Legal and Ethical Analysis of Advertising for Elective Egg Freezing

Michelle J. Bayefsky

Introduction

Since the American Society for Reproductive Medicine (ASRM) deemed oocyte cryopreservation (OC) no longer experimental in 2013, a whole industry designed to encourage young women to freeze their eggs has grown and flourished. Using language and imagery signaling freedom, control, and empowerment, these egg freezing companies hope to persuade young female professionals in their twenties and early thirties that OC is the right choice for their futures. The companies and their messaging have been hard to overlook — both because of the significant press attention they have garnered and because of their targeted advertising on social media. Illustrating both forms of marketing, the *New York Times* published an article in April 2019 entitled "Wait, Is That Another Ad for Egg Freezing?" The marketing strategies, while abrasive to some, coincide with an overall rise in the number of women undergoing elective OC (eOC). According to the Society for Assisted Reproductive Technology (SART), in 2009 only 475 women underwent OC. In 2017, that number had risen almost 20-fold to 9,042.[1]

Not only are more women choosing to freeze their eggs, the age of those women is also declining. In 2009, 47% were under 38, whereas in 2017, 64% were under 38.[2] Although these statistics include women freezing their eggs prior to beginning treatment that could harm their ovaries, such as chemotherapy, the increase in younger women seeking OC is mostly likely related to the general rise in awareness about eOC. Companies are explicit about their goal of attracting women as young as 25.[3] Moreover, fertility start-up websites often include statements encouraging women to freeze as young as possible. As a marketing approach, the benefit to the companies is clear: if there are no age limits for the procedure, more women can be considered potential customers. From a medical perspective, younger women are more fertile and will likely have a higher number of genetically healthy oocytes harvested during the egg retrieval procedure. However, does that mean that the principle "the younger, the better" applies more broadly to the process of OC? Should we encourage college-age women to freeze their eggs?

The egg freezing process is not without potential harms. It carries the medical risks of ovarian hyperstimulation syndrome, ovarian torsion, thromboembolic complications, bleeding and infection.[4] In addition to these health risks, harvesting and storing eggs can cost tens of thousands of dollars (approximately $10,000 per egg freezing cycle plus $1,000 per year for storage). Perhaps most importantly, there is a risk that women who freeze their eggs could feel a false sense of security, choose to delay childbearing, and ultimately be unable to have the family they desire at a later age.

Given that advertising for eOC, as well as the primarily positive press attention that the technology has received, are likely contributing to the increase in uptake of the procedure, it is imperative that we assess how accurate the messaging around eOC truly is. This paper reviews common advertising claims by egg freezing companies and evaluates the medical evidence behind those claims. It then surveys legal standards

Michelle Bayefsky, B.A., *is a fourth-year medical student at Harvard Medical School (Boston, Massachusetts). Previously she was a post-baccalaureate fellow in the Department of Bioethics of the National Institutes of Health, where her work focused on topics related to reproduction, genomics policy, and public health. Ms. Bayefsky graduated summa cum laude from Yale College (New Haven, Connecticut) with a Bachelor of Arts in ethics, politics and economics.*

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for truthful advertising, including FTC and FDA regulations and the First Amendment right to free speech. Professional standards for medical advertising, such as guidelines published by the American Society for Reproductive Medicine (ASRM), the American College of Obstetricians and Gynecologists (ACOG), and the American Medical Association (AMA), are also summarized. A number of claims, many of which relate to the targeting of younger women for eOC, are found to breach legal and ethical standards for truth in advertising. The ethical implications of misleading advertising claims are also discussed, and the central narrative woven by OC ads — that egg freezing is empowering to women — is scrutinized. The paper concludes that a more balanced approach to the risks and benefits of OC is necessary to truly respect women's autonomy. Moreover, justice requires us to look beyond a medical 'fix' accessible only to a minority of women (due to its high cost) in order to address inequities in the workplace.

This paper reviews common advertising claims by egg freezing companies and evaluates the medical evidence behind those claims. It then surveys legal standards for truthful advertising, including FTC and FDA regulations and the First Amendment right to free speech.

Overview of Common Advertising Claims

To date, there have been two studies of advertising for eOC. Avraham et al. evaluated whether fertility clinic websites across the US followed SART's 2004 advertising guidelines when describing eOC. Of 200 websites reviewed, more than 85% had poor adherence to the guidelines, with most failing to mention the sources of their data and the likelihood of conceiving via OC.[5] In a smaller study of the language used in OC advertisements, Barbey reviewed website content related to egg freezing for 12 fertility clinics near San Francisco. He found that the language used to describe eOC was persuasive, rather than informative, and that advertisements minimized risks and the low chance of bringing a child to term. This persuasive advertising, Barbey concluded, detracts from the kind of informed decision-making to which we generally aspire when making decisions with substantial financial or medical risk.[6]

Other studies of fertility clinic advertising have focused primarily on the presentation of IVF success rates, rather than content related to eOC. Huang et al. compared SART-affiliated fertility clinic websites to AMA guidelines[7] on the presentation of medical information and determined that websites failed to meet most AMA standards. Like Avraham et al., Abusief et al. established that virtually no SART-affiliated clinics adhered to all of the rules laid out in SART's 2004 advertising policy.[8] A further study by Hawkins also found a low level of compliance by fertility clinic websites with SART's updated 2009 advertising policy.[9] Given the widespread non-compliance with professional policies, the role of self-regulation will be addressed in a subsequent section of this paper.

Notably, prior studies have reviewed the websites of traditional fertility clinics, rather than commercial egg freezing 'start-ups' that have sprung up since 2013. These start-ups have a variety of models — from attracting clients and contracting with existing fertility clinics to offering financing packages for employers seeking to cover fertility treatments including eOC. The start-ups are not medical practices, non-profit health systems, or individual physicians; they are for-profit companies that generally operate by contracting with existing medical practices rather than by employing physicians directly. One study by Campo-Engelstein et al. used content analysis to examine media coverage about egg freezing, including services offered by new fertility start-ups. The authors concluded that articles tend to present OC as a solution to workplace injustices, rather than an unproven medical treatment.[10] Their study focused on magazine and newspaper articles rather than advertisements disseminated by egg freezing start-ups themselves.

