

## ORIGINAL ARTICLE



# Does ectogestation have oppressive potential?

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## 1 | INTRODUCTION

Ectogestation refers to full or partial gestation of a fetus ex utero. Partial ectogestation refers to the removal of a developing fetus from the pregnant person's body and its placement into an artificial placenta<sup>1</sup> to complete gestation (Kaczor, 2005). In this sense, it may be seen as an “alternative to neonatal intensive care,” (Romanis & Horn, 2020) or imagined as a more advanced version of methods already used in modern medicine to sustain premature babies in an incubator.<sup>2</sup> In this article, however, we focus on full ectogestation, which could represent a “complete alternative to human gestation” (Räsänen & Smajdor, 2020), as eggs would be fertilized in vitro, and the resulting embryos directly placed in an artificial placenta for the whole gestational period. Building on the recent wealth of literature addressing ethical issues related to it,<sup>3</sup> we aim to analyze some underexplored objections to full ectogestation.<sup>4</sup>

Our article investigates whether ectogestation might lead to certain forms of social oppression. First, we explore ectogestation's potential role in the unwarranted devaluing of certain aspects of female reproductive embodiment. We then consider whether ectogestation could exacerbate existing objectionable scrutiny over the reproductive choices of gestating persons. While also considering some counter-objections to these concerns in our paper, we maintain that public support for ectogestation should be conditional on rigorous critical reflection about the possibilities for social oppression that might arise from this technology, in addition to concrete preventive actions directed at mitigating such potential effects.

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Still, we also acknowledge that the prospect of ectogestation can be imagined and framed in a positive and emancipatory fashion. This has already been done by many feminist thinkers and bioethicists, in line with the practical suggestion to give people at the very least a (hypothetical) negative right to use ectogestation if they want it. (Benjamin, 2021). In principle, we are sympathetic to this notion that ectogestation can be purposed to emancipatory ends; when we link ectogestation with social oppression later in the article, our aim is to draw greater attention to the more troubling complexities and complications we might encounter with ectogestation, which require mitigation. But let us now briefly review and put into context the grounds that have been offered in *support* for a reality with ectogestation. Consider Shulamith Firestone's advocacy of a method of artificial gestation already from the 70's, as a way to "[free] women from the tyranny of reproduction" (Firestone, 2015). Her radical feminist view placed the reproductive differences between male and female sexes as the basis for gender inequality, claiming that detaching women from the role of "baby-makers" was a crucial step for women's liberation. Firestone hoped that society might "soon have the means to create life independently of sex—so that pregnancy, now freely acknowledged as clumsy, inefficient, and painful, would be indulged in, if at all, only as a tongue-in-cheek archaism, just as already women today wear virginal white to their weddings" (Firestone, 2015). Since then, other scholars have echoed similar ideas. For instance, Jennifer S. Bard posits that, by taking pregnancy out of the equation, "men and women stand on equal ground" (Bard, 2006), and Anna Smajdor has defended the need for a technological alternative to embodied gestation (Smajdor, 2007) given the burdens of pregnancy.

Ectogestation could then offer an attractive alternative to childbearing for persons unable to get pregnant through traditional methods, including "post-menopausal women, or women at high risk for complications" (Sander-Staudt, 2006). Furthermore, even those who are able to gestate could avoid experiences like pregnancy-related discrimination, and be relieved of the psycho-physiological risks associated with pregnancy and childbirth (e.g., nausea, gestational diabetes, preeclampsia, depression, complications with delivery, and so forth) (Sander-Staudt, 2006). After all, some women already opt for *surrogates* to gestate on their behalf for medical or social reasons, so it does not seem too much of a stretch to anticipate that ectogestation might be utilized as a further viable alternative if it were to become available. Of course, we should acknowledge that risks to both the intended parent and third-parties might persist even with ectogestation, due to the necessity of egg retrieval for IVF, which would involve some health risks (such as pelvic infection or damage to organs near the ovaries) (American Society for Reproductive Medicine, 2015; Ber, 2000) as well as pelvic and abdominal pain. Moreover, as long as gametes cannot be produced from stem cells or via other painless techniques, the contribution in terms of gametes will still be unequal between the sexes, as egg extraction is much more burdensome relative to sperm extraction. However, the risks associated with egg retrieval are significantly inferior to those of pregnancy and childbirth.

