Profits in Women's Health*, GUARDIAN (June 6, 2019, 6:00 PM), <https://www.theguardian.com/business/2019/jun/06/femtech-startups-womens-health-investors> [<https://perma.cc/H9M6-CQ GK>].

101. Dayna Evans, *What If You Could Diagnose Diseases with a Tampon?*, MIT TECH. REV. (Feb. 18, 2019), <https://www.technologyreview.com/s/612905/what-if-you-could-diagnose-endo-metriosis-with-a-tampon/> [<https://perma.cc/4SBZ-Y7TZ>].

102. *Say Hello to ATUSA*, ISONO HEALTH, <https://isonohealth.com/> [<https://perma.cc/R6C9-DVBV>].

103. *Employers*, OVIA HEALTH, <https://www.oviahealth.com/family-benefits/employers> [<https://web.archive.org/web/20200417015416/https://www.oviahealth.com/family-benefits/employers>].

104. *Id.*

The femtech market is expected to grow dramatically and could be worth \$50 billion by 2025, according to a report by Frost & Sullivan.<sup>105</sup> Analysts suggest that people spend approximately \$200 billion on femtech products each year.<sup>106</sup> Regulatory agencies have been approving digital apps for women's health issues since 2016, opening the door to expansive femtech applications in the mainstream market.<sup>107</sup> The rapid development of femtech as an industry is part of a larger trend toward more expansive body monitoring and tracking technology.

The following section provides an overview of various femtech platforms that employers may offer. Each may return data about employees that may be used in unregulated ways.

### 1. Period Tracking

A common type of femtech helps women track their menstrual cycles. In fact, some privacy advocates refer to femtech as “menstrual surveillance.”<sup>108</sup> Menstrual cycle tracking apps are the fourth most popular health app among adults<sup>109</sup> and the second most popular among adolescent girls.<sup>110</sup> Their popularity does not suffer from studies showing that they are largely unreliable. One study at Columbia University Medical Center found that more than 80 percent of the free period tracking apps available in the Apple iTunes store were inaccurate.<sup>111</sup>

Period tracking apps can generate a tremendous amount of data. One of the most popular period tracking apps, Clue, claims to have over ten million active users in more than 190 countries.<sup>112</sup> What might a company like Clue do with all that data? Clue offers to share it with researchers who are studying women's health. In fact, Clue provide funds to researchers whose proposals are accepted

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105. *Femtech: Digital Revolution in Women's Health*, FROST & SULLIVAN (2018), [https://ww2.frost.com/files/1015/2043/3691/Frost\\_Sullivan\\_Femtech.pdf](https://ww2.frost.com/files/1015/2043/3691/Frost_Sullivan_Femtech.pdf) [<https://perma.cc/RP3T-MES6>].

106. Marija Butkovic, *Top 100 Women in Fem Tech and Health Tech*, MEDIUM (Apr. 13, 2019), <https://medium.com/women-of-wearables/top-100-women-in-fem-tech-and-health-tech-34eccf021053> [<https://perma.cc/MQ83-ZQEQ>].

107. *Id.*

108. Kaitlyn Tiffany, *Period Tracking Apps Are Not for Women*, VOX: THE GOODS (Nov. 16, 2018, 12:35 PM), <https://www.vox.com/the-goods/2018/11/13/18079458/menstrual-tracking-surveillance-glow-clue-apple-health> [<https://web.archive.org/web/20210421032258/https://www.vox.com/the-goods/2018/11/13/18079458/menstrual-tracking-surveillance-glow-clue-apple-health>].

109. *Id.*; see also Susannah Fox & Maeve Duggan, *Mobile Health 2012*, PEW RES. CTR. (Nov. 8, 2012), <https://www.pewresearch.org/internet/2012/11/08/mobile-health-2012/> [<https://perma.cc/TLM5-MAQP>].

110. Tiffany, *supra* note 108; see also CTR. ON MEDIA & HUM. DEV., TEENS, HEALTH, AND TECHNOLOGY: A NATIONAL SURVEY (2015), [http://cmhd.northwestern.edu/wp-content/uploads/2015/05/1886\\_1\\_SOC\\_ConfReport\\_TeensHealthTech\\_051115.pdf](http://cmhd.northwestern.edu/wp-content/uploads/2015/05/1886_1_SOC_ConfReport_TeensHealthTech_051115.pdf) [<https://perma.cc/DA8N-Y76F>].

111. Michelle Moglia et al., *Evaluation of Smartphone Menstrual Cycle Tracking Applications Using an Adapted APPLICATIONS Scoring System*, 127 OBSTETRICS & GYNECOLOGY 1153, 1153 (2016).

112. *Clue Research Innovation Program: Call for Proposals*, CLUE (Nov. 11, 2018), <https://helloclue.com/articles/about-clue/clue-research-innovation-program-call-for-proposals> [<https://perma.cc/7TQ3-822F>].

by its Research Innovation Program.<sup>113</sup> Clue encourages users to think of themselves as helping to advance scientific progress when they track their period using the app. “When you track in Clue, you contribute to an unprecedented data set that is forwarding [sic] the understanding of female health in a new frontier of health research,” Clue enthuses.<sup>114</sup> The company promises that all of the data provided to researchers “is always stripped of identifying factors such as email, names, and IP addresses.”<sup>115</sup> At the same time, Clue makes a point of differentiating itself from competitors through its refusal to sell data outright.<sup>116</sup>

One app, MyFLO, advises women about what they should be doing at each stage of their 28-day cycle. MyFLO claims to be the “First-Ever Period Tracking App That ALSO Tells You Exactly What to Do to Be Symptom-Free!”<sup>117</sup> The app informs users about when it is the best time of the month for them to be “giving a presentation vs. brainstorming and researching.”<sup>118</sup> Based on the phase of the user’s cycle, MyFLO suggests optimal activities for the week ahead, including “work” activities, which users can add to their calendar system with a tap.<sup>119</sup> These activities presumably would be easily visible to anyone else who may share that calendar, including employers. Employers could then see which activities MyFLO recommends for specific women based on where those women are in their menstrual cycles.

This evaluative approach to menstruation tracking raises concerns about how people other than the users might use and interpret the data the app provides. If the MyFLO app provides a “functional medicine based support” to help a user “choose what’s easiest for [her] at the ideal, most optimal time for [her] brain and body,” that looks like an objective determination of how a woman’s period will affect her job performance.<sup>120</sup> For example, MyFLO’s data may suggest that a woman is at the time in her cycle when she should be “brainstorming and researching” instead of “giving a presentation.” If her employer has access to that data, her supervisor may decide to stop the user from giving an important presentation that might advance her career. Would the supervisor base that decision on gender assumptions or on objective data? Without the app, many lawyers might conclude that limiting professional opportunities for a woman based on information about her menstrual cycle is some form of gender

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113. *Id.*

114. Anna Druet, *Scientific Research at Clue*, CLUE (Mar. 27, 2018), <https://helloclue.com/articles/about-clue/scientific-research-at-clue> [<https://perma.cc/2V3Y-JPMU>].

115. *Id.*

116. Clue (@Clue), TWITTER (Feb. 26, 2020, 10:10 AM), <https://twitter.com/clue/status/1232714686682058753> [[https://web.archive.org/web/20200226184655if\\_/https://twitter.com/clue/status/1232714686682058753](https://web.archive.org/web/20200226184655if_/https://twitter.com/clue/status/1232714686682058753)] (“Clue has never and will never sell health data to anyone or any company, period.”); see also Ida Tin, *The Journey of a Single Data Point, Part III: About the Selling of Health Data*, CLUE (Feb. 20, 2020), <https://helloclue.com/articles/about-clue/about-the-selling-of-health-data-the-journey-of-a-single-data-point-part-iii> [<https://perma.cc/6NWD-LBZ4>].

117. MYFLO, <https://myftracker.com/> [<https://perma.cc/D7AJ-PBPJ>] (emphasis omitted).

118. *Id.*

119. *Id.*

120. *Id.*

discrimination. Using an app providing “medicine based support” for such decisions could give the employer a stronger and possibly more objective basis for arguing that its decision is based not on gender but on science instead.