The first section of this paper builds on prior work to highlight key advertising claims made directly by commercial start-ups. The themes were compiled by reviewing the websites of eight prominent fertility start-ups, as well as incorporating information from news and magazine articles about OC advertising. The start-ups were identified by conducting a Google search for articles on "egg freezing advertising" and noting which companies were mentioned in multiple articles for having a strong advertising presence online, on social media, or in public spaces. Each company's website was reviewed in full in July 2019 and themes were derived from codes that emerged from

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analysis of website text and imagery. The themes that merit sub-headings below appeared the most often and were present on four or more websites. The analytic approach was consistent with an inductive form of content analysis, in which researchers first immerse themselves in the data to appreciate the whole, making note of initial impressions and analysis, and then return to develop codes that encapsulate key themes.[11] In this paper, specific companies are not mentioned by name, nor are direct quotes from websites used; the goal is not to "name and shame," but rather to convey the kinds of messages that are pervasive in the fertility start-up industry.

Message of Freedom and Empowerment

All the fertility start-up websites reviewed utilized the message that OC is empowering to women and offers women greater freedom and control over their reproductive futures. Words like "options," "control," "possibility," and "own" were featured prominently on company homepages. Most websites included patient stories, in which women were quoted as saying that the egg freezing process felt empowering to them and helped them "take control." One company offered discounts for referring a friend, advertised as a chance to help build a community of women taking ownership of their futures. Images on multiple websites showed women appearing relaxed and liberated, for example gazing at an open vista. One company has been described as naming exam rooms after powerful women[12] and decorating the space with quotes from iconic female leaders.[13] The emphasis on options, choice, freedom, and autonomy is reminiscent of advertising in the car industry, which has long relied on messaging and visuals related to freedom and self-determination.[14]

There is another side to the message of liberation and empowerment; not only does egg freezing empower women, it is also what a powerful woman should do. Websites compared egg freezing to saving for retirement and use words like "smart" and "plan." They used directive phrases like "take charge" and prescriptive language like "should plan ahead." The implication is that OC is the responsible choice for a woman who is strong, career-oriented, intelligent, and in control of her future. By inference, women who choose not to freeze their eggs are unintelligent, uninterested in their careers, or poor planners.

The Younger, the Better

Egg freezing start-ups heavily advocate for freezing eggs sooner, rather than later. All the websites reviewed stated that the younger a woman is when she freezes, the better her outcomes will be. Companies pointed out that women will never be younger than they are today, so why not freeze now? Representatives from the start-ups have been transparent about their goal of targeting younger and younger women,[15] with one executive even joking about buying egg freezing as a gift for her daughter when she turns 21.[16] Websites did not include information on the likelihood of returning to use eggs frozen at different ages or the cost-effectiveness of freezing at different ages.

Stopping the Biological Clock

Multiple websites featured statements regarding the ability of egg freezing to "stop time" or "freeze fertility in time." One company's promotional video had an image of a ticking clock that comes to a stop when egg freezing is introduced. There is little room for ambiguity; the assertion is that egg freezing stops a woman's biological clock. Only one website mentioned the increased risks associated with pregnancy at advanced maternal age.

Insurance for the Future

Though companies avoided explicitly using the terms "insurance" or "guarantee," underlying the whole theory of egg freezing is that OC is insurance against age-related infertility.[17] The idea is that if a woman freezes her eggs, she will be insured against the decline in egg number and quality associated with aging. One company portrayed OC as an alternative to "leaving it to chance," while others quantified how the policy should work, recommending that women freeze 12 eggs, or one year's worth of fertility. As of July 2019, none of the websites detailed how high a woman's chance of having a child would be with 12 eggs.[18]

Anti-Mullerian Hormone Testing

Nearly all the fertility start-ups reviewed advertised anti-Mullerian hormone (AMH) testing as a means of assessing how fertile a woman will be in the future. They recommended checking a woman's AMH at an initial encounter and if she had a low AMH level, she would be referred to a specialist to discuss her options, including egg freezing. Some websites cited to scientific papers about AMH, but none mentioned that use of AMH in this manner is highly controversial, an issue to be discussed in the next section.

These five themes represent key advertising claims made by prominent fertility start-ups to attract patients, including women in their twenties. Now the medical evidence behind the latter four claims will be evaluated. The first theme — that egg freezing allows women greater freedom, control and autonomy — will be addressed in depth in the section on the ethics of OC advertising.

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Evaluating the Evidence

Several aspects of fertility start-ups' advertising claims are poorly substantiated by the available medical evidence. For example, as evidence for the assertion that freezing younger (i.e. in the mid-to-late 20s) is necessarily superior, fertility start-ups focus exclusively on the number of genetically healthy eggs harvested per cycle, which will generally be greater for younger patients. However, they neglect to mention important information that might cause young women to conclude that freezing younger is not the better option. Many young women who freeze their eggs will not end up using the oocytes because they will find partners and have children without assisted reproduction. Only 7% of women who underwent eOC at a center in Brussels, Belgium between 2009 and 2017 returned to use their eggs.[19] A study based at New York University similarly found that between 2005 and 2011, only 7% of women returned to use their eggs,[20] and a Spanish study saw 9.3% of women return to use their oocytes between 2007 and 2015.[21] Egg freezing companies might argue that it is too soon to know whether their clients will return to use their eggs. However, return rates for these companies may actually be even lower than prior estimates, since more of their patients are younger and have even longer to conceive naturally. Given the costs and risks associated with eOC, the low rate of oocyte use may cause some young women to reconsider.

Interestingly, a survey of patient attitudes after having undergone eOC found that 89% of patients say they would be happy that they froze even if they never used their eggs.[22] Patients also estimated their likelihood of returning to use banked eggs, with 50% being the most common response. Although this estimation is much greater than 7-9%, it is possible that women who have recently chosen to undergo the procedure might overestimate their future use of their oocytes. In fact, it is interesting that so many women decided to move forward with eOC despite being unsure whether they would use the eggs in the future. However, the study also found that 49% of patients experienced some level decision regret. Higher levels of regret were associated with lower numbers of eggs frozen, perceived adequacy of information prior to freezing, sufficiency of emotional support throughout the process, and lower patient-estimated probability of achieving a live birth using their banked eggs. It appears that women were comfortable with the prospect of not needing to rely on the frozen eggs in the future, but were disappointed if the initial OC process had a poor yield. If women view egg freezing primarily as an opportunity to exert control over their reproductive lives, it is understandable that whether they ultimately use the eggs has little impact on their satisfaction with freezing. However, egg freezing is an involved medical procedure with real health and financial risks. The ethics section of this paper will address whether companies should encourage women unlikely to use their oocytes to undergo OC solely for the sake of affording them greater reproductive control.

