



Voluntary childlessness and climate responsibility: Religious bioethics in the age of digital reproductive culture

Georgios Fountoulakis ¹ and Christos Simos ^{2,*}

¹ Faculty of Social Theology and Religious Studies, National and Kapodistrian University of Athens.

² Department of Greek Philology, Democritus University of Thrace, Greece.

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Abstract

The components determining a contemporary reproductive decision include demographic anxiety, climate responsibility, and the transformation of culture brought about by digital technology. Previously, voluntary childlessness, contraception, and birth control were mostly seen as aspects of personal freedom or religious beliefs. Now, they are intertwined with global sustainability discussions, the quest for identity in the online world, and the changes in the ways in which bioethics functions and is organized. The paper offers a comparative religious bioethical treatment of the theme of reproduction restriction in Judaism, Christianity, and Islam, and also sets the three religious traditions against the background of climate ethics and digital reproductive culture. This research is anchored in bioethical literature on procreation, infertility, and moral responsibility to consider how religious injunctions on fruitfulness, stewardship, and human dignity reflect their dialogue with the ecological crisis and demographic depression. The paper discusses the case of childlessness voluntarily chosen for reasons related to environmental concerns, the ethics of contraception in different denominations, and the impact of online childfree communities and reproductive discussions in digital space. By taking religious moral theology, environmental bioethics, and sociological studies of childfree identities as points of departure, the paper maintains that reproductive limitation is not an issue that can be resolved by simply referring to the rights of the individual. It rather requires considering sustainability, justice, and concern for future generations from a relational and ecological perspective. Apart from this, the work demonstrates how digital media alter the way in which reproduction is perceived at the moral level, thereby giving rise to new conflicts between religious normativity and the formation of personal identity. Lastly, the article suggests an ecological-relational bioethics model that could reconcile religious tradition with demographic and environmental changes of today.

Keywords: Voluntary Childlessness; Religious Bioethics; Contraception Ethics; Climate Responsibility; Population Ethics; Digital Reproductive Culture; Environmental Theology; Reproductive Autonomy; Demographic Decline

1. Introduction

Today, the framing of reproductive choices will most likely reflect the merging of discourses on environmental sustainability, demographic transition, and digital identity creation. In earlier decades, classical bioethics examined contraception and voluntary childlessness primarily through the lenses of autonomy, marital ethics, and theological doctrine (Campbell, 2017; Turner & McLindon, 2018). Contemporary debates, however, situate reproduction within the broader context of planetary limits and climate responsibility (Helm et al., 2021; Samuel & Richie, 2023).

Fertility worldwide has fallen dramatically in numerous parts of the world, giving rise to demographic aging and economic worries (Thoma et al., 2021). At the same time, climate change has resulted in the growth of population and ecological destruction fears (Helm et al., 2021). In such a setting, people who opt for not having children for no other

* Corresponding author: Christos Simos

reason than environmental concern, especially among the youth, can count on that choice to be acknowledged as an eco-friendly approach (Matthews & Desjardins, 2017; Morison et al., 2016). These shifts make it difficult for the traditional religious teachings which highlight procreation as a vocation, commandment, or divine participation (Larson, 2017; Sallam & Sallam, 2016).

Previous scholarship has emphasized that decisions about procreation and contraception exceed individual preference and extend into societal and moral obligations. When reproduction is examined through ecological ethics and digital discourse, this insight becomes even more salient: reproduction is increasingly negotiated in online identity communities and shaped by algorithmic visibility within social media environments (Zadushlivy et al., 2025; Punzi et al., 2025).

Theological narratives have always connected procreation with divine command and covenantal continuity. Thus, in Judaism procreation is a mitzvah based on the text of Gen 1:28 (Kolman & Miller, 2018). In Christianity, fruitfulness is connected both with the sacrament of marriage and with theological anthropology (Stensvold, 2015). The Islamic legal tradition on the other hand upholds the moral principle of propagation while at the same time allowing family planning with certain ethical limitations (Mitra, 2021; Shapiro, 2014). Besides that, each tradition in its own distinctive way expresses the idea of stewardship of creation and the moral duty of care for the vulnerable (Abdelzaher et al., 2019; Richie, 2020).

The present article contends that voluntary childlessness and contraception should be examined within a threefold paradigm:

- Classical religious bioethics
- Environmental and population ethics
- Digital reproductive culture

Rather than a moral aberration or pure private autonomy, reproductive limitation is looked at in this paper as an instance in which concern for the environment, theological anthropology, and digital identity intersect.

Working with materials and perspectives from religious bioethical scholarship (Larson, 2017; Mitra, 2021), studies in environmental ethics (Helm et al., 2021; Samuel & Richie, 2023), sociological investigations of childfree identity (Morison et al., 2016; Chrastil, 2019), and the debates about governance and reproductive data and digital platforms (Saini et al., 2024; Zadushlivy et al., 2025), the article's aim is not to decide which religion is right but how religious frameworks are adapting to, or resisting, ecological and cultural pressures of the present time.

1.1. Research Design and Methodological Framework

This study combines a critical narrative review with comparative normative analysis, drawing together scholar works from religious bioethics, environmental ethics, demographic studies, and digital reproductive cultures. Due to the interdisciplinary character of the subject, combining theology, sociology, environmental philosophy, and digital governance, a solely systematic or quantitative methodology would have been quite inadequate. Hence, the interpretation framework that the author has chosen facilitates the gathering of various kinds of knowledge while retaining normative depth (Campbell, 2017; Rodríguez, 2023).

The research design is expressed via three interacting analytical areas:

- Classical Religious Bioethics – examining theological and jurisprudential positions within Judaism, Christianity, and Islam concerning procreation, contraception, sterilization, and voluntary childlessness (Larson, 2017; Sallam & Sallam, 2016; Mitra, 2021; Kolman & Miller, 2018).
- Environmental and Population Ethics – engaging literature on climate responsibility, demographic transition, ecological stewardship, and sustainability debates related to reproductive limitation (Helm et al., 2021; Samuel & Richie, 2023; Abdelzaher et al., 2019).
- Digital Reproductive Culture – incorporating sociological and digital ethics research concerning online childfree communities, reproductive identity formation, fertility applications, and data governance (Morison et al., 2016; Chrastil, 2019; Saini et al., 2024; Zadushlivy et al., 2025).

The narrative review has been given preference to peer-reviewed research that was released during the years 2010 and 2025, more weight was given to literature results that came out after 2018, which corresponds to the swift development

of both climate discourse and digital reproductive technologies. In order to keep the remain consistent with the historical doctrinal analysis, the base theological works were carried along (Stensvold, 2015; Cohen, 2020).