## 2. Fertility Tracking

Other femtech companies help women become pregnant or avoid pregnancy by predicting when they are most fertile. As with period tracking apps, their popularity is undimmed by research showing that they do not work well in general. A 2016 study found that of thirty apps marketed to help women avoid pregnancy, only six accurately predicted a woman’s window of fertility.<sup>121</sup> This could constitute deceptive marketing. In 2018, the Swedish government investigated the maker of a mobile app called Natural Cycles after several women using the app for birth control purposes found themselves pregnant.<sup>122</sup>

One fertility-focused provider, Kindara, offers a “mobile app and community” designed to help users “understand” their fertility in order to become pregnant or avoid pregnancy “naturally.”<sup>123</sup> For an additional fee, users can join Kindara Premium, which enables members of a user community to see each other’s data, send direct messages, and start or join a private group.<sup>124</sup> In 2020, Kindara introduced the Priya, a “first-of-its-kind vaginal sensor designed to identify your peak fertile days to maximize your chances of getting pregnant.”<sup>125</sup> The Priya system includes a vaginal ring that provides “wireless and precise temperature tracking” by sending continuous core body temperature data from inside the user’s vagina to an app.<sup>126</sup> The app displays data showing the user’s menstrual cycle and fertile windows. As shown on the Kindara website, the Priya invites users to make notes of their own, including notes about when they have had “intercourse—unprotected” and the conditions of their cervical mucus.<sup>127</sup>

Another fertility-tracking monitor is the Ava bracelet, which tracks fertility and predicts ovulation based on the physiological parameters it monitors.<sup>128</sup> It does so by detecting key changes in the wearer including skin temperature, heart

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121. Marguerite Duane et al., *The Performance of Fertility Awareness-Based Method Apps Marketed to Avoid Pregnancy*, 29 J. AM. BD. FAM. MED. 508, 510–11 (2016).

122. Olivia Sudjic, ‘I Felt Colossally Naïve’: *The Backlash Against the Birth Control App*, GUARDIAN (July 21, 2018, 3:00 PM), <https://www.theguardian.com/society/2018/jul/21/colossally-naive-backlash-birth-control-app> [<https://perma.cc/7SQZ-ZMFA>].

123. *Ready to Listen to What Your Body Has to Say?*, KINDARA, <https://www.kindara.com/products/kindara-app> [<https://perma.cc/D4X9-A7BG>].

124. *All Your Charting Needs in One Place*, KINDARA, <https://www.kindara.com/premium?hsCtaTracking=0b8e8394-b04c-49c1-8e2a-d2520b75782a%7Ce316a053-3188-49f8-bbd0-89e84de3559d> [<https://perma.cc/9SSX-KZHY>].

125. KINDARA, <https://www.kindara.com/> [<https://perma.cc/HAJ4-Y86G>].

126. *Id.*; *Why Guess When You Can Know?*, KINDARA, <https://www.kindara.com/products/priya-sensor> [<https://perma.cc/229X-DJKP>].

127. *Why Guess When You Can Know?*, *supra* note 126.

128. *Go Beyond Ovulation*, AVA, <https://www.avawomen.com/> [<https://perma.cc/FB8F-DAWH>].

rate, respiratory rate, and skin perfusion.<sup>129</sup> Its manufacturer claims that it can detect the wearer's fertile window with 90 percent accuracy.<sup>130</sup>

An employer offering fertility tracking products through its workplace wellness program may use the data from those products to infer which of its employees are using those products. Whether the employees are trying to get pregnant or trying to avoid pregnancy may be less visible, but it is easy to imagine that an employer might assume that anyone using a Kindara or Ava device is trying to conceive. Managers who are biased against pregnant women or mothers may be more likely to make adverse employment decisions regarding those employees than they might without such access to that data.

### 3. *Pregnancy and Fetal Health Monitoring*

Another femtech sector encompasses apps and monitoring devices that track pregnancy and fetal health. Ovia is a pregnancy tracking app that some employers offer as part of their corporate wellness programs.<sup>131</sup> One employee, Los Angeles resident Diana Diller, used Ovia to help track her pregnancy, logging in to record information about her bodily functions, medications, sex drive, and mood.<sup>132</sup> Her employer also kept track of data provided to Ovia, monitoring its employees' efforts to conceive, the progression of their pregnancies, and their first months of motherhood.<sup>133</sup> That data helped it determine how many of its employees had high-risk pregnancies or premature deliveries, when they planned to return to work, and what medical questions they researched.<sup>134</sup> Diller gave her employer access to her pregnancy-related information as part of a workplace wellness program, for which she received the equivalent of \$1 a day in gift cards in exchange for her access.<sup>135</sup> Her employer paid Ovia Health, developer of the Ovia app, for access to aggregated information about the employees using Ovia, which promised to deidentify the data.<sup>136</sup>

The range of wearable fetal health monitors is expanding. Another prominent provider, Owlet, sells the Smart Sock, a sensor-embedded sock for newborns that uses pulse oximetry to track their heart rate, oxygen levels, and sleep.<sup>137</sup> It is also developing the Owlet Band for commercial sale. The Owlet Band is a wide strap that a pregnant woman wears around her belly, containing

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129. Cathy Russey, *Ava Bracelet Can Detect Changes in Physiology and Predict Fertility: Study*, WEARABLE TECHS. (Apr. 19, 2019), <https://www.wearable-technologies.com/2019/04/ava-bracelet-can-detect-changes-in-physiology-and-predict-fertility-study/> [<https://perma.cc/LD52-L7PR>].

130. *Id.*

131. Drew Harwell, *Is Your Pregnancy App Sharing Your Intimate Data with Your Boss?*, WASH. POST (Apr. 10, 2019, 12:11 PM), <https://www.washingtonpost.com/technology/2019/04/10/tracking-your-pregnancy-an-app-may-be-more-public-than-you-think/?arc404=true> [<https://perma.cc/8S35-NVFS>].

132. *Id.*

133. *Id.*

134. *Id.*

135. *Id.*

136. *Id.*

137. *Owlet Smart Sock*, OWLET, <https://owletcare.com/products/owlet-smart-sock> [<https://perma.cc/ME5G-Z6D8>].

sensors that gather thousands of samples per second—about fetal kicks, heart rate, maternal sleep positions, and the mother’s uterine contractions—and sending that data to a mobile app.<sup>138</sup> In 2019, the Owlet Band, still in its beta phase, won the award for “Best Wearable” at CES, the world’s largest consumer electronics showcase.<sup>139</sup>

A Chinese company introduced the Modoo, described as “the smallest fetus monitoring patch in the world.”<sup>140</sup> The system allows wearers to track the heart rates and movements of their fetuses.<sup>141</sup> The wearable monitor is about 1.5 inches wide and sends data to a connected mobile app.<sup>142</sup> Based on this data, the app provides suggestions about what activities the wearer should engage in.<sup>143</sup> While the Modoo website says that these suggestions might include yoga and prenatal visits, it is easy to imagine that Modoo could program the apps to provide other guidance extending to the wearer’s work life. The app might, for example, suggest that it is inadvisable for the wearer to engage in stressful activities or physically demanding activities. If an employer intercepted these directives, questions would arise about whether the employer would be ethically or legally obligated to alter the wearer’s work assignments accordingly.

#### 4. Menopause

Lisa Health is an app and symptom tracker designed to help women “make small changes to prepare for menopause.”<sup>144</sup> It invites users to complete an assessment, and offers advice, reminders, and challenges tailored to the user based on her assessment results.<sup>145</sup> Like some other femtech apps, it offers a community feature that allows users to connect with other women with similar experiences.<sup>146</sup> Unlike most other apps, however, it is easy to see the content of that communal discussion and the user names of the commenters without even registering for the site.<sup>147</sup> It is also easy to envision the potential for employer misuse of data about their female employees’ self-reported menopausal and perimenopausal experiences. Apps like Lisa Health make that potential misuse more likely.

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138. *Meet the Owlet Band*, OWLET, <https://owletcare.com/pages/band> [https://web.archive.org/web/20190709041043/https://owletcare.com/pages/band].

139. Shelby Brown, *CES 2019: Owlet Debuts Award-Winning Pregnancy Monitor Band for Expecting Moms*, CNET NEWS (Jan. 9, 2019, 12:28 PM), <https://download.cnet.com/news/ces-2019-owlet-debuts-award-winning-pregnancy-monitor-band-for-expecting-moms/> [https://web.archive.org/web/20200815085026/https://download.cnet.com/news/ces-2019-owlet-debuts-award-winning-pregnancy-monitor-band-for-expecting-moms/].

140. MODOO, <http://www.modoo-med.com/index.html> [https://perma.cc/V7UG-VJF4].

141. *Id.*

142. *Id.*

143. *Id.*

144. *How It Works*, LISA HEALTH, <https://lisahealth.com/> [https://perma.cc/JVY6-HNV4].

145. *Id.*

146. *Id.*

147. *Join the Conversation!*, LISA HEALTH, <https://lisahealth.com/community/> [https://perma.cc/5G2F-RE39].