Another reason that freezing at a younger age is not necessarily preferable is that it is more cost-effective to pursue OC at an older age. Mesen et al. concluded that 37 years old was the most cost-effective age to freeze because women were likely to both use the eggs and achieve a live birth with the frozen eggs.[23] For women aged 25-30, they found little benefit of freezing compared to no action at all (2.6%–7.1% increase in live birth rate), and freezing at that age group was the least cost-effective. Their model also showed that freezing eggs was primarily worthwhile (in terms of increase in live birth rate) for women who would have a child without a partner. For women who would only pursue a child from the frozen eggs if partnered, egg freezing at any age provided minimal benefit. (The likelihood was that they would either find a partner and have children without using the frozen eggs or not find a partner and not utilize the frozen eggs.) Hirshfeld-Cytron et al. also analyzed the cost-effectiveness of egg freezing at a young age. For women planning to delay childbearing until age 40, they found that waiting until 40 years old, trying to conceive spontaneously, and then undergoing up to 4 cycles of IVF was more cost-effective than freezing eggs at age 25 and utilizing those eggs at age 40.[24] While their model was less nuanced than that of Mesen et al., both studies suggest that freezing at a young age is not cost-effective compared to waiting and using assisted reproductive technologies later, if necessary.

Claims that egg freezing stops a woman's biological clock are also at odds with the obstetrics and gynecology literature. While evidence suggests that cryopreserved eggs can be stored for years[25] without decrease in live birth rate,[26] there are significant risks to delaying pregnancy to an older age. Advanced maternal age (defined as age 35 or older at the time of delivery) is associated with increased risks of gestational diabetes, gestational hypertension, preeclampsia, placenta previa,[27] Cesarean section, and longer hospitalization.[28] Older mothers are also at greater risk for emergency C-section,[29] amniotic fluid embolism, shock, renal failure, acute cardiac morbidity, and ICU admission.[30] One qualitative study of first-time mothers over 40 found that participants expressed a lack of social support, had concerns about their own mortality and felt disconnected from their younger peer mothers.[31] In terms of fetal outcomes, older maternal

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age is associated with low Apgar scores,[32] low birth weight, and preterm delivery,[33] which in turn are associated with increased infant mortality,[34] respiratory distress, necrotizing enterocolitis,[35] intraventricular hemorrhage,[36] and many other complications. While the stored oocytes may not be aging, the biological clock keeps ticking in other ways. Only one website reviewed acknowledged (briefly) the risks of pregnancy at an older age.

Another aspect of delaying motherhood that is imperative to convey to potential patients is that waiting to become pregnant at an older age will inevitably reduce the chances of becoming pregnant.[37] This is because the only remaining oocytes (with a high chance of normal chromosome number) will be the frozen oocytes, and there is a chance that some of them may be lost in the thawing process, may not fertilize, or may not result in a pregnancy. Indeed, when the ASRM declared OC no longer experimental in 2013, they noted that "Marketing this technology for the purpose of deferring childbearing may give women false hope and encourage women to delay childbearing."[38] Advertisements for eOC targeting younger women are, by definition, encouraging women to delay childbearing. In one survey of women who had already frozen eggs, the average latest age at which they could see themselves having a baby was 43.2 years old. The oldest age listed was 65 years old.[39] Egg freezing websites focus on the benefits of delaying motherhood but fail to disclose these risks. It is crucial that young women considering eOC are aware of the decreased chance of pregnancy, the increased health risks, and worse neonatal outcomes associated with pregnancy at advanced maternal age.[40]

With regards to the use of egg freezing as an insurance policy against age-related infertility, medical evidence suggests that freezing a dozen eggs, as recommended by some fertility start-ups, is not sufficient to provide reliable "coverage." The reproductive endocrinology literature indicates that 12 oocytes retrieved from a woman young and healthy enough to be an egg donor will result in about a 75% chance of one live birth.[41] Studies modeling the number of eggs required to virtually ensure a live birth estimate that between 20-40 eggs would be needed for a 95-97% chance of having one child.[42] The average number of eggs retrieved per cycle for an egg donor (the youngest and healthiest patients) is approximately 13.[43] This means it would take two to three cycles to freeze a sufficient number of eggs for women with the greatest projected fertility to feel very confident they could have one child from their frozen eggs. For women in their early thirties, the chance of live birth with one cycle's worth of eggs is closer to 70%.[44] At the time of data collection (July 2019), none of the egg freezing companies mentioned these crucial statistics on their websites or in their targeted advertisements. Since that time, four websites were modified to include statistical information, although only two provide accurate information on the likelihood of live birth (the more meaningful outcome for patients), as compared to likelihood of becoming pregnant. While it is encouraging to note that companies are improving the data available on their webpages, there is no standardization for how this information is communicated and patients could easily be confused by the difference between pregnancy and live birth. Other websites have not been modified at all and continue to give the impression that if women undergo one cycle, they can stop "stressing" about their biological clocks.

Many women not only want to feel secure in the ability to have one child, they also want multiple children. One study calculated that 30 frozen eggs (approximately two cycles) offers about a 70% chance of having two children and a 45% chance of having three children for women aged 30-34 at the time of freezing.[45] Framed differently by another study, it would take about 40 eggs from an egg donor to have a 97% chance at two live births, and it would take about 50 eggs from a non-donor woman under 35 to have the same chance. For a 97% chance at three live births, it would take 50 eggs from a donor and 60 eggs from a non-donor woman under 35.[46] Egg freezing company websites do not discuss the likelihood of having multiple children from the frozen eggs. The reproductive endocrinology literature suggests that the reality of egg freezing as insurance is very different from what fertility start-ups portray. Women who rely too heavily on having frozen a relatively small number of eggs may be severely disappointed to learn in their late thirties or early forties that they are unlikely to have the family they desire.

Finally, companies' use of AMH as a test for future fertility stands in stark contrast with recent scientific data. There is a growing body of evidence that AMH should not be used for ovarian reserve testing and is not a true marker of future fertility for the average woman who has not been diagnosed with infertility. Several high-quality studies comparing fecundability (ability to become pregnant) of women with higher and lower AMH levels have demonstrated that for women without a history of infertility, AMH does not correlate with reduced pregnancy rates[47] or longer time to pregnancy.[48] AMH is used by reproductive endocrinologists to predict response to hormones given during assisted reproduction, but should not be used to predict fertility in young, healthy women. It is troubling to imagine how many women have been told

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they may have trouble getting pregnant on the basis of lower-than-average AMH levels, and how many decided to pursue eOC as a result.

In summary, it appears that some representations made by egg freezing companies, including the assertions that freezing younger is preferable, that OC stops the biological clock, and that AMH is a marker of future fertility, are poorly supported by scientific evidence. Companies heavily emphasize potential benefits of egg freezing but fail to mention major drawbacks, including the low likelihood of using frozen eggs and the risks of pregnancy at advanced maternal age. It is common for advertisements to tell a biased story — they are, after all, meant to persuade customers to purchase a product they might otherwise not have. However, misleading advertising is particularly concerning in the medical field given the potential for patient harm. Who is responsible for overseeing health services advertising in the United States (US)? The next section presents legal standards that are used to evaluate advertising claims in the US and argues that some advertisements for eOC may qualify as "false advertising."