The comparative normative analysis has no intention of reconciling religions. Rather, it seeks to discover the points of agreement and disagreement between the religions in terms of how they interpret reproductive limitation. Judaism, Christianity, and Islam are chosen given that they are all descendants of Abrahamic heritage and have had a persistent interaction with bioethical issues (Cohen, 2020; Norenzayan et al., 2016). The focus of the analysis is on the kinds of moral reasoning rather than on the full doctrinal records.

Additionally, reproductive health data and digital platform governance and regulatory frameworks are taken into account especially the issues of privacy and surveillance (Saini et al., 2024). These instruments are not just evaluated from a legal standpoint but also as ethical ones explaining how, in today's society, reproductive information and personal autonomy are framed.

The theoretical foundation of the paper rests on the following normative pillars:

- Autonomy and Relational Agency (Oshana, 2006; Dove et al., 2017)
- Intergenerational Justice and Sustainability (Helm et al., 2021; Samuel & Richie, 2023)
- Human Dignity and Sanctity of Life (Turner & McLindon, 2018; Sallam & Sallam, 2016)
- Digital Governance and Data Ethics (Saini et al., 2024; Zadushlivy et al., 2025)

Voluntary childlessness and contraception, instead of isolated moral deeds, are evaluated through the lens of the ecological, demographic, and digital reality. Hence, from an ethical viewpoint, the issue of environmental responsibility, the theological understanding of human nature, and identity construction in today's digital space are all brought into consideration.

Methodologically, the aim is not to challenge but to contribute constructively: to suggest a model of ecological-relational religious bioethics that can, without resorting to technocratic reductionism or doctrinal rigidity, react to the issues of climate anxiety, demographic change, and digital cultural transformation.

2. Voluntary Childlessness: Autonomy, Identity, and Ecological Anxiety

Voluntary childlessness that was previously regarded by society as an eccentric minority behavior is today a readily noticeable and increasingly explicitly voiced lifestyle option. While the earlier sociological studies had brought out the child's lack of parents as a main factor of happiness, they also stressed changes in gender roles and economic reasons (Matthews & Desjardins, 2017; Lindsey, 2020). By contrast, the present discussion more and more embeds the choice within environmental and demographic factors (Helm et al., 2021; Samuel & Richie, 2023).

Recent literature suggests that the refusal of procreation is not reducible to selfishness or moral decay but reflects broader structural transformations. Industrialization, economic uncertainty, shifting gender roles, and the expansion of individual autonomy have reshaped what parenthood means (Bittman, 2020; Glenn, 2016; Horii, 2018; Raphael-Leff, 2018). In digital contexts, childfree communities construct narratives through which non-parenthood becomes a positively owned identity rather than a deficit (Morison et al., 2016; Chrastil, 2019).

2.1. Autonomy Beyond Liberal Individualism

The founding principle of classical liberal bioethics concerning reproductive choices was the individual's bodily autonomy and personal sovereignty (Oshana, 2006). Nonetheless, the concept of relational autonomy presents a challenge to such wholly individualistic models by giving importance to the socially determined nature of the self (Dove et al., 2017). It implies that the decision to reproduce or not is going to affect the person's partner, the family, the community, and even future generations.

Religious traditions, to begin with, positioned procreation as a means of covenantal continuity. For example, in Judaism, procreation is seen as a commandment whose fulfillment is a necessary condition for the survival of the community (Kolman & Miller, 2018; Raucher, 2021). In Christian thought, fruitfulness is typically associated with sacramental marriage and theological anthropology (Stensvold, 2015; Larson, 2017). The Islamic tradition, while affirming procreation within marital legitimacy, nevertheless permits family planning within the limits of morality (Mittra, 2021; Sallam & Sallam, 2016).

Nevertheless, even within these faiths, there are allowances and exceptions made for reinterpretation in context. For example, some Rabbinic authorities have sanctioned the deferral of procreation for particular reasons (Irshai, 2014). Protestant Theology is characterized mainly by the stress on the responsibility of the parents rather than the insistence on endless reproduction (Turner & McLindon, 2018). According to Islamic law, contraception is permissible as long as it is not used in a definite way to prevent fertility unless there is a medical necessity (Shapiro, 2014). Therefore, pure religious ethics do not automatically rule out voluntary childlessness. The question should be rather whether such a personal choice is a sign of responsible attendance to religious faith or isolated individualism that ignores the community.

Relational autonomy presupposes developed emotional and social cognition. Empirical research on emotional intelligence in digitally mediated contexts highlights the interdependence between affective regulation and ethical judgment (Drigas & Sideraki, 2021). Moreover, assessment of social-emotional competencies in ICT-supported environments underscores the role of structured emotional comprehension in responsible moral agency (Chaidi & Drigas, 2022). Such findings reinforce the need to interpret reproductive autonomy within a cognitively and emotionally relational framework.

Research on emotional development through technology has revealed that using digital tools, together with guided social environments can promote self-control and emotional and social growth of all children (Simos & Xyloparkioti, 2025; Simos & Katsiamoura, 2025). Autonomy should not be seen here as unaccompanied freedom, but as the power that can be gained through both human and technological means.

2.2. Climate Anxiety and Reproductive Morality

One of the most prominent factors that distinguish childfree discourse nowadays is the concern for the environment. Helm et al. (2021) report how climate anxiety leads people in some cases to decide against having children, following the line of thought that by procreating one makes the carbon footprint bigger thus contributing to the overstressed environment. Samuel and Richie (2023) demonstrate that one of the challenges to environmental bioethics is to realize intergenerational justice, the idea that the ecological problems of the future generations will be partly shaped by the decisions taken today about reproduction and, hence, everyone has an obligation towards future generations.

Ecological spirituality has always primarily extolled the virtue of mankind's stewardship of the natural world (Abdelzaher et al., 2019; Richie, 2020; Fountoulakis, 2024; Protopapadakis, 2011)). Within the framework of the three great monotheistic religions, man's mission is to take care of the earth rather than to dominate it without any limits. Environmental ethics in Islam is rooted in the idea that man is God's deputy, and thus, he has a special responsibility to act (Aung, 2017).

The disconnect between the two ideas is brought out by the fact that procreation, which in the past has always been regarded as a blessing, is now being looked at as something that adds to the burden on the environment. So, is it that the answer to one's individual moral duties in regard to climate change lies in limiting reproduction? Or is this view that reifies humans as nothing more than elements of sustainability calculations going too far?

In their article, Dove et al. (2017) caution against the danger of equating autonomy with utilitarian reckoning. Religious bioethics likewise opposes the idea that the worth of human beings can be measured simply by the standards of the environment. However, at the same time, theological traditions acknowledge prudence and foresight as virtues. Indeed, responsible parenthood is not just legitimate but could also be seen as the sort of benevolent doing of good and might even be extended to the consideration of one's ecological situations.