Ectogestation's emancipatory potential would also not be confined to cisgender women who medically struggle to get pregnant or prefer to avoid pregnancy-related discrimination or risks associated with gestation and childbirth. First, cisgender men aspiring to be parents but limited by their being single or in homosexual relationships could more easily achieve their parental goals, assuming the availability of donor eggs. While this is already possible in certain countries via surrogacy, that process might not be ideal as it generally requires surrogates to relinquish their parental rights, as they are still recognized as mothers by most legal systems (American Society for Reproductive Medicine, 2015; Ber, 2000). Moreover, ectogestation might benefit transgender individuals by detaching gestation from the concepts of womanhood and

motherhood. As argued by Kathryn MacKay, when used to define womanhood, traditional pregnancy “privileges some women over others, both under the law and in moral and political imaginations” (Mac Kay, 2020). By conceptually breaking the exclusive relation between pregnancy and bodies with female physiology, ectogestation could disrupt oppressive trans-exclusive narratives framing trans women as “lacking” those female reproductive traits traditionally used “to delineate who counts as woman” (Mac Kay, 2020). For trans men, the benefit could be double. On the one hand, those not wanting or not able to gestate would have an additional way to be parents; on the other hand, a weaker link between pregnancy and perceived womanhood could help those trans men and nonbinary people who have the gendered term “mother” imposed on them, based solely on having gestated their children. In fact, in many systems people who give birth are registered as “mothers,” regardless of their legal gender (McConnell & Anor, 2020). In this context, it is crucial to note that queer persons rely on reproductive technologies significantly more than heteronormative persons do for their chances of becoming parents (Kimberly et al., 2020).

These aspects have led some to suggest the possibility of a moral *obligation* to extend the availability of ectogestation to “individuals or couples identifying as members of sexual- or gender-minority groups who likewise seek to pursue parenthood” (Kimberly et al., 2020). From both feminist and egalitarian perspectives, ectogestation—as speculative a process it is at present—can be defended in virtue of a variety of plausible advantages. At least, if made available and accessible in socially just ways, ectogestation may:

- provide aspiring parents with more reproductive options;
- help overcome medical challenges associated with pregnancy; as well as
- disrupt traditional gendered parenting.

While we have now recognized that the various emancipatory functions of ectogestation speak in its favor, our objective from here on out is to highlight some underexplored concerns associated with ectogestation, and demonstrate that support for ectogestation ought to remain conditional on addressing the issues we raise. Let us start by considering the *limitations* to the emancipatory appeal of this technology: Giulia Cavaliere has warned that “without a broader programme to end or mitigate gender-based oppression” (Cavaliere, 2020a), it is rather doubtful that the emancipatory objectives of ectogestation can be fully realized—especially for disadvantaged agents like poor or disabled women, women of color, and ethnic minorities (Cavaliere, 2020b). Others agree with this perspective, claiming that technological interventions such as ectogestation cannot solve social issues since they are unable to effectively target the actual source of the problem, which is social, not medical, and therefore needs to be addressed by social measures (Campo-Engelstein, 2020). While not claiming that ectogestation is itself either intrinsically or inescapably problematic, we intend to examine its *potential* to exacerbate patriarchal oppression, by building on these socially informed critiques.

## 2 | ECTOGESTATION AND THE POTENTIAL FOR OPPRESSION

As mentioned above, authors such as Giulia Cavaliere have already made critical arguments about ectogestation. One of Cavaliere's claims is, for instance, that advocating for ectogestation

might problematically subscribe to *assimilation* as an ideal for liberation. That is, ectogestation seems to promote the obliteration of *difference*—such as the capacity to gestate—as a way of acquiring gender equality (Cavaliere, 2020b). Yet, if the issue originates not from the bodily reproductive capabilities, but from gender roles and oppressive social structures, ectogestation will not necessarily resolve gender inequality (Segers, 2021). Rather, a more apt emphasis might be on a world “in which pregnancy did not disadvantage women socially, physically and economically” (Horner, 2020).