Legal Standards for Health Services Advertising

Medical advertising has increased dramatically in the past twenty years, and health services advertising is no exception. A recent study found that health services advertising increased much faster than the rate of spending on health services (430% increase vs. 90% increase) between 1997 and 2016.[49] In that time, advertisements on electronic media increased from 0% to 82%.[50] Thus the boom in advertisements for OC on social media and the internet more broadly is part of a larger surge in direct-to-consumer advertising for health services. The main agency responsible for overseeing advertising for consumer goods, including health services, is the Federal Trade Commission (FTC).

Federal Trade Commission

In the Federal Trade Commission Act, which gives the FTC its mandate, false advertising is defined as advertising that is "misleading in a material respect," where "material" means that the falsity is likely to affect consumer behavior. The Act states that "in determining whether any advertisement is misleading, there shall be taken into account…not only representations made or suggested…but also the extent to which the advertisement fails to reveal facts…"[51] Both claims and omissions can render an advertisement "false." The FTC is responsible for all kinds of consumer advertising but has a special focus on health-related advertising. Their webpage on health claims states that "Companies must support their advertising claims with solid proof."[52] If a company violates the laws for false advertising, the FTC can seek voluntary compliance through a consent order, file an administrative complaint, or initiate federal litigation.

In the early 1990s, the FTC charged several fertility clinics with misrepresenting IVF success rates. Through consent agreements, the companies agreed not to make further misrepresentations,[53] and Congress passed the Fertility Clinic Success Rate and Certification Act of 1992, which required US fertility clinics to report ART cycles and results to the CDC.[54] Despite the new mandatory reporting requirements, which were meant to standardize the reporting of IVF outcomes, the FTC continued to reproach fertility clinics for the way they publicized their results. In 1995 an FTC representative published an editorial in Fertility and Sterility, the leading reproductive endocrinology journal, outlining precisely what the FTC would consider deceptive advertising.[55] He wrote: "we look closely at the claims made, whether those claims are true, whether they can be substantiated by evidence, and, viewing the message as a whole, whether they omit information that would be material to consumers in light of the representations made." Moreover, "the claim must not mislead consumers into believing that the chances of success are greater than they really are." While the editorial was specifically aimed at ensuring that IVF success rates are conveyed in a truthful and transparent manner, the FTC representative's description of how the agency evaluates false advertising claims in the health services sphere is also helpful in the egg freezing context.

It is difficult to demonstrate that OC advertising has contributed directly to the increase in egg freezing by younger women, or that some women would have chosen not to freeze if advertisements had been more accurate. However, it is certainly plausible that advertisements that emphasize the benefits of OC while minimizing or omitting information about the risks, costs, and other downsides would be likely to affect purchasing decisions — that is, to have material consequences.

The available scientific evidence does not support the claim that AMH is a marker of ovarian reserve for women with no history of infertility. This claim is a misleading representation that may encourage women with low AMH levels to pursue egg freezing out of concern that they have reduced fertility, despite any real evidence to that effect.

The other claims that were analyzed can be considered misleading primarily due to information omitted. The message that it is preferable to freeze at a younger

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age is true from a purely technical perspective, in that younger women are more likely to retrieve a higher number of genetically healthy eggs for storage. However, "viewing the message as a whole,"[56] freezing at a younger age is not cost-effective and evidence suggests women are unlikely to use the eggs they freeze at a young age. Thus, the benefits of freezing are likely to be minimal, and the risks of freezing — both financial and physical — may outweigh the benefits for young women.

Similarly, the implicit claim that egg freezing is insurance against age-related infertility is deceptive because companies routinely omit information regarding live birth rates per cycle, the likelihood of having multiple children, and the lower chance of becoming pregnant at an older age because women have put all their eggs in one basket, so to speak.

Finally, the claim that egg freezing stops a woman's biological clock is misleading because the concept of a "biological clock" is not limited to the age of her eggs. The idea of the biological clock is that there is a time window within which women should attempt to reproduce — for their own sakes and for the sake of their offspring. This window still exists even if women have frozen their eggs due to the risks of pregnancy at advanced maternal age — risks that egg freezing companies fail to mention. Websites that obscure the true risks and lack of benefits of eOC undermine informed decision-making for women and constitute representations and omissions that are misleading in a material respect. Some egg freezing advertising claims could therefore be considered "false advertising."

Yet, the FTC has taken few actions against companies for misleading health services advertising in recent years. Schwartz and Woloshin conducted a comprehensive analysis of legal actions for all types of medical advertising and found that the FTC had only initiated one action for deceptive health services advertising between 1996 and 2018.[57] In 1996, the FTC pursued Cancer Treatment Centers of America for unsubstantiated cancer survival claims. Otherwise, the FTC's actions for health advertising have been limited to deceptive marketing for health products, such as weight loss and anti-aging products[58] and food and dietary supplements claiming to boost immunity[59] or cure Alzheimer's disease.[60] While health services advertising is within the FTC's purview, it is not a current focus of the Commission. Moreover, the types of claims they have targeted recently are patently outlandish, rather than misleading after a thorough review of the medical literature. The FTC may also choose to pursue misleading marketing that impacts larger numbers of women than eOC. Anecdotally, the author has learned that OC advertising has been raised with FTC leaders and they have declined to proceed.

To better understand why the FTC may be hesitant to pursue egg freezing companies for misleading advertising, it is helpful to recognize the broad latitude that health advertisers are typically afforded in the US under the First Amendment. Efforts to limit healthcare advertising, including direct-to-consumer advertisements for drugs, have been blocked by the Supreme Court in the name of free commercial speech.

First Amendment Rights

To better understand why the FTC may be hesitant to pursue egg freezing companies for misleading advertising, it is helpful to recognize the broad latitude that health advertisers are typically afforded in the US under the First Amendment. Efforts to limit healthcare advertising, including direct-to-consumer advertisements for drugs, have been blocked by the Supreme Court in the name of free commercial speech.[61] Moreover, companies are permitted to include "puffery," meaning exaggerated statements for which the truth or falsity cannot be precisely determined. Although this paper contends that certain OC advertising claims are outright misleading, one can imagine a company arguing those claims are mere puffery, not disprovable statements of fact. In Europe, the approach to consumer advertising in healthcare is vastly different. The European Union prohibits direct-to-consumer advertising for prescription drugs[62] and many European countries ban advertising for health services as well. A discussion of the pros and cons of permissive medical advertising is beyond the scope of this paper. However, given the latitude currently allowed to advertisers in the US healthcare space, representatives of OC companies might argue that if the FTC were to pursue them for misleading advertising, there may be broader implications for commercial speech regulation in the US.