Reproductive limitation can be interpreted as an expression of wider social change rather than simply a rejection of religious norms. When climate concern enters the picture, the moral frame is often displaced from individual self-actualization toward responsibility for planetary conditions and future suffering (Helm et al., 2021; Samuel & Richie, 2023).

2.3. Identity Formation in Digital Reproductive Culture

Nowadays reproductive storytelling is largely under the control of digital media. The internet is a place where childfree groups find a voice and childfree identity is formed and confirmed (Morison et al., 2016). Moreover, social media algorithms give more exposure to pieces of content that depict parenthood as a choice rather than the norm.

Zadushlivy et al. (2025) remark that the discourse around digital reproduction, among other things, is concerned with protection of personal data and reduction of the risks associated with changes in one's physical appearance and sexual

preferences. The use of fertility monitoring devices and reproductive healthcare apps usher in the emergence of a novel kind of self-awareness in which control over the body becomes a source of pleasure (Saini et al., 2024). These gadgets change the idea of reproductive time in such a way that they let the users plan, postpone, and avoid with an unexampled accuracy.

The reproduction phenomenon mediated by digital technology is not simply an information provider; it is also a creator of moral narratives. Platforms produce echo chambers in which childlessness can be seen as something to be applauded because it is progressive or environmentally responsible. On the other hand, religious groups might also use digital media as a tool to propagate belief in the correctness of pro-natalism (Norenzayan et al., 2016).

This, then, is what the digital world has brought about: the weakening or splitting of religious authority. Before, the traditionally respected voices of the clergy and religious leaders embodied the teachings of religion; now they have to compete with the emphases created by algorithmically-curated content. In such a manner, moral authority becomes a decentralized one.

2.4. Demographic Decline and Communal Responsibility

Environmentalists argue about the problem of overpopulation, but in reality, many countries are struggling with the problem of demographic decline (Thoma et al., 2021). When the issue of an aging population is brought up, it is usually presented in the context of increased strain on social welfare systems, as well as a decrease in generational succession or renewal. Raucher (2021) uses the term "pronatalist policy" to describe a situation in which the Jewish community responds to the challenge of survival through reproduction at the level of one's own group. Similar issues arise in Christian and Islamic societies where the liveliness of the demographic is taken as an indication of the continuity of the culture (Larson, 2017; Mitra, 2021).

The ethical situation is, thus, a somewhat complicated one: on the one hand, the anxiety over the environment pushes people to reduce the number of children they have, but on the other hand, the problem of demographic decline urges people to have more children. Religious bioethics will have to find a balance or a way of navigating through this dilemma without giving an absolute value to either of the two positions.

Population ethics is a branch of literature that tries to deter the world from engaging in so-called "demographic engineering" (Stern, 2015). Decisions about reproduction are deeply interwoven with the stories of the intimate aspects of human life and that makes it impossible to reduce them to the numbers of the statistics of the country.

2.5. Moral Pluralism and Theological Adaptation

Religious traditions are in a constant process of change. The contraception debates of the past serve as one of the examples illustrating how adaptive the moral reasoning can be (Pinter et al., 2016). While the Roman Catholic Church continues to oppose birth control by any means, a good number of the authorities in the Protestant and Jewish denominations have incorporated family planning within the framework of responsible stewardship (Kolman & Miller, 2018; Larson, 2017).

Moreover, the case of Islamic law being flexible about the time and place, yet giving utmost importance to lineage and moral boundaries (Mitra, 2021), is a vivid demonstration of the dynamic interpretive capability that allows religious bioethics to respond to climate and digital transformations without having to abandon its core principles.

The critical issue is how to keep one's theology consistent while going along with the complexities of the socio-ecological environment. For example, childlessness that is the result of consumerism is in an ethical sense quite different from the childless case situation when it is born out of ecological concern. It then becomes the duty of religious decision-making to assess one's motives, their context, and their repercussion for the community.

3. Contraception and Religious Moral Frameworks

Religious bioethics have for a very long time been fascinated and even conflicted over the issue of contraception. Contraception is a more immediate and practical problem for the regulation of fertility as opposed to voluntary childlessness which is more about the long-term identity of a reproductive person. Contraceptive ethics cannot be treated as a merely technical question of prevention; it sits at the core of theological anthropology, marital ethics, and disputes about the moral beginning of life (Ballantyne, 2014; Wilkinson, 2020; Beauchamp & Childress, 2019).

3.1. Historical Development of Contraceptive Ethics

The twentieth century was marked by the wide-ranging development of contraceptive technologies which completely changed the game in terms of reproductive freedom (Parry, 2013; Weschler, 2015). Hormonal contraceptives, copper IUDs, and emergency contraceptives unlocked control over the timings of reproduction in a way never seen before (Manzer & Bell, 2022).

Religious traditions articulated their responses not only at the level of medical practice but also at the level of doctrine and moral anthropology (Larson, 2017; Turner & McLindon, 2018). For the Roman Catholic Church, *Humanae Vitae* (1968) reiterated the prohibition of artificial contraception placing the basis of moral argumentation on natural law and the intimate and unitive aspects of marital love being inseparable from the procreative purposes of marriage (Stensvold, 2015; ESHRE, 2023; Schenker, 2021; Serour, 2017). This teaching still lies behind the Catholic bioethical discussion (Turner & McLindon, 2018). Assisted reproductive technologies, a contemporary issue addressed in the present study, have generated important ethical questions regarding the beginning of human life (Fanaras, 2000).

However, on the other side, many Protestant denominations followed a pathway that was less rigid and laid more emphasis on the need to be good stewards and on the ability to discern (Larson, 2017). Rabbinic law allowed contraception in certain cases, especially when the health of the mother or the harmony of the marriage was involved (Kolman & Miller, 2018; Irshai, 2014). Islamic law also permits contraception as long as it is not made permanent and the spouses are in agreement (Mitra, 2021; Shapiro, 2014). Therefore, although there are differences in doctrine, the three monotheistic religions do not categorically reject family planning. The moral debate revolves around the question of intention, permanence, and respect for life.