#### D. Femtech May Give Sexism Greater Effect in the Workplace

The new remote trackability of women's reproductive functions opens up additional bases of information that employers might be able to use against women. Specifically, the increasing availability of biometric data that relates directly to women's reproductive health or is skewed because of gender bias is likely to exacerbate sexism in the workplace. If employers receive data about when a female employee has her period, has PMS, tracks her fertility, becomes pregnant, or is no longer pregnant, employers could use such data in ways that limit or harm the employee's career. Indeed, most women would consider that kind of information deeply private for any number of reasons, yet may opt in to a wellness program because of its many benefits. Even if an employer were to intend to use that data to support the employee, the risk of benevolent sexism outweighs the chances that the employee will prosper at work as a result.

It is easy to imagine the negative consequences of employer access to femtech-generated data. Employers who consciously or unconsciously believe in certain stereotypes about women, including the beliefs that women who are menstruating are distracted, that women who are trying to get pregnant are poor candidates for investment and promotion, or that mothers are less committed to their work than fathers, could use this data to act on those prejudices. A consulting firm might think twice about sending a woman experiencing bouts of severe nausea, as is commonly associated with the first two trimesters of pregnancy, on a demanding business trip that might exacerbate her symptoms. Downstream risks exist as well. If such data is linked to specific individuals, the repercussions could include decreased availability of life insurance, increased insurance rates, and increased interest rates on loans.<sup>148</sup>

Both employers and employees also should be concerned about the potential cascading effects of combining femtech monitoring with other kinds of biometric monitoring, such as emotion recognition tools. Such tools, sometimes called "emotion smart" monitors, can detect how an employee is feeling based on a number of inputs. Researchers have shown that emotion-smart monitoring systems can be used effectively to predict postpartum depression in some pregnant women.<sup>149</sup> If an employer can identify which employees are pregnant and use emotion smart monitoring, it may predict that a subset of those employees are more likely to develop postpartum depression. In theory, this could benefit employees by ensuring that they receive the appropriate resources for their health conditions. It is equally likely that such information could be used against pregnant women, who could find themselves singled out as likely candidates for postpartum depression, a health condition that is highly stigmatized for

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148. Donna Rosato, *What Your Period Tracker App Knows About You*, CONSUMER REPS., <https://www.consumerreports.org/health-privacy/what-your-period-tracker-app-knows-about-you/> [https://perma.cc/B7N3-BGWS].

149. Mário W.L. Moreira et al., *Postpartum Depression Prediction Through Pregnancy Data Analysis for Emotion-Aware Smart Systems*, 47 INFO. FUSION 23, 23 (2019).

women.<sup>150</sup> This sort of predictive health analytics takes the decision about whether to disclose depression—if, indeed, the predictions are correct—out of women’s hands. It is, at best, disempowering.

### **E. Current Laws Provide Inadequate Protection Against Health Data Misuse**

Femtech and other biometric monitoring opens up the possibility that employers will discriminate based on that health data. Existing laws are unlikely to protect women against this type of discrimination. Title VII of the Civil Rights Act prohibits discrimination on the basis of sex,<sup>151</sup> *inter alia*, but the application of Title VII in any individual case will likely involve disparate impact rather than direct discrimination. A woman who tracks her period in an effort to determine her optimal fertility may inadvertently inform her employer that she has low energy, PMS, or other symptoms as determined by the fertility tracker app she uses. Women who believe that they have been denied promotions, denied the opportunity to travel that might support a promotion, or subjected to other adverse consequences, would have to show a pattern linking that detrimental treatment with the data their employers’ access. As with many impact cases, discrimination may be difficult to prove.

The Pregnancy Discrimination Act of 1978 (PDA) may also protect an employee from some kinds of discrimination.<sup>152</sup> This law amended Title VII to specify that “sex” as a protected classification encompasses “pregnancy, childbirth, or related medical conditions,” and that employees cannot be subject to adverse employment actions on those bases.<sup>153</sup> When an employee alleges discrimination under the PDA, the burden shifts to the employer to find a reason for the employment actions at issue other than pregnancy, childbirth, or related medical conditions.<sup>154</sup> An employer can take adverse action against a woman who is losing sleep due to a pregnancy, nauseous at work, or unwilling to travel during her pregnancy if the employer can establish that it treated other people who suffered from similar conditions, but were not pregnant, the same way.

The Americans with Disabilities Act (ADA) makes it unlawful for an employer to “discriminate against a qualified individual on the basis of disability in regard to job application procedure, the hiring, advancement or discharge of employees, employee compensation . . . and other terms, conditions and privileges of employment.”<sup>155</sup> It states that a “disability” can be “a physical or mental impairment that substantially limits one or more major life activities,” “a record

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150. Kristin D. Mickelson et al., *Perceived Stigma of Postpartum Depression Symptoms in Low-Risk First-Time Parents: Gender Differences in a Dual-Pathway Model*, 76 *SEX ROLES* 306, 307 (2017) (also noting that stigma associated with postpartum depression in men is scarce).

151. Civil Rights Act of 1964, § 7, 42 U.S.C. § 2000e-2.

152. Pregnancy Discrimination Act of 1978, Pub. L. No. 95-555 (amending 42 U.S.C. § 2000e-2).

153. *Id.*

154. *Young v. UPS*, 575 U.S. 206, 229 (2015).

155. Americans with Disabilities Act of 1990, 42 U.S.C. § 12112.

of such an impairment,” or “being regarded as having such an impairment.”<sup>156</sup> The statute further provides an illustrative but not exhaustive list of major life activities, such as caring for oneself and performing manual tasks.<sup>157</sup> “Substantially limits” means being unable to perform a major life activity that the average person can perform, or being significantly restricted by the condition, manner, or duration under which a person can perform a particular major life activity as compared to the average person in the general population.<sup>158</sup>

Pregnancy alone is not a disability under the ADA. The Supreme Court held that reproduction is a major life activity and that conditions interfering with the ability to procreate are disabilities.<sup>159</sup> Infertility is a disability within the scope of the ADA. In December 2019, the EEOC issued a statement on the rescission of several earlier guidance letters, including a January 2000 letter that inaccurately stated that the EEOC had not taken a position on whether infertility was a disability as the ADA defines it. In that statement, the EEOC suggested without stating outright that it considers infertility to be a disability because it interferes with the major life activity of procreation.<sup>160</sup>

The extent to which the ADA protects workers with infertility from discrimination is unclear because the EEOC withdrew its previously issued guidance. In 2000, the EEOC issued an informal discussion letter in response to a query about whether an employer-provided group health insurance plan could limit or totally exclude fertility coverage. In that letter, the EEOC did not take a firm position, but noted that much would depend on how the plan terms were applied and whether it was being used as a “‘subterfuge’ to evade the purposes of the ADA.”<sup>161</sup> In December 2019, however, the EEOC rescinded that letter along with several other guidance documents relating to reproductive rights “as part of EEOC’s effort to provide guidance and information that is current, accurate, and clear.”<sup>162</sup>

The ADA probably does not protect women from discrimination based on the common side effects of menopause. Although the Supreme Court has not addressed this issue, lower court rulings suggest that the ADA will not protect women from discrimination on that basis. *Sipple v. Crossmark Inc.*, a 2012 case from the Eastern District of California, stemmed from Georgia Sipple’s complaint that her employer refused to accommodate her “menopausal symptoms, including ‘hot flashes,’ dizziness, migra[i]nes and a general sense of physical

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156. 42 U.S.C. § 12102(1)(A)–(C).

157. 42 U.S.C. § 12102(2)(A).

158. 29 C.F.R. § 1630.2(j).

159. *Bragdon v. Abbott*, 524 U.S. 624, 639 (1998).

160. *What You Should Know About the EEOC and Ensuring Clear and Accurate Guidance*, U.S. EQUAL EMP. OPPORTUNITY COMM’N, <https://www.eeoc.gov/wysk/what-you-should-know-about-eeoc-and-ensuring-clear-and-accurate-guidance> [<https://perma.cc/99YT-XYNP>].

161. *Definition of Disability—Infertility; Health Insurance and Other Benefits*, EQUAL EMP. OPPORTUNITY COMM’N (Jan. 11, 2000), [https://www.eeoc.gov/eeoc/foia/letters/2000/ada\\_infertility\\_benefits.html](https://www.eeoc.gov/eeoc/foia/letters/2000/ada_infertility_benefits.html) [[https://web.archive.org/web/20190416162531/https://www.eeoc.gov/eeoc/foia/letters/2000/ada\\_infertility\\_benefits.html](https://web.archive.org/web/20190416162531/https://www.eeoc.gov/eeoc/foia/letters/2000/ada_infertility_benefits.html)].