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Food and Drug Administration

The Food and Drug Administration (FDA) has strict requirements for the kinds of statements that can and cannot be made in medical advertisements. However, the FDA is only responsible for monitoring advertisements related to drugs and devices, not health services.[63] In one borderline case, the FDA ordered the closure of two stem cell clinics that offered unapproved and unproven products in 2019. This was an unusual application of FDA's authority, as the agency generally does not regulate provision of health services. Nevertheless, the FDA's advertising regulations provide useful context regarding legal standards for medical advertising. The FDA regulations define false advertising as advertising that "fails to present a fair balance between information relating to side effects and contraindications and information relating to effectiveness of the drug…"[64] Advertisements must fairly and accurately portray the relative risks and benefits, and cannot heavily bias the customer's perception towards the upsides of taking the drug. If a comparable standard were applied to OC advertising, the claims analyzed in this paper would very likely be considered "lacking in fair balance." While the FDA is not responsible for regulating the provision of medical treatments like OC, the underlying logic behind their regulations — that patients must be able to accurately weigh the relevant decision-making factors — is at least theoretically, if not legally, applicable to egg freezing advertising.

Judicial Action

Another legal mechanism for evaluating advertising claims is through the judicial system, by application of the Lanham Act. The Lanham Act, passed in 1946, was primarily intended to curtail trademark infringement, including false statements of origin. Through decades of court interpretations, it has become the primary tool for private litigants to file civil suits asserting false advertising claims for goods and services.[65] The Act defines "false advertising" as advertising that "misrepresents the nature, characteristics, qualities, or geographic origin of his or her or another person's goods, services, or commercial activities."[66] To have legal standing, however, one must be a competitor or trade association that could suffer damages from the false claims. One cannot simply be a deceived consumer,[67] or someone with a "purely prospective interest" in ensuring truth in advertising.[68] Consumers in the 1980s attempted to bring class action law suits for false advertising under the Racketeer Influenced and Corrupt Organizations Act (RICO), but attempts to achieve standing under RICO were generally unsuccessful.

Under the Lanham Act, statements must have a tendency to deceive, which is typically demonstrated through consumer surveys showing misunderstanding. Statements must also be material, but the plaintiff does not have to prove injury (e.g. lost sales), only that advertisements are likely to cause damages.[69] While civil action under the Lanham Act could be pursued against egg freezing companies, the requirement that the plaintiff be a competitor or trade organization is very limiting. ASRM could assert that false advertising by OC start-ups undermines trust between patients and doctors, or that ads negatively impact infertility practices because high volumes of patients are scheduling appointments to discuss egg freezing when few are appropriate candidates, reducing availability for women in need of treatment. Given ASRM's stance on eOC, which will be discussed in a later section, it is unlikely the organization would take such an action. Individual consumers who come to regret having frozen their eggs unfortunately do not have legal recourse under the Lanham Act.

State Attorneys General

Finally, state attorneys general can pursue legal actions against companies for false advertising under state law. For example, New York has consumer protection laws that delineate the state's conception of "false advertising" and the actions that the attorney general (AG) can take against companies.[70] The Bureau of Consumer Frauds and Protection works under the NY State AG to "prosecute businesses and individuals engaged in fraudulent, misleading, deceptive or illegal trade practices."[71] However, Schwartz, and Woloshin's review did not find any actions initiated by state AGs nationally that were directed against false advertising for health services.[72] Moreover, state AGs are less likely to pursue companies that operate nationally or in multiple states, and some egg freezing start-ups operate bicoastally or have partners in other states.

Ultimately, Schwartz and Woloshin's conclusion that "The limited action by the FTC or state attorneys general speaks to the need for better consumer protection"[73] rings true. While there are multiple overlapping legal standards for advertising and at least two legal entities responsible for regulating truth in advertising — the FTC and state attorney generals — there has been little legal oversight of health services advertising, including advertising for egg freezing.

Professional Standards for Egg Freezing Advertising

Beyond the legal options for reigning in misleading OC advertising, medical societies have published guidelines on physician advertising and eOC in partic-

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ular. Although societies are responsible for overseeing physician actions — not the activities of commercial entities — they may be able to influence the practice of physicians who work for OC companies. Moreover, while society guidelines do not have legal power, they can provide a basis for establishing a medical standard of care. The goal of this section is to evaluate whether egg freezing advertisements violate professional standards for health services advertising and to determine if relying on physician societies to curb misleading OC advertising is advisable or realistic.

American Society for Reproductive Medicine

The organization most directly responsible for overseeing egg freezing is ASRM. In ASRM's 2013 guideline that deemed OC no longer experimental, the Practice Committee explicitly comments on the use of OC for elective purposes. The document states: "While this technology may appear to be an attractive strategy for this [elective] purpose, there are no data on the efficacy of oocyte cryopreservation in this population and for this indication. Data on the safety, efficacy, cost-effectiveness, and emotional risks of elective oocyte cryopreservation are insufficient to recommend elective oocyte cryopreservation."[74] This guideline has not been withdrawn or updated since 2013. The 2013 document also warns against giving women "false hope" and encouraging young women to delay childbearing. This paper has argued that OC advertising does not present a realistic picture of the risks of delaying childbearing or the likelihood of having one or more children from frozen eggs. Therefore, eOC advertisements do give women false hope and websites suggesting there are no consequences to postponing motherhood does encourage women to delay childbearing.

While ASRM's practice guideline cautions against eOC, the 2018 Ethics Committee opinion entitled, "Planned oocyte cryopreservation for women seeking to preserve future reproductive potential" tells a different story. The guideline notes that since 2013, "further research on efficacy has been re-assuring" and "factors point to planned OC as a medical innovation that is moving into practice." The document proceeds to lay out a firm stance in favor of eOC, asserting that the procedure "may increase reproductive options for women, thus enhancing reproductive autonomy." The Committee also contends that OC promotes social justice by contributing to equality between men and women in the workplace. The guideline acknowledges that young women may not return to use the frozen eggs but argues that women can decide for themselves whether "to incur uncertain risks for the prospect of uncertain benefits." The Committee lists several elements required for adequate informed consent for eOC, including notification of the increased risks of AMA pregnancy and clinic-specific statistics, or lack thereof, for freeze-thaw rates and live births. Despite public controversy regarding employers' role in egg freezing, the guideline strongly endorses employer-sponsored insurance coverage for eOC. Finally, the document addresses concerns about OC advertising, saying "the Ethics Committee is concerned about coercion and the line between education of young women and inappropriately aggressive marketing to them" and advertisements "may also generate disproportionate fear or encourage action that is not in the woman's best interest." In terms of specific recommendations, the Committee only states that it disapproves of arrangements in which medical practices hire marketing firms and pay the firms for each woman who becomes a patient — indeed, a troubling scenario.[75] Overall, the Ethics Committee guideline is decidedly supportive of eOC and mentions, but does not emphasize, concerns regarding advertising targeting young women. After reading the guideline, it is difficult to envision ASRM assuming the role of enforcer for misleading OC advertising, though it is within their purview as the country's lead association of reproductive endocrinologists.