Building on these critical insights, we offer additional arguments for the oppressive potential of ectogestation by elaborating on how—in the context of a patriarchal society—the normalization of artificial gestation might contribute to a *selective* undervaluing of aspects of female reproductive embodiment, and contribute to objectionable kinds of scrutiny over gestating persons' reproductive choices.

## 2.1 | Devaluing of embodied reproduction

In this section, we investigate the contributory role that ectogestation might play in selectively devaluing and reinforcing stigmatization of certain aspects of female reproductive embodiment. Though ectogestation is, for now, merely a speculative method, we can take cues from our current society to inform the role that it may 1 day come to play to this end. We first consider what the *embodiment* of women's experiences involves, and explore the social norms of acceptability regarding, especially, cisgender women's bodies and female reproductive functions. Then, we assess how ectogestation, as an essentially *disembodied* form of procreation, might exacerbate some of the problematic ways in which biologically female bodies, in their sexual and reproductive potential, have been socio-historically perceived.

Let us begin with a comparable scenario—the vexed cultures around menstruation. In many parts of the world, menstruation is still a cultural taboo; for instance, in parts of India, various myths lead to consider menses to be “dirty and impure” (Garg & Anand, 2015). This shows us that even entirely ordinary physical processes experienced by most girls and women—in fact, the very processes indicative of female reproductive ability—*can* be denigrated or perceived as unseemly when *visible*, *talked about*, and so forth. At the same time, though, the *ability* to menstruate is perceived as a requirement to be recognized as women, and many might experience menses positively “as a marker of sexuality and fertility” (Kieser, 2017). The menarche is often approached as a rite of passage into “womanhood”—such that girls who have their first menstruation “late,” or do not have it at all, might be shamed by society and its members for not experiencing something that other girls commonly go through in puberty. Menstruation is then both celebrated as a sign of fertility and seen as a taint, a taboo, something to be both ashamed of and shamed for. This ambivalent valuing *and* disvaluing of women's bodily functions, fluids, processes, does not end with menstruation; it affects all embodied aspects of female reproductive ability.

The phenomenon of pregnancy is in fact a site of similar ongoing tension, flipping between attitudes of reverence and of revulsion. Religious iconography, like depictions of the Virgin Mary, quite literally “eradicate a pregnant woman's sensuality through claims of immaculate conception” (Putnam, 2018) and is meant to reinforce one particular outcome in female reproduction—the ability to bear and birth a child. Similarly, there has been a tendency in pregnancy-related popular images to focus on “the womb,” perpetuating “an aesthetics of pregnancy that leaves little room for consideration of the pregnant woman's subjectivity, either by

removing her from the picture entirely ... speaking in her place ... or emphasizing an unattainable role for the maternal ..." (Putnam, 2018). These images strip women of at least *some* of their embodied experiences, leaving out everything *but* the event that is apparently truly valued, which is the conception and expectation of a new-born child. At the same time, more contemporary and secularized cultural images of the "new mother" may contradictorily demand that any hints of physical effort or change in lifestyle to be hidden, even as they are at the same time *celebrated* for having successful childbirth. As some point out, after childbirth "there is a cultural insinuation that a mother's job is to present herself physically as though nothing as momentarily life-changing or body-changing as having a baby has occurred" (Orbach & Rubin, 2014).

Such attitudes associate negative connotations to physical changes brought on by pregnancy, such as weight gain and changes to the genital area; this is plausibly partly responsible for the increasing desires people have to "fix," for instance, the postpartum genital area with cosmetic surgery such as vaginoplasty and labiaplasty (Zielenski et al., 2017). Although this modern predicament of the "new mother" lacks religious connotations, the normative call for a mother to restore a kind of metaphorical virginity (i.e., reacquire the pre-birth body) *despite* the fact that it is the birthing body that actually leads to the delivery of a child—evokes a similar kind of dissonance about how we value parts of female reproduction in radically different ways.