162. *EEOC Informal Discussion Letter*, U.S. EQUAL EMP. OPPORTUNITY COMM’N, <https://www.eeoc.gov/foia/eeoc-informal-discussion-letter-8> [<https://perma.cc/WNZ7-DN82>].

weakness.”<sup>163</sup> Sipple’s doctor provided her with a note asking her employer to allow Sipple some variation in its dress code to allow her to wear cooler clothing such as short-sleeved shirts and knee high skirts, but her employer refused. The court ruled that California’s Fair Housing and Employment Act (FEHA), which bars disability discrimination, among other things, did not protect Sipple from her employer’s actions.<sup>164</sup> FEHA’s disability discrimination provisions are based on the ADA, and courts interpreting FEHA often look to ADA cases for guidance in interpreting FEHA’s similar terms.<sup>165</sup> Noting that other district courts had held that menopause was not a disability under either the FEHA or the ADA, the court similarly declined to hold otherwise.<sup>166</sup> Menopause is not a disability, noted the court, but “an inevitable part of the human condition for women.”<sup>167</sup> The court did allow that certain effects of menopause might qualify as a disability if they limited a major life activity.<sup>168</sup>

In sum, existing federal antidiscrimination laws provide weak protection against the kinds of discrimination women may suffer as a consequence of increased employer access to their health data. Discrimination is not the only harm they may suffer, however, as the following Part explains.

### **III. FEMTECH MAY UNDERMINE WOMEN’S HEALTH DATA PRIVACY RIGHTS**

The third threat to women is that they will lose their rights to privacy in the information they disclose through femtech apps and online platforms. Privacy scholars express concern about the ways in which health data are commodified and the attendant risks to the subjects of biometric monitoring.<sup>169</sup> As the collection of gendered health data increases in scope and scale, the likelihood that such data will remain private to the user is decreasing.

#### **A. Femtech’s Data Sharing Practices and Communal Platforms Weaken Privacy**

Femtech undermines the privacy of women’s health data in two ways. First, their data sharing policies are often opaque. Many femtech providers offer little in the way of voluntary privacy protections, even when they claim to do so. For example, the MyFLO website says “YOUR PRIVACY IS IMPORTANT TO US. We never sell or share your data, [sic] with Facebook or any other third

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163. Memorandum & Order at 3, *Sipple v. Crossmark Inc.*, No. 2:10-cv-00570-MCE-KJM (E.D. Cal. July 6, 2012), <https://cases.justia.com/federal/district-courts/california/caedce/2:2010cv00570/204516/30/0.pdf> [<https://perma.cc/KX5L-YVJT>].

164. *Id.* at 14.

165. *Id.* at 11.

166. *Id.* at 13.

167. *Id.*

168. *Id.*

169. Brown, *A Healthy Mistrust*, *supra* note 5, at 285–94; *see also* Ifeoma Ajunwa et al., *Limitless Worker Surveillance*, 105 CAL. L. REV. 735, 739 (2017).

party.”<sup>170</sup> Its privacy policy, however, notes that it collects “personally identifying information from our users during online registration and online purchasing” as well as users’ internet connection data, cookies, and “[h]ealth related data and targets” such as age, weight, and menstrual cycle data.<sup>171</sup> It does not guarantee the confidentiality of any of that data because its exceptions to its nondisclosure promise are open ended. The company notes that “we use the information we collect from you while you are using [the app] in a variety of ways,” giving examples of such use without closing off other possible uses.

Recent research uncovered shortcomings in the data protection mechanisms that five period tracking apps, including Clue, Flo, and Ovia, use.<sup>172</sup> All five apps shared information with advertisers and marketers, and three shared information with health researchers if the users gave them permission to do so, presumably through clicking “I agree” to the terms and conditions.<sup>173</sup> While it is hard to argue that such data sharing is illegal if users consent to it in the app’s terms and conditions, the large-scale provision of this data to researchers raises a number of ethical issues.<sup>174</sup> Public opinion is split on the acceptability of health apps sharing data with researchers. A 2019 survey found that 41 percent of people found it acceptable for fitness trackers to share user data with medical researchers, while 35 percent found it unacceptable.<sup>175</sup> People who use fitness trackers are more supportive of data sharing than nonusers.<sup>176</sup> As fitness tracker adoption grows, public support of this kind of health data sharing may increase.

A second privacy concern stems from the themes of communal sharing: a common feature of femtech platforms. Many encourage their users to discuss the details of struggles with infertility and other conditions. The group sharing encouraged by femtech apps, some of which provide a specialized kind of social media, may compromise the likelihood that users will succeed on invasion of privacy claims in the future. The communal aspect of Kindara features prominently in some user testimonials. For example, one user celebrated the fact that “women with similar cycles and frustrations as mine have been a wonderful community and wealth of information.”<sup>177</sup> Other users are especially grateful for the communal aspect of the app when terminating pregnancies. One woman who decided to end a pregnancy noted that “the outpouring of support from women who had also terminated pregnancies for medical reasons or suffered

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170. MYFLO, *supra* note 117.

171. *Privacy Policy*, FLO LIVING, <https://www.floliving.com/legal/> [<https://perma.cc/3U2G-5L2N>].

172. Rosato, *supra* note 148.

173. *Id.*

174. Nicole Wetsman, *Data from Health Apps Offers Opportunities and Obstacles to Researchers*, VERGE (July 3, 2019, 3:09 PM), <https://www.theverge.com/2019/7/3/20681254/data-health-apps-clue-period-tracking-sleep-fitness-research> [<https://web.archive.org/web/20210307095921/https://www.theverge.com/2019/7/3/20681254/data-health-apps-clue-period-tracking-sleep-fitness-research>].

175. Vogels, *supra* note 16.

176. *Id.*

177. Whitley H., *Finding Community*, KINDARA, <https://www.kindara.com/stories/whitley-h-finding-community> [<https://perma.cc/9W6X-BSZ7>].

miscarriages was the only thing that kept [her] sane” in her quest to conceive another baby.<sup>178</sup> “The same month I conceived [again], two other women I followed on the app also conceived,” she wrote.<sup>179</sup> Kindara was, she said, “a source of enormous emotional support during the hardest time of my life.”<sup>180</sup>

The sharing culture these platforms promote may affect users’ privacy rights by encouraging the kind of public disclosures that can weaken a claim. If an employee sues her employer for invasion of privacy, she will need to establish that she had a reasonable expectation of privacy. That will be harder to do if it emerges, during discovery, that the employee regularly posted about her fertility or other health issues as part of the apps’ user community. She will face challenges arguing that she expected to keep private the same fertility-related information that she has shared with a worldwide community of like-minded Kindara users.

The privacy risks inherent in wellness programs that include femtech are at odds with their empowerment rhetoric. One of MyFLO’s trademarked slogans is: “Be powered by your period.”<sup>181</sup> Similarly, Kindara’s description of its products appeals to the empowerment of women, emphasizing the increased control they offer women trying to conceive. “Be empowered with the confidence of knowing what is happening with your body in real time,” reads its website copy.<sup>182</sup> Indeed, many of their user testimonials focus on the increased confidence, power, and control that users found by using Kindara products. Ironically, female employees may be sacrificing their own privacy by disclosing data through the femtech apps that emphasize their empowerment.

## B. Federal and State Privacy Laws Provide Weak Protection

Whether a worker has privacy rights in her health data depends in part on the breadth of applicable privacy laws. Currently, no single federal law exists that protects the right to privacy in general. To the extent the U.S. Supreme Court has interpreted the Constitution to provide that right, many of its most significant decisions concern intimate relationships.<sup>183</sup> Although discussions about a federal statute protecting privacy rights continue, the current legislative proposals focus on consumer privacy rather than employee privacy.<sup>184</sup> In other

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178. Caitlin A., *Supportive Conceiving Her Rainbow Baby*, KINDARA, <https://www.kindara.com/stories/caitlin-a> [<https://perma.cc/3ZP8-5JSD>].

179. *Id.*

180. *Id.*

181. MYFLO, *supra* note 117.

182. *Why Guess When You Can Know?*, *supra* note 126.

183. *See, e.g.*, *Griswold v. Connecticut*, 381 U.S. 479, 483, 485 (1965) (finding that although the Constitution did not specifically protect privacy rights, some parts of the Bill of Rights suggested penumbras which could extend to the marital relationship); *Eisenstadt v. Baird*, 405 U.S. 438, 453 (1972) (expanding the scope of sexual privacy rights to all procreative intercourse); *Carey v. Population Serv. Int’l*, 431 U.S. 678, 687–79, 694 (1977) (invalidating certain restrictions on the distribution of contraceptives).

184. JONATHAN M. GAFFNEY, CONG. RSCH. SERV., LSB10441, WATCHING THE WATCHERS: A COMPARISON OF PRIVACY BILLS IN THE 116TH CONGRESS 1 (2020) (stating that as of April 2020, six recent federal privacy bill proposals address consumer privacy).

words, developments in federal law are more likely to protect consumers of Fitbit from Fitbit's use of data than from employers' use of that data.