Society for Assisted Reproductive Technology

SART, a sister organization that is closely tied to ASRM, has an Advertising Committee that publishes guidelines for SART members. The guidelines are primarily aimed at standardizing the presentation of IVF success rates, but they also state that advertising claims must not lead patients to believe they have a greater chance of success than they really do and must be supported by verifiable published data. Clinics that violate the advertising policy are at risk of losing SART membership. This paper has argued that some OC advertising claims are inadequately supported by the medical literature and could cause patients to overestimate the likelihood of live birth. In one study of women undergoing OC, a small number of survey participants estimated their likelihood of having a baby at 100%, which was highly concerning to the authors.[76] Unfortunately, as described in an earlier section of this paper, studies comparing SART advertising guidelines to the content of SART-affiliated clinic websites show poor compliance, with few consequences. Furthermore, egg freezing start-ups are not SART-affiliated clinics and therefore are under no obligation to comply with the SART advertising guidelines. However, the physicians who contract with egg freezing start-ups are often SART members who would be expected to adhere to the guidelines, and physicians ought to be

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cognizant of the advertising that takes place on their behalf. SART's Advertising Committee could attempt to hold physicians who are SART members accountable for problematic OC advertising.

American College of Obstetricians and Gynecologists

ACOG is the national association of OB/GYNs and its guidance documents have significant influence over OB/GYN practice in the US. ACOG's Code of Professional Ethics states that OB/GYNs "should support and participate in those health care programs, practices, and activities that contribute positively, in a meaningful and cost-effective way, to the welfare of individual patients, the health care system, or the public good."[77] This paper has established that OC is not cost-effective for young women and in many cases will not meaningfully contribute to patient welfare.

ACOG also has a guideline on ethical advertising. It says: "Advertisements must be truthful and not deceptive or misleading. Specifically, this means that all information must be accurate and must not create false or unjustified expectations." The guideline notes that particular attention must be paid to patients who can be considered "vulnerable," including patients with infertility or recurrent pregnancy loss who are "desperate to have a child." While we should not consider the average woman in her mid-to-late twenties a "vulnerable patient," aggressive marketing that increases women's fear of future infertility can render patients more susceptible to OC adverting than they otherwise would be. Moreover, the guideline states that it "is deceptive to give the public the impression that experimental or unstudied procedures are of proven value or accepted practice." Importantly, they also note that "physicians should evaluate not only their own actions but also those undertaken on their behalf …"[78] Though advertising may be generated by private companies, physicians should not turn a blind eye to the messages that are disseminated on their behalf.

Finally, ACOG has a Practice Committee opinion on OC that was first published in 2014, reaffirmed in 2018, and has not been updated or withdrawn since that time. The opinion states that there "are not yet sufficient data to recommend oocyte cryopreservation for the sole purpose of circumventing reproductive aging in healthy women" and that patients must be "thoroughly counseled about the current lack of data on efficacy, as well as the risks, costs, and alternatives to elective oocyte cryopreservation."[79] None of the websites reviewed disclose ACOG's warning regarding the lack of data on eOC. Though not technically experimental, eOC continues to be considered unproven by ACOG; given the language in ACOG's guideline regarding ads that present unstudied procedures as proven, it is misleading for advertisements to omit this fact. Although ACOG condemns deceptive advertising practices, it appears that the society has not taken any actions to curb deceptive egg freezing ads.

American Medical Association

Until the 1980s, the American Medical Association's (AMA) ethics code prohibited physician advertising altogether. The original 1847 Code of Ethics stated: "It is derogatory to the dignity of the profession, to resort to public advertisements or private cards or handbills."[80] Advertising was felt to be beneath physicians, and the code was widely respected. In 1975, the US Supreme Court found Virginia lawyers liable to charges of price-fixing,[81] setting a precedent for anti-trust litigation against other professional organizations.[82] Not long after, the FTC sued the AMA and other medical societies for prohibiting advertising in their ethics codes, which they argued was an anti-competitive practice. *AMA v. FTC* was heard by the Supreme Court in 1982, and a divided court (4-4)[83] left in place the lower court ruling that barred the AMA from restricting physician advertising in their ethics code.[84] The FTC chairman at the time, Michael Pertschuk, was quoted as saying, "One possible way to control the seemingly uncontrollable health sector could be to treat it as a business and make it respond to the same market-place influences as other American businesses and industries."[85] The message was clear: medicine should be no different than other types of business, and businesses must be able to advertise their wares.

After the *AMA v. FTC* decision, the AMA removed all prohibitions to advertising from their ethics code, leaving only a provision against false or misleading advertising.[86] The latest version of the Code of Medical Ethics reads: "There are no restrictions on advertising by physicians except those that can be specifically justified to protect the public from deceptive practices. A physician may publicize him or herself as a physician through any commercial publicity or other form of public communication…provided that the communication shall not be misleading because of the omission of necessary material information, shall not contain any false or misleading statement, or shall not otherwise operate to deceive." The code also states that "Aggressive, high pressure advertising and publicity should be avoided if they create unjustified medical expectations or are accompanied by deceptive claims." Moreover, advertisers must have "a reasonable basis for claims" that "a reasonable, prudent advertiser should have discovered."[87]

This paper has argued that some claims regarding eOC, particularly ones directed towards young women,

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lack a reasonable basis and are misleading. These advertisements would therefore be in violation of the AMA's Code of Medical Ethics. Although the AMA is responsible for overseeing the advertising claims of all physicians who are members, many OB/GYNs and reproductive endocrinologists may not be members. Moreover, the organization does not have the capacity to monitor all health services advertising in the US. On their website, the AMA notes that they lack the legal authority and resources to investigate individual cases and direct potential complainants to their state medical licensing boards.[88] Moreover, the AMA's recent "Truth in Advertising" campaign aims to ensure that healthcare providers are honest about their level of training and licensing.[89] Given the current focus of AMA's truth in advertising efforts, it is unlikely they will take up the challenge of reforming advertising for OC.