We could go on with similar case studies, but the point to take away here is just that there is chronic ambivalence in the social imagination about how to value women's bodies in reproduction. The normative question of *how they should be* in their embodied experiences infiltrate all the different stages and cycles of women's reproductive abilities and events, and this is reflected in the socio-historical, cultural imagination of women's bodies as surveyed above. As Luna Dolezal writes, pregnant women are "construed as both *being* and *containing* reproductive machines" (Dolezal, 2018). The objectifying idealization of women's bodies—as virgins, sexual objects, baby-makers—is in clear tension with the realities of embodied experiences, like copulation, menstruation, or the potential trauma of giving birth. Hence, the public valuing of women's bodies, and their overall embodiment, is informed by the (often oppressive) norms, roles, and expectations considered appropriate for women to embody.

What does this have to do with ectogestation? If pregnancy is, generally speaking, conceived of as "a state to be endured that is only valued when resulting in the birth of a child" (Putnam, 2018), then ectogestation represents a technological proxy for that value, and at least on the surface appears to resolve the value tensions mentioned above. The opportunity to outsource gestation and avoid much of the embodied reality of female reproduction—without at the same time losing out on the fulfillment of motherhood—could be thought of as the ultimate ideal, at least in a Western, neoliberal context where mothers having a productive, able, "pre-baby" body unscarred by the burdens of pregnancy and childbirth is a social ideal. With disembodied gestation, women could still fulfill their supposed reproductive duty of becoming mothers, without using their own reproductive organs, and therefore retain the ability to conform to the oppressive, norms and ideals imposed on their bodies. This neoliberal context makes obvious the ways that ectogestation *purports* to liberate, but only by enabling the allegedly autonomous subject to capitulate to ideals of productivity; as Julia Jansen and Maren Wehrle note, "... every subject 'freely chooses' to normalize or optimize itself, to enhance its gains (human capital) and reduce its losses in the economic market. The neoliberal [agent] thus has a self-interest in optimizing her body as an object, with a calculable price and value within a job or private market" (Jansen & Wehrle, 2018). This context informs how "maternal femininity under neoliberalism has become intertwined with consumer culture" (Eidelman et al., 2012)

such that motherhood becomes a kind of “self-actualization through consumption” (Orgad & De Benedictis, 2015). New reproductive technologies such as ectogestation might also be co-opted to serve this narrative.

On the flip side, we can acknowledge that some aspects of the embodied prenatal and postnatal experiences are in fact *overvalued* rather than undervalued or unduly stigmatized. For example, as the cultural reverence of the *ability* to bear and birth a child suggests, women recognized as cisgender and biologically female may be praised more if they can *fulfill* certain maternal bodily capabilities seen as normative, such as birthing naturally or being able to breastfeed. The valuing of these aspects of maternity persist in spite of counter-evidence. For example, associating the term “natural childbirth” exclusively with the nonmedicated or low-intervention ones not only wrongly suggests that labors and deliveries could lose their status as natural processes over the involvement of certain medical procedures or medications, but also implies that the experiences of the pregnant persons choosing, or needing, surgery (e.g., C-sections) or pain medication are less meritorious.

On a similar note, “breastfeeding and human milk are the normative standards for infant feeding and nutrition” (Orgad & De Benedictis, 2015). The benefits of human milk are usually related to “medical and neurodevelopmental advantages” (Orgad & De Benedictis, 2015) for children. In this context, the praise of breastfeeding is often based mostly on benefits to the physical health of the child and, to some extent, of the nursing person (Victoria et al., 2016), while the negative repercussions and labor involved in breastfeeding persons has often been disregarded (Rippeyoung & Noonan, 2012). Fiona Woollard has argued that the practice of “using a biological norm as the moral baseline” (Woollard, 2018), should not apply to the comparison between breast and formula milk as “breastfeeding deeply implicates the mother’s body and agency” and therefore “cannot be characterized as a neutral state of non-interference” (Woollard, 2018).