While many people believe that their health-related data must be protected by privacy laws such as the Health Insurance Portability and Accountability Act (HIPAA),<sup>185</sup> HIPAA offers little such protection given the way that biometric data are collected, analyzed, and used in the workplace. In a July 2016 report to Congress, the DHHS acknowledged that wearable fitness trackers and health-focused social media sites were entities not covered by the privacy protections of HIPAA. DHHS also noted that these entities nonetheless “engage in a variety of practices such as online advertising and marketing, commercial uses or sale of individual information, and behavioral tracking practices, all of which indicate information use that is likely broader than what individuals would anticipate.”<sup>186</sup>

A main purpose of HIPAA was, as its name suggests, “to improve portability and continuity of health insurance coverage.”<sup>187</sup> HIPAA was also meant to protect the confidentiality of certain personal health information that workers may disclose.<sup>188</sup> It mandated that DHHS develop national standards for that protection.<sup>189</sup> The DHHS therefore created the Privacy Rule to guide the “use and disclosure” of “protected health information” and to determine how this information may be used by organizations subject to the Privacy Rule.<sup>190</sup> These organizations, referred to as “covered entities,” include health plans, health maintenance organizations (HMOs), health insurers, and health care providers.<sup>191</sup> The Privacy Rule protects “‘individually identifiable health information’ held or transmitted by a covered entity or its business associate.”<sup>192</sup> Wearable technology manufacturers are not “covered entities” under HIPAA,<sup>193</sup> nor are they “business associates” because they have a more active role than the data-transformative nature of the entity types used to illustrate the meaning of that term. Whether any particular biometric datum qualifies as the sort of personal

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185. Health Insurance Portability and Accountability Act of 1996 (HIPAA), Pub. L. No. 104-191, 110 Stat. 1936.

186. U.S. DEP'T OF HEALTH & HUM. SERVS., EXAMINING OVERSIGHT OF THE PRIVACY & SECURITY OF HEALTH DATA COLLECTED BY ENTITIES NOT REGULATED BY HIPAA 29 (2016); see also Karen DeSalvo & Jocelyn Samuels, *Examining Oversight of the Privacy & Security of Health Data Collected by Entities Not Regulated by HIPAA*, HEALTH IT BUZZ (July 19, 2016), <https://www.healthit.gov/buzz-blog/privacy-and-security-of-ehrs/examining-oversight-privacy-security-health-data-a-collected-entities-not-regulated-hipaa> [<https://web.archive.org/web/20210430191801/https://www.healthit.gov/buzz-blog/privacy-and-security-of-ehrs/examining-oversight-privacy-security-health-data-collected-entities-not-regulated-hipaa>].

187. H.R. REP. NO. 104-736, at 1 (1996) (Conf. Rep.).

188. See generally 45 C.F.R. §§ 164.500–534 (2018).

189. *Id.*

190. U.S. DEP'T OF HEALTH & HUM. SERVS., SUMMARY OF THE HIPAA PRIVACY RULE 1 (2003), <https://www.hhs.gov/sites/default/files/privacysummary.pdf> [<https://web.archive.org/web/20210614184638/https://www.hhs.gov/hipaa/for-professionals/privacy/laws-regulations/index.html>].

191. *Id.*

192. *Id.* at 3.

193. Antigone Peyton, *The Connected State of Things: A Lawyer's Survival Guide in an Internet of Things World*, 24 CATH. U. J.L. & TECH. 369, 378–79 (2016).

information that covered entities must protect under HIPAA depends on whether it is “protected health information” (PHI).

Many scholars argue for a revision of HIPAA based on its inadequacy in light of evolving health-related technologies.<sup>194</sup> Some propose a broad inclusion of all mobile health apps within the scope of covered entities.<sup>195</sup> At least one scholar argues that the data collected by femtech does not fall under the PHI umbrella as HIPAA currently stands.<sup>196</sup> She asserts that that femtech companies usually do not qualify as covered entities and that covered entities must be “re-defined to include Femtech products that are synced to ‘biosensing products’ and applications that provide similar analytics.”<sup>197</sup>

Even if HIPAA protected the privacy of data collected by femtech or other monitoring, women who had suffered a privacy breach could not sue because HIPAA does not offer a private right of action.<sup>198</sup> Nobody can sue for a violation of HIPAA herself. Women might be able to sue under a state law of negligence per se based on a likely violation of HIPAA, but no reported cases of women doing so exist.

State laws are even less helpful. In fact, some state data privacy laws specifically *exempt* data used in employment contexts from privacy protections. The California Consumer Privacy Act (CCPA), lauded as one of the most progressive state privacy laws in the country,<sup>199</sup> provides a carve out for worker data.<sup>200</sup> The Act revises Section 1798.145 of the California Civil Code to exempt from protection “personal information that is collected by a business about a natural person in the course of the natural person acting as a job applicant to, an employee of . . . or a contractor of that business.”<sup>201</sup> Given that exception, the CCPA does not prohibit employers from collecting or using personal information, including biometric data, in the context of an employee’s role in the business or even as a contractor to that business.

It is possible that the extent to which data associated with femtech remains private will develop as a result of debates over the most widespread form of biometric monitoring: facial recognition. The debate over the extent to which facial recognition should be omnipresent is a global one. France announced its

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194. See, e.g., Celia Rosas, *The Future is Femtech: Privacy and Data Security Issues Surrounding Femtech Applications*, 15 HASTINGS BUS. L.J. 319, 323 (2019).

195. See Peter McLaughlin & Melissa Crespo, *The Proliferation of Mobile Devices and Apps for Healthcare: Promises and Risks*, 12 Priv. & Sec. L. Rep. (BL) 859 (May 20, 2013).

196. Rosas, *supra* note 194, at 323.

197. *Id.* at 324.

198. *Can A Patient Sue for a HIPAA Violation?*, HIPAA J. (Nov. 7, 2017), <https://www.hipaajournal.com/sue-for-hipaa-violation/> [<https://perma.cc/S6U2-9NCB>].

199. CAL. CIV. CODE §§ 1798.100–.199 (West, Westlaw urgency legislation through ch. 16 of 2021 Reg. Sess.); Dale Walker, *What is the California Consumer Privacy Act (CCPA)?*, ITPro. (Jul. 1, 2020), <https://www.itpro.com/network-internet/34504/what-is-the-california-consumer-privacy-act-ccpa> [<https://perma.cc/2WE7-24AU>].

200. See *AB-25 California Consumer Privacy Act of 2018: Today’s Law as Amended*, CAL. LEGIS. INFO., [https://leginfo.legislature.ca.gov/faces/billCompareClient.xhtml?bill\\_id=201920200AB25](https://leginfo.legislature.ca.gov/faces/billCompareClient.xhtml?bill_id=201920200AB25) [<https://perma.cc/2WVH-C82W>].

201. *Id.*

intention to become the first European country to incorporate facial recognition technology into its national digital identification plan, with plans to launch it in November 2019.<sup>202</sup> A few months later, France's Secretary of State for Digital walked that back, due in part to concerns about the rule of consent guaranteed by the GDPR, and suggested instead that some form of online identity registration would be implemented in mid-2021.<sup>203</sup> Even Google's senior executives believe there is a need for regulation to clarify "quickly" the extent to which devices can capture data such as facial recognition.<sup>204</sup> "Everyone would benefit from clarity of standards and regulation," Google's Senior Vice President of Devices and Services Rick Osterloh said in October 2019.

The privacy of data collected from femtech, however, should reflect the fundamental difference between that data and more public information such as one's facial features. Femtech collects data that is essentially gender linked by nature. As noted above, many of the key legal decisions concerning a federal right to privacy stem from cases concerning government intrusion into people's bedrooms. Even if the collection of femtech data is consensual, the potential misuse of this data could be characterized as the government's failure to protect the constitutional right to privacy inherent in sexual activity<sup>205</sup> or the choice to use or not use contraception.<sup>206</sup>

### C. The Unique Danger of Abortion Tracking

Femtech alone or in combination with other forms of biometric monitoring could make it easier for an employer to infer when a worker has had an abortion. The decision to terminate a pregnancy is highly personal, and many women consider it a private one as well. As it becomes more difficult for women in many states to gain access to abortion clinics, the demand for self-managed medication abortions that do not require clinic access increases.<sup>207</sup> An abortion medication, combining mifepristone and misoprostol, is available online. Websites such as Plan C help people understand how medication abortions work and how to find and evaluate online suppliers.<sup>208</sup>

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202. Helene Fouquet, *France Set to Roll Out Nationwide Facial Recognition ID Program*, BLOOMBERG (Oct. 2, 2019, 9:00 PM), <https://www.bloomberg.com/news/articles/2019-10-03/french-liberte-tested-by-nationwide-facial-recognition-id-plan> [<https://perma.cc/EZ76-YGUZ>].