3.2. The Question of the Beginning of Life

A key factor in the ethics of contraception is the moral consideration given to the embryo. Controversies around contraception are often inseparable from divergent interpretations of when human life (or personhood) is understood to begin. In Roman Catholic thought, the moment of conception marks the beginning of a person and therefore methods that can be considered as abortifacients are morally unacceptable (Stensvold, 2015). Halachah, the body of Jewish law, traditionally treats the embryo as being at different developmental stages and ascribes gradually increasing degrees of moral significance (Kolman & Miller, 2018). Many rulings in Islamic law hinge on the notion of ensoulment, which is commonly regarded as taking place at the 120th day; this is the basis of many humanitarian and social law (Mitra, 2021). An important question concerns the beginning of human life, one of the most contested issues in contemporary bioethics. In addressing this question, contemporary bioethical discourse draws upon biological knowledge, philosophical reflection, and theological anthropology (Nikolaidis, 2006, 2019).

The fact of the matter is that a doctrinal and interpretational diversity of this kind can be a real headache for coming to an overall ethical verdict. Besides, it also proves that human reproduction has been and remains highly complex cosmologically and theological, not merely a scientific and biological, matter.

3.3. Sterilization and Irreversibility

Since sterilization is a radical permanent solution, it has always been more problematic especially from the point of view of religion. Across traditions, irreversible procedures are generally treated as morally weightier and are typically restricted to cases of grave medical necessity. Stephenson (2006) provides various examples of how sterilization at times was one of the tools used by particular regimes to carry out demographic policies and thus poses the question of consent and the necessity for strict ethical oversight. The memory of these events greatly shapes the caution of religious communities toward irreversible reproductive interventions (Stern, 2015).

Jewish and Islamic jurisprudence allow sterilization if the pregnancy entails life-threatening danger to the mother (Kolman & Miller, 2018; Mitra, 2021). Catholic theology generally maintains a provision for accepting only those sterilisations which are indirectly created and when done for a medical purpose, e.g. in the case of tumours (Turner & McLindon, 2018). The central moral issue concerns intention proportionality - principles that lie at the core of religious bioethics.

3.4. Contraception, Gender, and Power

It is mostly women who have been burdened with the responsibility and the discontinuities of contraceptive behavior, Lindsey (2020) reveals how gender roles have been contributory to making the reproductive load more female. Sheoran (2015) unravels the socioeconomic inequalities that stratify the access to contraceptive technologies. Reproductive ethics must also account for power relations and social inequality, since burdens and risks of contraception are unevenly

distributed. Read through contemporary social concerns, justice and protection of the disadvantaged emerge as central ethical imperatives (Chan & Ananthram, 2019; Abdelzaher et al., 2019).

The digitization of reproductive technologies exacerbates these problems. A fertility app or a hormonal tracker are considered women's tools but the data collected is extremely private and can be readily commoditized by commercial entities (Saini et al., 2024; Zadushlivy et al., 2025). Hence, the moral dimension of contraception goes far beyond theology and extends into the territory of data governance and bodily autonomy in today's digital era.

3.5. Ecological Framing of Contraception

Whereas in the past most theological debates on contraception centered around marital ethics, contemporary discussions increasingly situate the issue within environmental sustainability (Helm et al., 2021). A number of works in the field of population ethics examine whether considerations of ecological balance may be a reason for limiting one's offspring (Samuel & Richie, 2023).

Religious eco-theology opens up a wider canvas than the very narrow environmental utilitarianism. Islamic environmental ethics, according to Abdelzaher et al. (2019), highlights the aspect of stewardship without the death of human beings being implied or considered only as secondary. Richie (2020) puts forward a Christian environmental bioethics that is informed by a deep respect for God's creation. At this point, it is important to highlight the convergence of environmental psychology, ecopsychology, and ecotheology, which deepens the concept of the 'ecological self,' within which responsibility toward creation emerges as a constitutive element of moral identity rather than as a merely instrumental consideration ((Fountoulakis&Alkhouri, 2025)

Reproductive choices are not isolated from social consequences. Climate framing adds a further layer by forcing a reconsideration of pro-natal theology under conditions of ecological vulnerability (Inhorn, 2020; Nordberg, 2018; Fox, 2017).

3.6. Between Normativity and Adaptation

Religious bioethics has been and is susceptible to changes as a result of the different cultural situations that come about (Cohen, 2020). In the 20th century, there was a lot of bargaining among different religious groups over issues such as contraception, which eventually resulted in changes to denominational outlines (Pinter et al., 2016). Nowadays, the presence of digital discourse and the concern about the environment are putting new strains on the system.

Nonetheless, adjustment ought not to be mistaken for relativism. Essential differences in conception about human dignity, covenant, and moral responsibility will always remain (Turner & McLindon, 2018). One of the challenges with ethics today is that we try to reconcile ecology and human fertility without reducing thus the latter to the mere calculations of the former.

4. Digital Reproductive Culture and Bioethical Governance

The digital revolution in reproductive life has impacted medical practice as well as cultural narratives on parenthood, contraception, and voluntary childlessness. We make our reproductive choices today in an environment where our identities, moral attitudes, and biomedical knowledge are shaped by algorithms (Zadushlivy et al., 2025; Saini et al., 2024).

4.1. Online Childfree Communities and Moral Reframing

Digital platforms help people to identify with and maintain childfree lifestyles through narrative sharing, social reinforcement, and resisting the pronatalist cultural norms (Morison et al., 2016; Chrastil, 2019). The voluntary childfree can thus become a choice that is not only rational but also shows deep ethical considerations towards human and the very earth (Helm et al., 2021).

From the point of view of sociology, such "childfree nests" or "social utopias" are points of reduction of stigma as well as the sources of a supplementary moral vocabulary (Matthews & Desjardins, 2017). Yet, they also contribute to the breakdown of normative authority. The religious injunctions that once gave rise to the formation of reproductive expectations are now being challenged by religiously non-aligned and algorithmically amplified discourses (Norenzayan et al., 2016).

Decisions on reproduction are influenced by social interaction, not just by the individual's inner thought. The digital culture furthers this influence deeply as it speeds up the seekers' access to different narratives and normalizes the ideas that used to be considered marginal.

4.2. Algorithmic Visibility and Moral Authority

Reproductive discourse finds its niche not only on the digital platforms but is also structured by them. Which narrative is privileged and which one remains poor and defunct is predecided by the algorithmic ranking system (Mittelstadt et al., 2016; McCradden et al., 2020). Recent research on AI-mediated environments demonstrates that algorithmic systems do not merely filter information but actively influence executive control and cognitive regulation. Systematic evidence shows that chatbot interaction can shape reflective reasoning and decision-making structures (Pergantis et al., 2025). Likewise, studies in educational robotics and computational thinking indicate that structured digital engagement strengthens higher-order problem-solving capacities and critical deliberation (Moraiti et al., 2022). These findings suggest that reproductive narratives circulating online may indirectly shape moral cognition through digitally mediated cognitive scaffolding. Environmental childlessness or reproductive deferrals, for example, may appear as top trending contents in some demographic contexts, thereby determining who sees them as examples of the moral majority.