This case is relevant to our ongoing discussion because, as Zekja Butrovic points out, it is possible to draw a moral analogy between breastfeeding and ectogestation. While ectogestation represents the potential to replace pregnancy in the way that formula could substitute human milk, ectogestation may invite a similar backlash “where higher classes initially embrace the exclusivity of ectogenesis only to abandon it as it becomes more widely available and the luxury of natural pregnancy gains esteem” (Butrovic, 2020). This analogy is telling of the fact that *overvaluing* embodied aspects of reproduction can cause further oppression by pressuring people to *physiologically* endure these gendered bodily expectations as an ideal. From this perspective, then, the possibility of ectogestation can seem to present an intriguing alternative which might counter the expectation or norm that women can only use their own (or other women’s) bodies to bear children.

Nonetheless, even in a case like the above, the worry remains that ectogestation would be a stopgap measure for a greater, social problem—the problem of oppressing women by valuing them based on their reproductive (in)capabilities. Furthermore, concerns over ectogestation contributing to the stigmatization of many aspects of embodied reproduction remain in place. By enabling women to literally select out—and thereby disvalue—the messier aspects of childbearing, ectogestation could not only be used to reinforce some of the current restrictive standards placed on women’s bodies, but to implicitly endorse the idea that women *should* instrumentalize technological options to match these standards as well. For instance, norms demanding women to “return” to their pre-birth bodies, or to choose between career progression and pregnancy, would likely be untouched by the advent of ectogestation. In fact, there is a risk for those norms to be *reinforced* and even *promoted* by ectogestation, since the possibility to abide by and maintain such norms are part of its appeal. Ectogestation promises that the body does not have to experience pregnancy and childbirth in the first place, but does not in



itself provide us with sufficient accompanying resources to critically evaluate the standards and norms around reproductive embodiment as problematic for those who disagree or *do* decide that they want to go through natural pregnancies. These persons would likely experience ambivalent judgments over their embodied reproductive capabilities.

Moreover, it is ambiguous whether ectogestation would sufficiently account for or resolve the problems of embodied reproduction anyhow. For instance, it is known, but under-discussed, that pregnant persons may be at risk of depression, during gestation or shortly after delivery (Stewart & Vigod, 2016). Greater public dialogue and destigmatization of this condition, as well as other psychological illnesses, is perhaps key to help those who might be affected by it. Yet, the attention given to these conditions may be further stunted if the technologized solution put forward is the recommendation to “choose not to gestate,” as it suggests that these issues are simply to be erased or avoided in the public consciousness. This poses several potential risks, such as the pathologization of pregnancy as a physical condition to be avoided altogether, less resources allocated to issues related to “natural” pregnancy and childbirth, and newfound pressures on people to favor the ectogestative method—to name a few. Without simultaneous efforts around destigmatization of various aspects of female reproductive embodiment, to be implemented *alongside* ectogestation (and possibly also prioritized *before* ectogestation), the latter might only benefit those who intend to utilize the technology, while being a tool of further oppression for those who do *not* volunteer to disembodiment their reproduction. Technological change without social change—under oppressive conditions—risks entrenching, rather than disrupting, the status quo.

## 2.2 | Threat of unwarranted scrutiny

The prevalence of condescending attitudes toward either those who choose to gestate *or* those who decide to have a baby through ectogestation could constitute a further kind of oppression, encouraging conflict between different groups of aspiring parents especially. Some scholars have pointed out, for instance, that ectogestation might foster “unwanted paternalistic traits by ignoring ... the fact that many women enjoy the experience of being pregnant” (Eichinger & Eichinger, 2020). It may be that *more* baby-making options from which to choose contribute to greater controversy and dispute around what counts as *good* gestation (which may, in the end, constitute a genuine dilemma), as well as make such choices the kinds of decisions for which we must hold reproductive choice-makers to greater account. Of course, this is all contingent on the empirical possibility for differential valuing of gestation *types* to occur, in the event that ectogestation becomes readily available one day, and on the supposition that new gestation types will be a matter of personal choice. Nonetheless, we would argue it is highly plausible to anticipate that *competing* values over the “proper” or “good” way to gestate will add to the contentious hierarchy of gestation methods, and divide groups of aspiring parents.