203. Luana Pascu, *French Secretary of State for Digital Hesitant About National Digital ID Program*, BIOMETRIC UPDATE (Dec. 31, 2019), <https://www.biometricupdate.com/201912/french-secretary-of-state-for-digital-hesitant-about-national-digital-id-program> [<https://perma.cc/MN39-CVH4>].

204. Leo Kelion, *Google Chief: I'd Disclose Smart Speakers Before Guests Enter My Home*, BBC NEWS (Oct. 15, 2019), <https://www.bbc.com/news/technology-50048144> [<https://perma.cc/5CNA-8LT4>].

205. See, e.g., *Lawrence v. Texas*, 539 U.S. 558 (2003).

206. *Griswold v. Connecticut*, 381 U.S. 479, 485 (1965).

207. See Abigail R.A. Aiken et al., *Motivations and Experiences of People Seeking Medication Abortion Online in the United States*, 50 PERSPS. ON SEXUAL & REPROD. HEALTH 157, 160 (2018).

208. *A Safe Abortion with Pills Is Possible*, PLAN C, <https://www.plancpills.org/> [<https://web.archive.org/web/20201112031245/https://www.plancpills.org/>].

Yet employer access to femtech apps that track periods or pregnancies might also reveal when a pregnancy has ended. This, in combination with the ability to do keyword searches of employees' health care inquiries (for example, on either a general search engine like Google or a dedicated search engine like one run by a health benefit provider) could make it relatively easy to infer that an employee has decided to terminate her pregnancy. An employer's AI might search, for example, for terms like "mifepristone" or simply "abortion." The potential consequences of such disclosures could be dire.

In some states, advances in technology are already leading to women facing criminal penalties for having abortions. In Starkville, Mississippi, a woman named Latice Fisher gave birth to what her lawyers say was a stillborn baby on April 28, 2017. State prosecutors searching Fisher's phone found internet search results for how to induce a miscarriage, "buy abortion pills, mifepristone online, misoprostol online," and "buy Misoprostol abortion pill online."<sup>209</sup> In January 2018, Fisher was indicted on second degree murder charges, based on the state's claim that she murdered the baby, which carry up to a forty-year prison term penalty.<sup>210</sup> Those charges were later dropped and the case was prepared for presentation to another Grand Jury.<sup>211</sup> A few years earlier, Purvi Patel was convicted of infanticide in South Bend, Indiana, based in part on a series of text messages to a friend confirming that Patel had searched for medication abortion information online before having her miscarriage.<sup>212</sup> Her sentence was later reduced.<sup>213</sup>

Fisher's and Patel's phones provided the evidence needed to prosecute them for infanticide, but mobile technology might provide evidence of the end of a woman's pregnancy in other ways as well. A phone might also contain enough data from femtech such as period tracking apps or pregnancy-related apps to signal that a pregnancy has ended, either from miscarriage or abortion. If these forms of femtech provide another set of data points that law enforcement could subpoena, more women could be subject to prosecution for having abortions that are barred by state or federal law. They could also be subject to less severe, less obvious, and less clearly illegal repercussions in the workplace.

If femtech provides the kind of data that can indicate whether a woman has ended her pregnancy, then an employer with access to that data through a well-

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209. See Ryan Phillips, *Infant Death Case Heading Back to Grand Jury*, STARKVILLE DAILY NEWS (May 9, 2019), [https://www.starkvilledailynews.com/infant-death-case-heading-back-to-grand-jury/article\\_cf99bcb0-71cc-11e9-963a-eb5dc5052c92.html](https://www.starkvilledailynews.com/infant-death-case-heading-back-to-grand-jury/article_cf99bcb0-71cc-11e9-963a-eb5dc5052c92.html) [<https://perma.cc/R3BV-JDNW>].

210. Lauren Rankin, *How an Online Search for Abortion Pills Landed This Woman in Jail*, FAST CO. (Feb. 26, 2020), [https://www.fastcompany.com/90468030/how-an-online-search-for-abortion-pills-landed-this-woman-in-jail?utm\\_campaign=eem524%3A524%3As00%3A20200226\\_fc&utm\\_medium=Compass&utm\\_source=newsletter](https://www.fastcompany.com/90468030/how-an-online-search-for-abortion-pills-landed-this-woman-in-jail?utm_campaign=eem524%3A524%3As00%3A20200226_fc&utm_medium=Compass&utm_source=newsletter).

211. Phillips, *supra* note 209.

212. Rankin, *supra* note 210.

213. Molly Redden, *Purvi Patel Has 20-Year Sentence for Inducing Own Abortion Reduced*, GUARDIAN (July 22, 2016, 2:59 PM), <https://www.theguardian.com/us-news/2016/jul/22/purvi-patel-abortion-sentence-reduced> [<https://web.archive.org/web/20201206024406/https://www.theguardian.com/us-news/2016/jul/22/purvi-patel-abortion-sentence-reduced>].

ness program may react negatively to that information. When an employer understands that a female employee's pregnancy has ended, it may be hard to prove that the woman is protected from any negative consequences that follow.

Federal law protects women from employment discrimination on the basis of considering or having had an abortion. Under current case law, firing an employee for having an abortion is sex discrimination barred by Title VII and at least some state antidiscrimination laws.<sup>214</sup> The EEOC's enforcement guidance issued in 2015 also states that Title VII "protects women from being fired for having an abortion or contemplating having an abortion."<sup>215</sup> It takes no position on whether the PDA itself also protects against discrimination on these bases.<sup>216</sup> In addition, religious employers or even managers might argue that their Free Exercise rights allow them to fire a worker on the basis of her having had an abortion, if that conflicts with the employer or manager's religious beliefs.<sup>217</sup>

A conservative presidential administration could cut back on existing protections against abortion discrimination protections, making the increased visibility of data indicating abortions a greater liability for female workers. The Trump administration, for example, proposed cutbacks on such protections in the provision of health care services. Specifically, the DHHS proposed significant cutbacks to certain antidiscrimination protections in the ACA. The ACA contains a nondiscrimination provision commonly known as the Health Care Rights Law that protects women from discrimination in health care on the basis of having had an abortion, being transgender, or being in a same-sex relationship, among other provisions.<sup>218</sup> In June 2019, the DHHS proposed a revision of the Health Care Rights Law that strips its protections against discrimination based on having had an abortion or being transgender.<sup>219</sup>

#### IV. THE COVID-19 PANDEMIC CREATES AN URGENT NEED FOR SOLUTIONS

In the summer of 2020, as workplaces that closed in the wake of the COVID-19 pandemic contemplated strategies for reopening, employee health testing became a more urgent concern. Employers that had never directly tested their workforce for any health condition began to realize that they might need,

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214. Order and Reasons at 10, *Ducharme v. Crescent City Déjà Vu, L.L.C.*, No. 18-4484 (E.D. La. May 13, 2019), <https://cases.justia.com/federal/district-courts/louisiana/laedce/2:2018cv04484/216811/99/0.pdf?ts=1557825634> [<https://perma.cc/53XK-R9DK>].

215. U.S. EQUAL EMP. OPPORTUNITY COMM'N, EEOC-CVG-2015-1, ENFORCEMENT GUIDANCE ON PREGNANCY DISCRIMINATION AND RELATED ISSUES (June 25, 2015), [https://www.eeoc.gov/laws/guidance/pregnancy\\_guidance.cfm#IA4c](https://www.eeoc.gov/laws/guidance/pregnancy_guidance.cfm#IA4c) [<https://perma.cc/DUJ4-9CTN>].

216. *See id.*

217. *See* U.S. CONST. amend. I.

218. Nondiscrimination in Health Programs and Activities, 81 Fed. Reg. 31376 (May 18, 2016) (to be codified at 45 C.F.R. pt. 92).

219. MaryBeth Musumeci et al., *HHS's Proposed Changes to Non-Discrimination Regulations Under ACA Section 1557*, KAISER FAM. FOUND. (July 1, 2019), <https://www.kff.org/disparities-policy/issue-brief/hhss-proposed-changes-to-non-discrimination-regulations-under-aca-section-1557/> [<https://web.archive.org/web/20200906033546/https://www.kff.org/disparities-policy/issue-brief/hhss-proposed-changes-to-non-discrimination-regulations-under-aca-section-1557/>].

at a minimum, to test for symptoms of COVID-19 infection to keep their workforce safe from each other.<sup>220</sup> Many also realized that some level of testing may become part of their duty of care, as they anticipated the potential future negligence lawsuits that might result if they failed to do such testing. Indeed, a wave of such lawsuits soon crested.<sup>221</sup> The EEOC quickly developed new guidelines explicitly allowing employers to test employees for symptoms thought to be associated with COVID-19.<sup>222</sup> These new guidelines underscore the growing ubiquity of health data testing at work. As both employers and employees accept the “new normal” of health data monitoring at work in the context of the coronavirus, other kinds of health data monitoring, such as the ones discussed in this Article, will likely become more common in the future.