We should see this as a phenomenon which is very much linked with the concerns about the role of algorithms in public deliberation in general (McCradden et al., 2020). Digital algorithms may not be that powerful as clinical AI systems but they can influence peoples' reproductive attitudes through mechanisms of attention economy. Theologically, this questions the issue of authority. Historically, moral guidance was under religious institutions' influence through well-organized teaching. With the advent of digital culture, authority has been decentralized and has been scattered among a variety of parties including influencers, activists, and peer communities.

4.3. Reproductive Data and Surveillance

The rapid growth of fertility tracking apps is yet another facet of reproductive autonomy being challenged. These apps record data about menstruation, sexual relations, hormonal changes, and pregnancy (Saini et al., 2024; Punzi et al., 2025). Although one can say they are marketed as tools meant to empower users, in reality, they create highly sensitive data.

Zadushlivy et al. (2025) underscore opacity in privacy policies that govern reproductive apps, thus raising concerns about the possibility of secondary data use. Becker (2026) points out that there are regulatory deficiencies when it comes to the protection of genetic and other health data under the GDPR.

Religious bioethics has always, among other things, considered bodily integrity as something worth respecting (Turner & McLindon, 2018). The digital surveillance of the reproductive sphere is not consistent with the commodification of the most intimate aspects of being human. In situations when consent has been formally given, nevertheless, asymmetries in knowledge and corporate power make autonomous consent flawed (Dove et al., 2017).

Empirical work in AI-supported educational environments further illustrates how digitally mediated systems influence emotional regulation and behavioral governance (Simos et al., 2026; Simos et al., 2026a; Simos, 2025). These findings reinforce concerns that data-driven infrastructures shape not only monitoring practices but also normative expectations regarding self-regulation and adaptive behavior.

Immersive and digitally assisted cognitive systems further complicate the autonomy debate. Research on virtual reality-based metacognitive training demonstrates how digital environments can influence emotional processing and executive functioning (Drigas et al., 2022). Similarly, studies on digitally assisted mindfulness and self-regulation indicate that technology-mediated feedback systems reshape self-perception and moral awareness (Mitsea et al., 2023). These dynamics illuminate parallel concerns within reproductive self-tracking technologies.

4.4. Governance and Public Policy

We are witnessing an increase in the number of ethics guidelines and other frameworks which encompass digital health (WHO, 2021). WHO (2021) outlines transparency, accountability, and fairness as principles that should guide AI. Despite being mainly oriented towards clinical settings, these principles also hold true for digital reproductive infrastructures.

Prudential regulatory approaches are hard to strike because you have to take into account both aspects: the one of protection and of innovation. It may happen that overregulation puts in jeopardy good tools while on the other hand, the lack of regulation may lead to abuse. Environmental policy discussions are just as much about reproductive ethics, especially when they get into population and sustainability (Samuel & Richie, 2023).

Literature in population ethics points out the risks of coercion and forced demographic interventions (Stern, 2015). Religions show attitude of mutual distrust toward the state's management of human reproduction and at the same time place more trust in the moral agency or conscience than in technocratic governance (Kolman& Miller, 2018; Mitra, 2021).

Hence, governance should be responsive to multiple moral traditions instead of imposing a single, uniform secular norm. Mobile-based assessment research shows that continuous digital monitoring influences behavioral awareness and decision-making processes (Stathopoulou et al., 2018). This provides a useful parallel for understanding technologically mediated reproductive autonomy.

Structured digital assessment tools also highlight the role of cognitive measurement and ICT integration in transforming not only decision-making but also being behaviorally aware (Simos, 2025b; Simos et al., 2025). Such parallels make clear the wider impact of technological mediation in the field of reproductive ethics.

4.5. Ecological-Relational Bioethics in a Digital Age

The convergence of climate anxiety, demographic decline, and digital mediation calls for a more comprehensive bioethical framework. It is not possible for a traditional pro-natalist theology to turn a blind eye to the issue of environmental fragility (Abdelzaher et al., 2019; Richie, 2020). On the other hand, ecological rhetoric must also refrain from instrumentalizing human life (Helm et al., 2021). An ecological-relational bioethics takes into account of: a) human dignity as intrinsically valuable; b)stewardship as a moral responsibility, c) Reproductive choice as intergenerationally accountable ; and d) Digital technologies as ethically charged. . Such a position neither condemns voluntary childlessness nor uncritically celebrant

5. Contemporary Bioethical Debates on Reproductive Limitation in a Climate and Digital Context

Voluntary childlessness and contraception have found their ethical evaluation opening a new chapter in contemporary bioethics. Throughout the twentieth-century ones, the debates were primarily focused on religious doctrine, natural law, and bodily autonomy (Campbell, 2017; Turner & McLindon, 2018). Instead present-day discussions reflect the increasing focus on digital mediation, reproductive justice, climate responsibility and demographic sustainability frameworks (Helm et al., 2021; Samuel & Richie, 2023; Rodríguez, 2023). Practices of limiting reproduction are no longer explained exclusively through the lens of marital ethics or individual conscience, but the planetary, technological and intergenerational lenses have been introduced.

5.1. Population Ethics, Climate Change, and the Moral Status of Future Persons

Population ethics have been struggling for a long time with the issue of what it means for the moral status of the unborn persons by the mere fact of them coming into existence. The present-day climate discourse further intensifies these questions by linking reproduction to carbon footprint, environmental degradation, and resource overuse (Helm et al., 2021). There are those who defend the view that procreation in the affluent societies leads to a high environmental impact, which indeed inserts the ecological responsibility into reproductive deliberation (Samuel & Richie, 2023).

What is more, the sole consideration of the reproductive act as an environmental arithmetic may potentially reduce the moral reasoning to a simple utilitarian calculus. Dove et al. (2017) warn that ethical evaluation should not morph human dignity into something that is merely background to the summation of outcomes. Likewise, religious bioethics resists the portrayal of children as enviro-units within whose carrying capacity a family must stay. According to the heritage of the Abrahamic religions, the act of begetting is supported within the stories of blessing, covenant, and continuity (Larson, 2017; Kolman& Miller, 2018).

Environmental theology seemingly presents the way to go for the mediating position. Abdelzaher et al. (2019) refer to the Islamic teachings and the environmental ethics calling for stewardship that is accountability-bound to God and not for the disappearance of human beings. Richie (2020) explains Christian environmental bioethics as a balance between showing reverence to the creation and the informed affirmation of life. Jewish ethical traditions cite the prohibition against waste (baltashchit) as a primary principle that calls for frugality without negating the value of life (Kolman& Miller, 2018).