Misleading advertising for OC violates all the relevant professional standards for health services advertising. There is room for stronger and more targeted professional guidelines, as well as greater enforcement of existing guidelines. Action by professional societies can help set a higher bar for truth in advertising for eOC — including that website content contain a fair balance of information regarding the benefits and drawbacks of treatment. At the same time, egg freezing start-ups are not members of ASRM, SART, ACOG, or AMA and generally do not directly employ medical staff, which means these organizations have little power to affect their marketing practies. Nevertheless, stronger guidelines could impact the behavior of physicians who are affiliated with fertility start-ups, many of whom are ACOG, ASRM, and SART members. These physicians can urge start-ups to modify advertisements that are disseminated on behalf of their services. After all, doctors seeing patients who have been exposed to misleading advertisements are left with a significant burden to correct misconceptions. Further research on fertility specialists' counseling about eOC is needed to understand the pressure on physicians to counteract misinformation and their ability to do so effectively. However, the fact that patients will meet with a physician prior to undergoing treatment does not absolve start-ups from the responsibility to disseminate truthful marketing materials.

Ethical Analysis of Egg Freezing Advertising

Having evaluated legal and professional standards for egg freezing advertising, this section discusses from an ethics perspective the ways in which OC advertising, particularly ads targeting young women, raise ethical concerns. First lessons from medical professional ethics are considered, and then the expansive but essential question of whether egg freezing advertising supports or undermines autonomy and justice for women is addressed.

Professional Ethics of Health Services Advertising

Since AMA was required to permit physician advertising in the early 1980s, a debate has continued in the bioethics literature regarding the appropriateness of health services advertising, with most authors decrying the practice. For example, Dyer argued in 1985 that advertising detracted from medicine's mission of public service. He wrote: "To the extent that medicine fails in maintaining its professional ethical standards of public service and personal care, it is vulnerable to the criticism of self-serving commercialism."[90] In 2006, Tomycz wrote: "Physician advertising manipulates choice by presenting limited and biased information that aims to entice rather than inform." He worried that the "fleeting medium of advertisement" was inappropriate for supporting the kind of informed decision-making that should take place prior to any medical intervention. For the sake of medical professionalism, the patient-doctor relationship, and informed decision-making, Tomycz encouraged physicians to shun health services advertising.[91]

Others have argued that not all physician advertising is morally suspect, but the medical profession has a particular obligation to ensure that advertising is balanced and truthful. Schenker et al. maintain that "informational asymmetries, combined with high stakes and patient vulnerabilities, establish a fiduciary obligation to patients…" They propose that doctors' fiduciary duty generates the need for a higher ethical standard for advertising. For instance, they write that FTC regulations may be insufficient because the average patient with limited medical knowledge can easily be mislead by more subtle advertising techniques. They also note that although patients will speak with a doctor prior to making a medical decision, their expectations may be "fundamentally shaped by frequent exposure to medical advertising" beforehand.[92] This point is particularly relevant to egg freezing advertising; while patients will deliberate with a physician before making their final decision, people are susceptible to the psychological pressure created by repeated encounters with emotion-laden, targeted advertising.

Advertising is meant to encourage people to purchase something, or a particular version of something, that they may otherwise not have purchased. Successful ad campaigns can fabricate a market from nothing, for example by persuading customers that they need the latest iPhone, fuller lips, or thicker hair.[93] While inventing a need may be acceptable in other areas, persuading patients to undergo unnecessary medical treatments — to subject themselves to unnecessary

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health risks — is problematic, particularly if the information is presented in an incomplete or skewed manner.[94] As Latham contends, it "is surely an ethics violation to sell a service, under false pretenses, to patients who would be better off without it."[95]

Egg freezing advertising targeting women in their mid-to-late twenties aims to create a market by convincing potential patients that there are no consequences to delaying childbearing because egg freezing will allow them to have children whenever it becomes personally and professionally convenient. However, studies on why women have chosen eOC show that the vast majority of women freeze because they have not yet found a partner with whom to have children,[96] not because they intended to delay childbearing until they accomplished other goals. In practice, many career-oriented women have trouble finding a partner because of difficulty achieving a conducive work-life balance.[97] However, there is a difference between a woman wanting to have children earlier but lacking a partner, in part, due to her focus on her career, and a woman prospectively choosing to postpone childbearing in order to pursue other goals after she is inundated with advertisements conveying the message that there is no downside to waiting if she freezes her eggs. Of course, women are and should be entirely free to delay pregnancy until they feel ready, but prior to undergoing eOC, they should be fully aware of the risks of deferring childbearing and the limits of egg freezing as a means of compensating for age-related infertility. It is unethical for egg freezing companies to foster interest in a medical procedure with present and future risks on the basis of markedly biased advertising.

One might respond that this argument is overly paternalistic — that women are capable of interpreting advertisements, consulting with a physician and making their own decisions.[98] However, it is reasonable to have full confidence in women's (or men's) decision-making capacity when they are presented with well-balanced material, but to have concerns about women's ability to make fully informed choices when they are confronted with misleading OC advertising. The impact of egg freezing advertising on women's autonomy and justice will now be analyzed in greater depth.

Autonomy & Justice Implications of Misleading Advertising

There are several ways in which egg freezing advertising claims undercut women's autonomy. The first has already been discussed; misleading and unbalanced advertising detracts from informed decision-making, which undermines women's ability to make autonomous choices. Another way in which OC advertising impairs autonomy is by playing on women's fear of infertility. For example, clock imagery in egg freezing advertising is intended to elicit fear that time is running out and women must act before it is too late to have children. Reis and Reis-Dennis write that focusing on women's fear of childlessness encourages women to "ignore the potential of failure, and the possibility of wasting thousands of dollars" on egg freezing.[99] There has been public backlash against OC marketing that feeds on fear,[100] and companies have stopped using ads featuring ominously ticking clocks as a result.[101] Nonetheless, the whole premise of eOC is that women should preserve their fertility before it begins to decline. Since women who freeze in their twenties are unlikely to actually use their cryopreserved eggs, the impulse to freeze early may be a response to fear of future infertility engendered by OC ads.

As illustrated in the first section of this paper, another message communicated by egg freezing advertising is that eOC increases a woman's options or choices. In a literal sense, egg freezing is one more option available to a woman contemplating her reproductive plans, but the relevant question is not if she has a greater number of choices, but if her autonomy is meaningfully increased by the availability of egg freezing.[102] It is well-known in cognitive psychology that adding choices can make decision-making

This paper has argued that some claims regarding eOC, particularly ones directed towards young women, lack a reasonable basis and are misleading. These advertisements would therefore be in violation of the AMA's Code of Medical Ethics. Although the AMA is responsible for overseeing the advertising claims of all physicians who are members, many OB/GYNs and reproductive endocrinologists may not be members. Moreover, the organization does not have the capacity to monitor all health services advertising in the US.