In considering how best to deal with the advances in sexism that biometric monitoring enables, it is tempting to give up on the idea of privacy entirely. Many people enjoy posting some aspects of their health and fitness information on leaderboard sites such as Strava.<sup>223</sup> Given the frequency with which many people now voluntarily disclose information about their mental and physical wellbeing on social media, we might ask just how private this data should be in the first place. Even if there is a growing acclimation to limits on privacy, limits on the use of personal health-related data should be imposed, especially in light of the potential adverse impacts described above. At a minimum, disclosure should remain voluntary.

The most viable solutions are rooted in proposed new legislation and greater public awareness of potential data misuse.<sup>224</sup> A third option is to ensure that employees opting into the sharing of their health data fully understand the potential consequences of doing so and have a means of opting out without losing either their job or their health insurance. Combining these approaches provides the most effective means of reducing potential discrimination based on biometric data collection.

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220. Konrad Putzier & Chip Cutter, *Welcome Back to the Office. Your Every Move Will Be Watched.*, WALL ST. J. (May 5, 2020, 10:48 AM), <https://www.wsj.com/articles/lockdown-reopen-office-coronavirus-privacy-11588689725> [<https://perma.cc/9W8S-8RW5>].

221. Amanda Robert, *Can Companies Be Held Liable When Their Employees Fall Ill With the Coronavirus?*, ABA J. (Mar. 19, 2020, 11:30 AM), <https://www.abajournal.com/web/article/attorneys-advise-companies-on-potential-coronavirus-related-liability> [<https://perma.cc/B9DQ-BC8A>]; see also Debra Cassens Weiss, *Nearly 800 COVID-19 Lawsuits Have Been Filed, According to Law Firm's Tracker*, ABA J. (May 4, 2020, 4:41 PM), <https://www.abajournal.com/news/article/nearly-800-covid-19-lawsuits-have-been-filed-according-to-law-firms-tracker> [<https://perma.cc/67SR-44DW>] (noting that employment cases relating to COVID-19 are among those “[o]n the upswing”).

222. U.S. EQUAL EMP. OPPORTUNITY COMM’N, EEOC-NVTA-2009-3, PANDEMIC PREPAREDNESS IN THE WORKPLACE AND THE AMERICANS WITH DISABILITIES ACT (OCT. 9, 2009), <https://www.eeoc.gov/laws/guidance/pandemic-preparedness-workplace-and-americans-disabilities-act> [<https://perma.cc/UK9Z-U7ZM>].

223. See *About Us*, STRAVA, <https://www.strava.com/about> [<https://perma.cc/52VY-YAFK>].

224. For additional solutions I have proposed to the general issue of biometric monitoring data misuse, see Brown, *A Healthy Mistrust*, *supra* note 5.

### A. Evaluating Proposed Health Data Protection Legislation

One potential solution is the development of new legislation that protects health data, specifically, from widespread dissemination, curbing the extent of potential misuse by employers. In June 2019, Senators Amy Klobuchar and Lisa Murkowski introduced a bill titled the Protecting Personal Health Data Act.<sup>225</sup> The proposed law requires the creation of specific regulations that would “help strengthen privacy and security protections for consumers’ personal health data” that devices, apps, and services collect and analyze.<sup>226</sup> It also requires that mobile health technologies such as health apps and fitness trackers allow users to review, change, and delete health data collected by companies.<sup>227</sup> If enacted, the Act would encourage the development of standards for obtaining consent, making sure that the terms for consent were “easily accessible” and “clearly distinguishable from other matters.”<sup>228</sup> At this writing, the Act has not yet passed the Senate.<sup>229</sup>

The Act, while laudable, is inconsistent in its approach to employee data. Although the purpose of the bill is to “protect the personal health data of all Americans,” some of its provisions, like the regulations described above, appear limited to the protection of consumer health data. Other elements of the Protecting Personal Health Data Act are not so limited. Another provision would establish a National Task Force on Health Data Protection. Unlike the regulatory provisions of the Act, this Task Force’s work was not limited to consumer health data. In fact, its mandate required it to evaluate and provide input on standards relating to “consumer and employee health data.”<sup>230</sup> At best, then, the Act provided little assurance that employee health data in general, and women’s health data in particular, would remain confidential.

An alternative legislative approach is to protect employees’ ability to choose when and how their health data may be disclosed to their employers. Ensuring that health data disclosures are truly voluntary is critical but not simple. Past efforts to ensure that participation in workplace wellness programs is truly voluntary illustrate how difficult it can be.<sup>231</sup> For example, there has been considerable confusion about when an employer can incentivize participation in a wellness program. Under the ACA, employers may provide financial incen-

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225. Protecting Personal Health Data Act, S. 1842, 116th Cong. (2019).

226. *Id.* § 4(a).

227. Press Release, Amy Klobuchar, Senator, Klobuchar, Murkowski Introduce Legislation to Protect Consumers’ Private Health Data (June 14, 2019), <https://www.klobuchar.senate.gov/public/index.cfm/2019/6/klobuchar-murkowski-introduce-legislation-to-protect-consumers-private-health-data> [<https://perma.cc/44EP-RPYL>].

228. S. 1842 § 4(b)(3)(B).

229. *Id.*; see *S. 1842—Protecting Personal Health Data Act*, Congress.gov, <https://www.congress.gov/bill/116th-congress/senate-bill/1842> [<https://perma.cc/PX45-F547>].

230. S. 1842 § 5(b)(4).

231. See Brown, *Workplace Wellness: Social Injustice*, *supra* note 4, at 218–20.

tives to employees in connection with “voluntary” workplace wellness programs.<sup>232</sup> In May 2016, the EEOC provided guidance that employers could offer incentives or penalties amounting to a maximum of 30 percent of the employee’s share of the group health plan coverage fee. The guidance stated that such fees would not violate the ADA and would maintain the voluntariness of the plan.<sup>233</sup> The 30 percent incentive guidance was later withdrawn after a successful legal challenge brought by the AARP. It challenged the 30 percent incentive rules as being coercive in that they made health insurance substantially more expensive for workers who did not want to submit to health screening and other elements of workplace wellness programs that might compromise their privacy.<sup>234</sup> The 30 percent incentive/penalty allowance, the AARP argued, meant that such programs could not be truly voluntary, as the ACA initially intended them to be.<sup>235</sup> The District Court decided that vacating the incentive guidance as of January 2019 would be the least disruptive course even though the EEOC had no plans to finalize new rules before 2021. As of June 2020, employers still have no guidance from the EEOC about what kinds of incentives or penalties, if any, might be acceptable in a “voluntary” workplace wellness program.

Regardless of the mechanism, employees need protection from economic pressure and potential discrimination when choosing whether to participate in workplace wellness programs and, importantly, *which* elements of those programs they want to use. Because so many elements of workplace wellness programs have substantial health benefits (which are, presumably, the reason for their inclusion in the first place), employees should have the ability to choose which elements any such programs to use without fearing a subsequent loss of health insurance or employment. Along those lines, new legislation should ensure that participation in each element of a workplace wellness program, and not just participation in the program as a whole, is truly voluntary. Employees who want to opt into discounts for gym memberships, for example, should be able to do so without also having to use health data tracking apps. Women who want to use nutrition counseling services should be able to opt out of wearing Apple Watches with built-in activity trackers without fearing that they will suffer some kind of negative consequence for that choice. Regulatory guidelines should prohibit an all-or-nothing approach to wellness program structures. Nobody should have to choose between her data and her job.

## B. Improving the Quality of Consent to Health Data Exposure

Preventing any use of women’s health data is probably not feasible. The explosive growth of big data depends, to some extent, on the value proposition

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232. 29 C.F.R. § 1630.14(d)(3) (2016). For a more thorough description of this coverage, see Brown, *Workplace Wellness: Social Injustice*, *supra* note 4, at 218–20.

233. Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act, 29 C.F.R. § 1630 (2016).

234. Complaint at 23–25, *AARP v. U.S. Equal Emp. Opportunity Comm’n*, No. 16-cv-2113 (D.D.C. Oct. 24, 2016).

235. *Id.* at 22–24.

that people can be measured, monitored, tracked, and targeted ad infinitum, and that the resulting data can be commodified. A better solution would be to develop an effective framework that allows people the right to keep some information private while allowing other data to be collected and used, with appropriate restrictions on the use of that data.