Consequently, childlessness that is based squarely on climate consciousness can be judged either as being morally prudent or as a case of moral overreach. It all hinges on whether ecological concern is in harmony with the affirmation of human dignity.

5.2. Intergenerational Justice and Moral Continuity

Intergenerational justice opens up the bioethical space beyond the here and now and includes into its concern the rights and well-being of people yet to come (Samuel & Richie, 2023). Apart from directly influencing demographic statistics, the decisions regarding procreation also leave up a legacy of moral values for ensuing generations. Thoma et al. (2021) have demonstrated that social stability, the labour market and systems of intergenerational support are all influenced by demographic decline.

Religious traditions cast intergenerational continuity as a theological task. Judaism regards procreation to be an integral part of the long-standing covenantal relationship (Raucher, 2021). The Christian faith understands the family as the agent of transmission of faith and the church as community (Stensvold, 2015). In a similar vein, Islamic tradition sees procreation as the means of upholding the communal continuity within the divine order (Mitra, 2021).

Nevertheless, a high continuity does not mean you must have many children. Religious ethics, for the most part, supports the notion of a responsible mother and father over that of a prolific producer of offspring (Turner & McLindon, 2018). Thus, intergenerational justice is really about finding the right mix between maintaining ecological sustainability, and preventing a demographic crisis.

5.3. Reproductive Justice and the Politics of Control

One of the latest trends in bioethics is to borrow from the reproductive justice ethos where great emphasis is placed on the autonomy, equality, and freedom from coercion principles (Manzer & Bell, 2022; Sheoran, 2015). Incidences of forced sterilization and demographic engineering in the past serve as a timely warning against the possibility of environmental discourse being hijacked as a justification for the oppression of the already marginalized groups (Stern, 2015; Stephenson, 2006).

It was mainly the women belonging to the lower socio-economic strata who had been the targets of population control campaigns thus further cementing the pyramid of inequity (Sheoran, 2015). The climate-based substantiation of reproductive limitation hence has its task being careful not to resurrect the pattern of coercion implicit in population control rhetoric.

The religious communities especially the Abrahamic ones have a long-standing tradition of opposing state invasion into private life decisions (Kolman & Miller, 2018; Mitra, 2021). The moral exercise of discerning is seen as the very essence of the conscience and is therefore at a different level from the governance and its technocrats arguments for demographic management.

Ecologically conscious bioethics of the present day must not only be concerned about justice but equally must see to it that if at all ecological responsibility is a foil it does not become a pretext for the multiplicity of oppressive mechanisms ranging from the surveillance to the imposition of reproductive coercion.

5.4. Digital Bioethics and Algorithmic Mediation of Reproductive Narratives

The internet infrastructure cannot be said to merely host reproductive talk as it also organizes it in ways that were hitherto inconceivable. Moral perception can be shaped by digital online childfree groups, fertility forums, and climate activism networks (Morison et al., 2016; Chrastil, 2019). Algorithms control the ranking and hence the visibility of contents thus affecting in turn the perceived norms (Price & Cohen, 2019).

Zadushlivy et al. (2025) and Saini et al. (2024) have shown that reproductive health applications have the capability of collecting a great deal of data about the users. Contrary to the empowerment argument, these are actually products and services that operate in a commercial ecology where the currencies of exchange are attention and data.

Therefore, digital bioethics should consider the following aspects:

- Ecological responsibility
- Relational autonomy (Dove et al., 2017)
- Data dignity (Saini et al., 2024)

- Communal continuity (Raucher, 2021)

McCradden et al. (2020) claim that besides looking at behaviors, algorithmic systems are actually influencing moral imagination. Thus, in the sphere of reproduction, to such effect, the pro-natalist revivalism may be seen as normal and at the same time so might be the anti-natalist environmentalism. Religious bioethics should consider digital literacy as a domain of their moral formation program nowadays.

5.5. Beyond Principlism: Expanding the Bioethical Canon

Traditional principlism, i.e., autonomy, beneficence, non-maleficence, and justice, still forms the basis (Campbell, 2017). On the other hand, there is a need for additional categories in the bioethical discourse in the areas of climate and digital contexts such as reproductive limitation:

Ecologically attentive

- Justice-oriented
- Digitally literate
- Theologically aware
- Deliberatively pluralistic

Oshana (2006) argues that the individualistic notion of autonomy fails to give account of the embeddedness of agents in their social contexts and thus pleads for a socially-constituted agency. Religious bioethics goes hand in hand with this relational model as it underscores the human being's accountability not only to the community but also to the Creator.

The growth of bioethics in its scope beyond just medical settings to include environmental and digital ones signals the structural reconfiguration of the entire field (Rodríguez, 2023). Hence, reproductive limitation becomes interconnected with planetary ethics and platform governance.

5.6. Pluralism and Deliberative Engagement

Contemporary bioethics is characterized by pluralistic moralities (Cohen, 2020). Reproductive issues are approached differently depending on the normative commitment of the follower of secular sustainability, religious community, digital activist, or policymaker. Mutual understanding, pursued with intellectual humility and emotional maturity, is essential for navigating these differences.

Turner and McLindon (2018) state that bioethics should be positioning itself more as a platform for dialogue rather than an authority that can reach conclusions and impose them. Constructive use of religious traditions as a source reveals that while these traditions certainly contribute to the latest debates, they are far from being the source of dogma or rigidity in the proposals of anthropological concepts and analyses. Digital literacy has become central to contemporary moral formation. Research on ICT integration indicates that technological environments influence ethical awareness and perspective-taking capacities (Chaidi et al., 2021; Bamicha&Drigas, 2022).

ICT-based collaborative frameworks demonstrate positive impacts on inclusion, empathy and collective regulation in school communities (Simos, 2025a; Christos & Konstantinos, 2026). These results correspond to those of deliberative models of bioethics which emphasize relational responsibility rather than isolated moral reasoning.

It goes without saying that the mature contemporary bioethics of reproduction has to be: environment conscious, justice concerned, digitally aware, theologically informed, deliberatively pluralistic. Only then could it be possible to deal with voluntary childlessness and contraception without trivializing these topics as just a matter of either environmental arithmetic or religious dogmatics (Floridi& Cowls, 2019; Rajkomar et al., 2018; Obermeyer et al., 2019; Nuffield Council, 2018; Council of Europe, 2024; European Parliament, 2024).

6. Conclusion

Voluntary childlessness and contraception used to be considered primarily within the focus of theological or marital ethics, and nowadays they are unfolding in a much more complex moral arena influenced by climate concern, demographic change, and digital mediation. The limitation of reproduction today should not be seen just through the lens of individual freedom or religious compliance. It is at the crossroads of ecological responsibility, communal continuity, technological infrastructure, and a diversity of morals (UNESCO, 2021; WHO, 2025).