There is no denying that unwarranted scrutiny, judgment, and paternalistic attitudes toward female bodies and their functions exist and are extremely hard to escape (Grant et al., 2018). A telling example is that, while an unwritten rule mandates that menstruation must be kept secret, pregnancy is everyone's business. In fact, any pregnant person is very likely to receive unsolicited comments, even unsolicited touching, by both known and unknown people, who assume their entitlement to be involved with how a pregnant person is supposed to manage their body and what is inside of it (DeBruin & Marshall, 2019). The comments usually include advice and, sometimes, actual directions on how to behave during the following months, until

childbirth. This is assuming the gestating person is happy to carry the pregnancy to term and have a baby; however, when pregnant persons want (and actually have the option) to terminate, they are often harshly judged, if not punished (Norris et al., 2011).

In a similar way, decisions on childbirth are also subject to constant value judgments, with dominant or traditional narratives around what constitutes a “proper,” or “good,” birth already affecting those pregnant people who do not match the expectations. The case of childbirth is particularly useful to highlight the contradictory nature of these judgments. As mentioned, a toxic narrative pushes pregnant individuals, mostly cisgender women, toward a certain normative type of delivery. Reports show persons in labor being denied epidurals, as they must “earn” their babies, as if pain would somehow ennoble the process, while others keep having C-sections performed against their will (American Civil Liberties Union, 2021; Hill, 2022; Morris & Robinson, 2017). Given the aversion to options to manage pain, such as C-sections, which only lightly diverts from the “natural norm,” it is plausible that a revolutionary technology like ectogestation will be heavily ostracized by conservative circles, in favor of having babies in the supposedly more “natural” way.

The whole process of female embodied reproduction including any use of artificial gestative technologies, would also be subject to constant scrutiny on all sides. Clearly, the expectations around which “motherhood” and “birth” are encoded make deviations from the norm appear somehow less good by comparison. Thus, it would be reasonable to anticipate the same value-related issues in the future: perhaps those inclined to prefer artificial womb technology might propound a medicalized picture of good gestation, whereas those who prefer the old-fashioned way might extol the value of pregnancy.

As Joan Woolfrey writes, society “continues to pressure women to think of themselves as destined to be mothers” and “such socializing emphasizes women’s reproductive value, while devaluing those without this capacity (who must rely on technology in order to become mothers)” (Woolfrey, 2006). We can see this pressure manifest in various contexts, to varying degrees—in the stigmatization of voluntarily childless women (Cannold, 2006; Lewis, 2019) and infertile women (Venis, 2022), the construction of infertile women *on the whole* as “distressed” irrespective of their distress levels or treatment seeking behavior (Simionescu et al., 2021), as well as in pronatalist state policies that reinforce a “patriarchal worldview” of women’s reproduction (Greil et al., 2011). It is therefore not surprising that at least some women would express aversion to the concept of ectogestation, and their “[belief] in the power and inviolable nature of the maternal/fetus-child bond ... evidenced by the concerns they express about relinquishing their fetus/child to an ectogenetic womb” (Cannold, 2006; Lewis, 2019). That is, the idea that gestation is necessary for mothers to form a bond with their child can constitute a strong motivation to *not* pursue ectogestation, for those women who hold such beliefs.

However, in a different context, the sanitized format of gestation via ectogestation may even be preferred or “recommended” for women. As noted by Gregory Pence, one of the compelling reasons for using artificial wombs is to counter the “various medical conditions where nine months of pregnancy will likely render a woman’s health worse-off than before pregnancy” (Pence, 2006). An extreme iteration of this would involve the stigmatization of pregnancy itself, on the basis of so-called safety concerns, much like how home births are currently stigmatized across high-income countries (with few exceptions) where they are “neither culturally normative nor socially accepted” (Bommarito, 2018).