A woman's decision to opt in to certain kinds of monitoring must entail a full and fair understanding of how her data may be used. Although employees technically consent to the use of apps and monitors that collect their data, the quality of their consent is limited in general by the opaqueness of dense terms and conditions that few people read or understand.<sup>236</sup> Consequently, one way to improve data protection in health wellness programs is to ensure that each app and tool discloses, in simple and clear terms, what kind of data is being used and how it is being used so that employees can be well informed before opting in or out.

One way to accomplish this is through a universal standard privacy label. Scholars have been proposing various forms of at-a-glance privacy labels for years.<sup>237</sup> Lorrie Cranor developed a particularly interesting "privacy nutrition label" inspired by the U.S. FDA standard nutrition labels that would provide users with easily understood graphic depictions of how their data might be used by each company that seeks it.<sup>238</sup> Her proposed nutrition label consists of a grid of squares, with "information we collect" along the vertical axis and "how we use your information" along the horizontal axis.<sup>239</sup> Each row describes a different kind of information collected, including health data.<sup>240</sup> An ideal data privacy label would contain more details about the types of health data collected. Nonetheless, a standard label would make it easier for employees to compare different companies' approaches to data collection and usage and to make better decisions as a result. The World Wide Web Consortium developed an industry standard policy leading to the launch of the P3P 1.0 specification in 2002.<sup>241</sup>

As Professor Cranor has pointed out, however, the greatest barrier to widespread adoption of standardized privacy protocols such as P3P in the past has been the lack of incentive, absent a regulatory requirement.<sup>242</sup> Troublingly, she

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236. Daniel J. Solove, *Introduction: Privacy Self-Management and the Consent Dilemma*, 126 HARV. L. REV. 1880, 1881 (2013); see also M.C. Schraefel et al., *The Internet of Things: Interaction Challenges to Meaningful Consent at Scale*, INTERACTIONS, Nov.–Dec. 2017, at 27, 27.

237. See, e.g., Lorrie Faith Cranor, *Necessary but Not Sufficient: Standardized Mechanisms for Privacy Notice and Choice*, 10 J. ON TELECOMM. & HIGH TECH. L. 273, 289 (2012); ALYSIA LAU, THE PRIVACY BOX: ENABLING CONSUMER CHOICE AND MEANINGFUL CONSENT IN ONLINE PRIVACY 47 (2017), <https://www.piac.ca/wp-content/uploads/2017/08/PIAC-THE-PRIVACY-BOX-OCA-REPORT-June-2017-ENG-FINAL.pdf> [<https://perma.cc/WC2P-A9FR>]; Katherine Mansted, *Mandatory Digital Privacy Labels: One Way to Protect Consumer Data*, KENNEDY SCH. REV. (July 10, 2017), <https://ksr.hkspublications.org/2017/07/10/mandatory-digital-privacy-labels-one-way-to-protect-consumer-data/> [<https://perma.cc/XHG5-UTUC>].

238. Cranor, *supra* note 237, at 288–89.

239. *Id.* at 289–90.

240. *Id.* at 290.

241. *Id.* at 279.

242. *Id.* at 295.

also notes that when companies did adopt P3P, they sometimes did so “to misrepresent their privacy practices to Internet Explorer’s cookie blocking feature—one of the most commonly-used tools that consumers have for protecting their online privacy.”<sup>243</sup> It is clear that any global adoption of a standard privacy notice would have to be mandated by law, similar to the disclosure notices and user consents to cookies mandated by the GDPR.

### C. Public and Private Remedies to Reduce Gender Bias in Algorithms

Legislative approaches to reducing gender bias in biometric monitoring could play a key role in complementing data protection remedies. The Algorithmic Accountability Act of 2019, introduced by Senators Cory Booker and Ron Wyden would have regulated potential bias in algorithms, including gender bias.<sup>244</sup> Rep. Yvette Clark sponsored an identical measure in the House of Representatives.<sup>245</sup> Specifically, it would have directed the Federal Trade Commission to pass regulations requiring data brokers and companies with data for at least one million people or devices to assess certain “high-risk” automated decision systems for “impacts on accuracy, fairness, bias, discrimination, privacy, and security.” One analysis of the Algorithmic Accountability Act points out that the bill likely would have little clear impact beyond existing antidiscrimination laws.<sup>246</sup>

Even without such targeted legislation, much could be done to increase public awareness of the potential gender bias inherent in algorithms used to interpret health data. Scholars such as Criado Perez have done a great deal to illustrate this kind of bias.<sup>247</sup> Other scholars have called on data brokers and platform users to apply more rigor to their review of potential biases in algorithmic content moderation systems.<sup>248</sup> Employers, however, may still rely on algorithms to make predictions about their workforce in ways that may disadvantage women if those employers remain unaware of such biases.

Some tech companies are already working on antibias tools that can be applied to various algorithms. Microsoft, for example, launched the Fairlearn toolkit to reduce gender bias in its Azure AI platform in November 2019.<sup>249</sup> EY tested the new Fairlearn toolkit in an automated system for automating loan decisions. Before using Fairlearn, EY discovered a 15.3 percent disparity in its loan approvals between men and women using its own algorithm.<sup>250</sup> After using

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243. *Id.* at 298–99.

244. Algorithmic Accountability Act, S. 1108, 116th Congress (2019).

245. Algorithmic Accountability Act, H.R. 2231, 116th Congress (2019).

246. Mark MacCarthy, An Examination of the Algorithmic Accountability Act of 2019, at 5 (Oct. 24, 2019) (unpublished manuscript), <https://ssrn.com/abstract=3615731>.

247. See CRIADO PEREZ *supra* note 45, at 166.

248. MacCarthy, *supra* note 246, at 8.

249. Daniel Howley, *Microsoft Bringing Anti-Bias Tool to its Azure AI Platform*, YAHOO! FIN. (May 19, 2020), <https://ca.finance.yahoo.com/news/microsoft-bringing-antibias-tool-to-its-azure-ai-platform-150006158.html> [<https://perma.cc/SK5L-7Y8E>].

250. *Id.*

Fairlearn to retrain the machine learning models, the disparity levels dropped to 0.43 percent.<sup>251</sup> Tools like Fairlearn are promising steps toward reducing gender bias for companies that choose to use them.

Even so, the biases built into many other algorithms are likely to stay with us for some time. The fact that women are underrepresented in the industries which might help to limit bias does not bode well for the potential for gender-based differences. According to recent research by the World Economic Forum, women make up only 26 percent of data and AI roles and only 12 percent of workers in cloud computing roles.<sup>252</sup> While both men and women could help to limit such bias, a more gender-balanced workforce might be more effective in limiting the ways in which gender bias through monitoring might enter the workplace.



Both biometric monitoring in general and femtech in particular offer tremendous benefits to women. The early diagnosis of disease, the improved ability to control one's own fertility and pregnancy, and a general empowerment of women by providing them with more information about their own health are immensely valuable developments. The innovations of femtech offer limitless benefits to women and their families. But these benefits have a cost. The hidden gender biases that may result from these technological could increase discrimination against women and further diminish their privacy rights in the workplace unless new limitations on the use of women's health data are established.

The risks of gendered health data disclosures are expansive. The possibility that employers may use gendered health data against a worker to justify reducing or eliminating work responsibilities is arguably one of the most critical risks. If a worker loses her job or accumulates identifiable data that pegs her as undesirable or unemployable, she will be unable to pay for insurance or pay back loans at any rate. If employers can tap into this data stream along with other biometric data, they can evaluate and compare performance among women using a level of detail about their most intimate body functions that has never before been accessible to their employers.

Because biometric and health data monitoring can adversely affect women in so many ways, it is critical that women have the opportunity to give their informed consent to such monitoring at work. One way to ensure that consent to health data disclosures is meaningful is to ensure that employees have both a clear understanding of how their data might be used and a true choice to opt out of any such disclosures. In other words, employees must have the ability to refuse employer access to certain kinds of health data without sacrificing their health coverage or employment.

The exponential growth of femtech requires addressing these less obvious sources of sexism and the potential further disempowerment of women that may

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251. *Id.*

252. WORLD ECON. F., GLOBAL GENDER GAP REPORT 2020, at 38 (2019), [http://www3.weforum.org/docs/WEF\\_GGGR\\_2020.pdf](http://www3.weforum.org/docs/WEF_GGGR_2020.pdf) [<https://perma.cc/BY3T-KKYF>].

result. As health monitoring becomes more commonplace in the wake of COVID-19, legislators, industry leaders, and legal scholars must develop more effective means of limiting the potential gender bias that will result from broader biometric and health monitoring of the workforce. Unless checked by regulatory reform, femtech and other forms of gender-biased biometric monitoring have the potential to magnify gender-linked differences in ways that are likely to exacerbate sexism at work.