The present paper has suggested that reproductive choices are mainly covered today by religious bioethics, environmental ethics, and digital reproductive culture. Different sources of normative demands are introduced by each sphere. Religious traditions regard children as a sign of the covenant and participation in God's creativity (Larson, 2017; Kolman& Miller, 2018; Mitra, 2021). Environmental philosophy stresses the role of human beings as caretakers of the earth, as well as the necessity for a responsible attitude towards the coming generations (Abdelzaher et al., 2019; Richie, 2020). The digital world alters the way ethical issues are treated, e.g. through the power of algorithms and the fact that personal details are turned into commodities (Saini et al., 2024; Zadushlivy et al., 2025).

Hence, the conflict between these different areas of life should not be solved in a reductive manner. Limiting one's fertile window for an ecological reason cannot be associated with nihilistic anti-natalism. And the Christian precepts of procreation cannot just disregard our planet's fragility. The core of the ethical problem is in giving proper respect to human life while taking into account the environment's limited capacity.

Trying to think about justice from an intergenerational point of view is a nice way of combining the two arguments. Individuals aware of global warming very often give the main reason for their decision to remain childless as fear of future suffering (Helm et al., 2021). Likewise, different faiths underline the importance of caring for the next generations but it is seen as a part of a covenant and not in carbon terms (Raucher, 2021). Both views lead to the recognition of reproduction as a very serious moral matter.

At the same time, current discussions in bioethics should be wary of falling into demographic reductionism. The historical record of sterilizing certain groups and population control policies clearly illustrates how dangerous it is to sacrifice the privacy of people's lives to the achievement of large-scale socio-political goals (Stern, 2015; Stephenson, 2006). Therefore, a strong sense of justice calls upon us to remember that besides contraceptive availability, reproductive ethics must be foremost about protecting individuals' right to live free of coercion (Sheoran, 2015; Manzer& Bell, 2022).

Moreover, digital mediation adds another degree of intricacy. Childless-by-choice people are widely accepted and their identity is affirmed in various online forums (Morison et al., 2016). At the same time, the very personal data of the users of fertility tracking apps are being obtained (Saini et al., 2024). Algorithms further not only decide what gets to be seen, but also what is considered to be morally acceptable (Price & Cohen, 2019). So, reproductive autonomy nowadays is very much under the influence of technology rather than is just the outcome of reasoning.

Therefore, in the field of religious bioethics, moral guidance still largely comes from the depth of the human experience rather than being a set of uniform prescriptions. Some ways of Jewish, Christian and Islamic thinking highlight four key notions that are often found at the core of human existence: accountability to one another, covenant, stewardship and moral humility (Kolman& Miller, 2018; Stensvold, 2015; Mitra, 2021). This kind of language is able to withstand our culture of excessive demand for the 'right' to be independent as well as the cold and almost inhuman considerations we find in technocratic utilitarianism.

An ecological-relational bioethics emerges as a constructive synthesis. Such a framework affirms:

- The intrinsic dignity of human life, irrespective of environmental calculation (Turner & McLindon, 2018).
- Stewardship of creation as moral responsibility rather than demographic panic (Abdelzaher et al., 2019).
- Relational autonomy that recognizes the embeddedness of reproductive decisions (Dove et al., 2017).
- Reproductive justice that resists coercion and structural inequality (Sheoran, 2015).
- Digital accountability that protects data dignity and discursive plurality (Zadushlivy et al., 2025).

Voluntary childlessness and contraception should not be regarded as ethical errors but rather as domains of substantial moral deliberation. These practices reveal that contemporary bioethics must move beyond clinical principlism and broaden its scope to include ecological responsibility, digital transformation, and intergenerational justice.

Reproduction remains a profoundly human act situated at the crossroads of nature, personal identity, culture, and the divine. It is not merely a biological event but an existential and moral decision with far-reaching implications. Accordingly, the task of contemporary bioethics is not to impose normative standards of reproductive behavior, but to cultivate moral discernment capable of responding to climate change, demographic transitions, and technological revolutions without compromising human dignity.

Such discernment requires sustained interdisciplinary dialogue. The humanities, environmental philosophy, sociology, digital governance, and public health must converge to ensure that reproductive ethics remains attentive to planetary

fragility while simultaneously preserving the moral gravity inherent in the decision to bring—or not to bring—a new life into the world.

Compliance with ethical standards

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References

- [1] Abdelzaher, D. M., Kotb, A., & Helfaya, A. (2019). Eco-Islam: Beyond the principles of why and what, and into the principles of how. *Journal of Business Ethics*, 155, 623–643.
- [2] Aung, T. S. (2017). The role of religion in environmental preservation: The study of world major religions. *Journal of Asian and African Social Science and Humanities*, 3(1), 45–66.
- [3] Ballantyne, A. (2014). Exploitation in cross-border reproductive care. *IJFAB: International Journal of Feminist Approaches to Bioethics*, 7(2), 75–99.
- [4] Bamicha, V., & Drigas, A. (2022). The evolutionary course of theory of mind – Factors that facilitate or inhibit its operation & the role of ICTs. *Technium Social Sciences Journal*, 30, 138–158.
- [5] Bhattacharyya, S. (2006). *Magical progeny, modern technology: A Hindu bioethics of assisted reproductive technology*. Book. SUNY Press.
- [6] Bittman, M. (2020). *The double life of the family: Myth, hope and experience*. Book. Routledge.
- [7] Beauchamp, T. L., & Childress, J. F. (2019). *Principles of biomedical ethics* (8th ed.). Book. Oxford University Press.
- [8] Campbell, A. (2017). *Bioethics: The basics*. Book. Routledge.
- [9] Chaidi, I., & Drigas, A. (2022). Social and emotional skills of children with ASD: Assessment with Emotional Comprehension Test (TEC) in a Greek context and the role of ICTs. *Technium Social Sciences Journal*, 33(1), 146–163.
- [10] Chaidi, I., Drigas, A., & Karagiannidis, C. (2021). ICT in special education. *Technium Social Sciences Journal*, 23, 187.
- [11] Chan, C., & Ananthram, S. (2019). Religion-based decision making in Indian multinationals: A multi-faith study of ethical virtues and mindsets. *Journal of Business Ethics*, 156, 651–677.
- [12] Chrastil, R. (2019). *How to be childless: A history and philosophy of life without children*. Book. Oxford University Press.
- [13] Christos, S., & Konstantinos, K. (2026). School coexistence without violence: Relational-ecological prevention, emotional self-regulation, and digitally mediated pedagogical innovation. *Open Access Research Journal of Science and Technology*, 16(1), 093–106.
- [14] Cohen, C. L. (2020). *The Abrahamic religions: A very short introduction*. Book. Oxford University Press.
- [15] Council of Europe. (2024). *Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law (CETS No. 225)*.
- [16] Dove, E. S., Kelly, S. E., Lucivero, F., Machirori, M., Dheensa, S., & Prainsack, B. (2017). Beyond individualism: Is there a place for relational autonomy in clinical practice and research? *Clinical Ethics*, 12(3), 150–165.
- [17] Drigas, A., & Sideraki, A. (2021). Emotional intelligence in autism. *Technium Social Sciences Journal*, 26(1), 80–92.
- [18] Drigas, A., Mitsea, E., & Skianis, C. (2022). Virtual reality and metacognition training techniques for learning disabilities. *Sustainability*, 14(16), 10170.