Stigmatization over birthing decisions as well as choices made *during* gestation affect expectant mothers. Prenatal substance use, for example, has become “a criminal justice issue as the fetal protectionism movement spurred the increasing use of criminal sanctions for “deviant”



mothers” (Stone, 2015). Most of the reasons for “alternative” options (e.g., C-section, early delivery, surrogacy arrangements) are associated with *involuntary* circumstances, such as being unable to carry or deliver a healthy child without high risk to oneself. As a result, judgment upon the vices and virtues of the embodied experience of pregnancy befall women today—but we do not (yet) have an equivalent in terms of choices over gestational techniques.

However, especially given that we have this evidence that gestation-related stigmatization *already* exists, condescending attitudes would find no exception in further, new choices related to gestation. For example, Cavaliere notices how women could be pressured to take on the motherhood role even *more* because of ectogestation, which would be “easier” if it did not require anyone to gestate and give birth (Cavaliere, 2020a). This shows us that groups that opt for “traditional” conception, groups that opt for ectogestation, and groups that opt for neither, are *all* vulnerable to be made subject to pressures and standards that risk moral censure of their preferences—in response to the introduction of new reproductive techniques that affect birthing prospects and the welfare of the future child. Ectogestation would thus not be separable from existing patterns of the reproductive oppression that affect cisgender women especially, but rather have potential to become a new vessel for that oppression.

The critique that reproductive technologies can fall short (or even have regressive effects) of their emancipatory potential without a greater program to end gender-based oppression is a common one. Introducing the *option* of ectogestation without carefully-thought social policies addressing existing oppressive attitudes and norms might be detrimental to any reproductive choice-maker. The novel and *unstable* hierarchies of gestation generated by technological developments could put both those who would decide to use ectogestation, *and* those who would choose to be pregnant, at risk of being made target of negative and stigmatizing judgment, as we have observed from the numerous examples above. This may not only leave various aspiring parents vulnerable to moral criticism, or even censure, by various members of the society, but also exacerbates conflict *within* and across different groups of aspiring parents.

### 3 | CONCLUSION

Overall, we hope to have brought to light several interconnected issues of value conflict that might arise in an ectogestation-adjusted world. Our aim was to explore various dilemmas that might be generated by the existence of ectogestation, without necessarily suggesting that there are certain gestational methods that individual aspiring parents ought to prefer. While acknowledging the possibility for ectogestation to serve as an emancipatory tool for (at least *some*) aspiring parents and social groups, we put forward concerns related to how ectogestation could be used to create new or strengthen existing forms of oppression. First, we looked at how ectogestation might contribute to a devaluing of female reproductive embodiment. Second, we suggested that ectogestation may exacerbate unwarranted scrutiny and further destabilize value hierarchies related to “good” gestation when it comes to reproductive choices for women especially. Because of these issues, our position is that continued ethical reflection is necessary, and that the support for ectogestative technologies ought to depend on how we come to mitigate these concerns.

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## CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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## ENDNOTES

- <sup>1</sup> “Artificial womb” is also a commonly used term, though some scholars may prefer “artificial amniotic sac and placenta technology,” to refer to the technologies used for the ectogestation process.
- <sup>2</sup> For a discussion on the distinction between neonatal incubation and “true” artificial gestation, see: Kingma, E. & Finn, S. Neonatal incubator or artificial womb? Distinguishing ectogestation and ectogenesis using the metaphysics of pregnancy. *Bioethics* 2020; 34: 354–363.
- <sup>3</sup> For critical discussions related to the development of ectogestative technologies and partial ectogestation, see, for example, Baron, T. Moving forwards: A problem for full ectogenesis. *Bioethics* 2021; 35(5): 407–413, Segers, S. The path toward ectogenesis: looking beyond the technical challenges. *BMC Med Ethics* 2021; 22, and Segers, S, Pennings, G, Mertes, H. The ethics of ectogenesis-aided foetal treatment. *Bioethics*. 2020; 34: 364–370.
- <sup>4</sup> Hereafter referred to as “ectogestation.”

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