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more difficult, particularly for people who have a tendency towards maximizing rather than settling for "good enough."[103] In the case of egg freezing, having the option to delay childbearing might make some women feel relieved that they can pursue their ambitions with less concern about their declining fertility. For other women, it may make them feel pressured to choose egg freezing in order to focus on their careers; with egg freezing as an option, they have no excuse. The worry that women would feel coerced into freezing their eggs has played a large role in popular debate over employer-sponsored OC,[104] and further research is needed to assess whether employer coverage does more harm or good. It is clear, however, that having the option to freeze eggs does not necessarily increase a woman's autonomy, and in some circumstances, as with a coercive employer or social situation, it can actually compromise her reproductive autonomy.[105]

Egg freezing can only enhance women's autonomy if it represents a good option and does not come at the expense of other measures that are better for women's autonomy. As Harwood writes, egg freezing "does not substantially alter the social structures that have constructed inequalities out of the biological differences between women and men, including women's more limited window of time to reproduce biologically."[106] Egg freezing is appealing to career-oriented women because it allows them to have children after their late twenties and early thirties, which is often a crucial time for career advancement. During this time, due to their young age and relatively junior status, employees are expected to work long hours that can be prohibitive for childbearing. Egg freezing allows women trapped in this quandary to find limited relief, but it does nothing to address the underlying injustice: the timeline for career advancement is poorly-suited to female reproductive biology.[107] Options that would meaningfully increase women's autonomy — to have or not have children when they so choose — and justice in the workplace include: flexible work hours, adequate parental leave, affordable and geographically proximate childcare, the ability to work from home, and a professional advancement ladder that accounts for women's reproductive needs.[108] Of course, it is not mutually exclusive to seek broader social change and expand the availability of eOC. However, the perceived freedom associated with the option to freeze eggs may decrease momentum in some workplaces to make more profound structural changes. Moreover, the option to freeze eggs may reinforce the expectation that women who are serious about their careers will put childbearing on hold.[109]

It seems odd that we should attempt to change the biology of female reproduction instead of adjusting our professional culture to a world in which women take equal part in the workplace.[110] However, the argument that tinkering with female biology is inappropriate was also made against birth control, when it first became available.[111] Indeed, advocates for eOC often compare egg freezing to birth control; both treatments give women greater control over their reproductive lives. This paper does not seek to critique the availability of eOC, including for women in their twenties; women should be free to choose OC once they are appropriately informed. Rather, it takes issue with the one-sided messaging that egg freezing represents a purely positive contribution to women's autonomy and justice. In some instances, a woman's choice to pursue eOC may maximize her autonomy within the constraints of her life, but it is disingenuous to suggest that egg freezing maximizes autonomy for all women.

It is especially questionable to characterize egg freezing as decisively beneficial for women's autonomy when one considers the relatively small group of women who can afford the procedure. Egg freezing costs approximately $10,000 per cycle, and women may want to undergo multiple cycles in order to store a greater number of eggs. The high cost of eOC renders it inaccessible to most American women — and disproportionately women of color — who could also benefit from the opportunity to focus exclusively on their careers in their twenties and early thirties, if they so desired. For women who cannot afford to freeze their eggs, the implementation of more equitable workplace policies is imperative for them to be able to have children within their reproductive window without forgoing the chance to advance professionally. Advertisements for eOC only aim to persuade women who could conceivably afford the procedure and company representatives might counter that lamentably, increasing the autonomy of all women is outside their purview. Nevertheless, it would be irresponsible to take an uncritical view of the claim that OC enhances reproductive autonomy if it only has the potential to do so for a small number of women, possibly to the detriment of others if it strengthens expectations to delay motherhood.

Goold and Savulescu argue that while broader social changes are preferable, eOC can be considered "a kind of reproductive affirmative action" that may no longer be necessary when more equitable workplace policies are instituted.[112] In the meantime, they assert, eOC is empowering to women. Similarly, Robertson writes that egg freezing "seems empowering" because it allows women to delay motherhood, enabling them to establish their careers.[113] The language of empowerment is pervasive in OC advertising, and a survey mentioned previously reported that nearly 90% of

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participants perceived increased control over reproductive planning after eOC.[114] Again, we must ask: if real patients experience egg freezing as empowering, is the urge to warn women about one-sided advertising fundamentally paternalistic?

Women should be allowed to reach their own conclusions after being presented with accurate information, even if their ultimate decisions are not cost-effective and may not result in the outcomes they hope to achieve. Although eOC is an involved medical procedure with real risks, and although it is more likely to provide a sense of control than it will future offspring, women who are adequately counseled should be able to proceed if they so choose. Women know themselves best and can pursue the course that most aligns with their priorities regarding if and when to have children. At the same time, Harwood contends that it seems "disingenuous to appeal to 'free choice' and the avoidance of 'paternalism' when the only thing that may ultimately be gained by women's use of egg freezing is financial profit ..."[115] Perhaps we need not be quite so cynical; surely there are times when the women themselves will benefit from the procedure, but the data presented here suggest that those circumstances may be much less common than OC advertising would lead women to believe. As for the issue of empowerment, while it may be empowering for a woman to take an active role in planning her reproductive future, a more meaningful conception of empowerment would enable the rejection of a male-centric biological timeline. If paternalism involves telling young women what they should want, or what they should do about what they want, egg freezing companies are far more vulnerable to the charge of paternalism than those concerned with the truthfulness of their advertisements.

Conclusion

This paper has identified common messages found in advertisements by egg freezing start-ups and analyzed the evidence behind four claims: (1) that the younger women freeze, the better; (2) that egg freezing stops women's biological clocks; (3) that egg freezing is an insurance policy against age-related infertility; and (4) that AMH is a reliable marker of future fertility. It concluded that the first three claims are misleading by omission; egg freezing advertisements fail to acknowledge the limitations of egg freezing, particularly for women in their twenties, and insufficiently characterize the residual risk of age-related infertility and the dangers of pregnancy at an older age. It also determined that there is little evidence to support the claim that AMH correlates with fecundity in healthy, young women. After reviewing the relevant legal standards for truth in advertising, it was argued that certain misrepresentations and omissions can be considered false advertising. This paper also established that misleading egg freezing advertising violates the professional guidelines of all relevant medical associations. Finally, it contended that heavily biased advertisements for eOC undermine women's autonomy and have the potential to detract from efforts to achieve greater equality in the workplace. There are real financial and health consequences to misleading young women into freezing their eggs. If deceptive advertising is left unchecked, thousands of women may be tragically disappointed to learn in their early forties that they are no longer able to have the family they envisioned.

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