- [19] European Parliament and Council of the European Union. (2024). *Regulation (EU) 2024/1689 (Artificial Intelligence Act) (OJ L, 2024/1689, 12.7.2024)*.
- [20] European Union. (2016). *Regulation (EU) 2016/679 (General Data Protection Regulation—GDPR)*.
- [21] ESHRE. (2023). *Good practice recommendations on add-ons in reproductive medicine (ESHRE guidance)*.
- [22] Fountoulakis, G. (2024). Environmental psychology of religion and contemporary environmental problems. *Synochi: Journal for Global Orthodox Christianity, Peace and Dialogue*, 3(3), 257–269.
- [23] Fountoulakis, G., & Alkhouri, K. I. (2025). The ecological self: Integrating environmental psychology, ecopsychology, and ecotheology in the Anthropocene. *Environmental Education for Sustainability*, 6(1), 22–35.
- [24] Fanaras, G. (2000). *Assisted reproduction: An ethical and social approach*. Book. Athens: Hellenic Publications
- [25] Farooqi, M. A., Rizvi, A., & Khan, A. R. (2022). Exploring the legality and socio-cultural challenges of surrogacy: An Islamic bioethical perspective. *Pakistan Languages and Humanities Review*, 6(2), 1302–1313.
- [26] Floridi, L., & Cowls, J. (2019). A unified framework of five principles for AI in society. *Harvard Data Science Review*, 1(1).
- [27] Fox, D. (2017). Reproductive negligence. *Columbia Law Review*, 117, 149.
- [28] Glenn, E. N. (2016). Social constructions of mothering: A thematic overview. *Mothering*, 1–29.
- [29] Glykofridi, A., & Zapounidou, M. (2019). Bioethics in education. *Bioethica*, 5(1), 13–29.
- [30] Helm, S., Kemper, J. A., & White, S. K. (2021). No future, no kids—no kids, no future? An exploration of motivations to remain childfree in times of climate change. *Population and Environment*, 43, 108–129.
- [31] Horii, M. (2018). *The category of “religion” in contemporary Japan: Shūkyō and temple Buddhism*. Book. Springer.
- [32] Inhorn, M. C., Birenbaum-Carmeli, D., Vale, M. D., & Patrizio, P. (2020). Abrahamic traditions and egg freezing: Religious women’s experiences in local moral worlds. *Social Science & Medicine*, 253, 112976.
- [33] Irshai, R. (2014). Public and private rulings in Jewish law (Halakhah): Flexibility, concealment, and feminist jurisprudence. *Journal of Law, Religion and State*, 3(1), 25–50.
- [34] Kahn, J. P., & Mastroianni, A. C. (Eds.). (2017). *The Oxford handbook of public health ethics*. Book. Oxford University Press.
- [35] Kolman, J. M., & Miller, S. M. (2018). Six values never to silence: Jewish perspectives on Nazi medical professionalism. *Rambam Maimonides Medical Journal*, 9(1).
- [36] Lindsey, L. L. (2020). *Gender: Sociological perspectives*. Book. Routledge.
- [37] Larson, D. R. (2017). Christianity. In *World religions for healthcare professionals* (pp. 171–188). Routledge.
- [38] Moraiti, I., Fotoglou, A., & Drigas, A. (2022). Coding with block programming languages in educational robotics and mobiles: Improving problem solving, creativity & critical thinking skills. *International Journal of Interactive Mobile Technologies*, 16(20).
- [39] Manzer, J. L., & Bell, A. V. (2022). “Did I choose a birth control method yet?”: Health care and women’s contraceptive decision-making. *Qualitative Health Research*, 32(1), 80–94.
- [40] Matthews, E. J., & Desjardins, M. (2017). Remaking our identities: Couples’ experiences of voluntary childlessness. *The Family Journal*, 25(1), 31–39.
- [41] Mitra, P. (2021). The beginning of life issues: An Islamic perspective. *Journal of Religion and Health*, 60(2), 663–683.
- [42] Mitsea, E., Drigas, A., & Skianis, C. (2023). Digitally assisted mindfulness in training self-regulation skills for sustainable mental health: A systematic review. *Behavioral Sciences*, 13(12), 1008.
- [43] Mittelstadt, B. (2019). Principles alone cannot guarantee ethical AI. *Nature Machine Intelligence*, 1, 501–507.
- [44] Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2).
- [45] Morison, T., Macleod, C., Lynch, I., Mijas, M., & Shivakumar, S. T. (2016). Stigma resistance in online childfree communities: The limitations of choice rhetoric. *Psychology of Women Quarterly*, 40(2), 184–198.

- [46] Nikolaidis, A. (2006). *From genesis to genetics*. Athens: Book. Grigoris Publications.
- [47] Nikolaidis, A. (2019). *Religions and ethics*. Athens: Book. Grigoris Publications.
- [48] Nordberg, A., Minssen, T., Holm, S., Horst, M., Mortensen, K., & Møller, B. L. (2018). Cutting edges and weaving threads in the gene editing evolution. *Journal of Law and the Biosciences*, 5(1), 35–83.
- [49] Norenzayan, A., Shariff, A. F., Gervais, W. M., Willard, A. K., McNamara, R. A., Slingerland, E., & Henrich, J. (2016). The cultural evolution of prosocial religions. *Behavioral and Brain Sciences*, 39, e1.
- [50] Ntiamoah, D., Student, M. P., Studies, P., & Africa, W. (2018). The role of religiosity and spirituality in healing infertility and psychological distress. *Journal of Philosophy, Culture and Religion*, 38, 32–37.
- [51] Nuffield Council on Bioethics. (2018). *Genome editing and human reproduction: Social and ethical issues*.
- [52] Obermeyer, Z., Powers, B., Vogeli, C., & Mullainathan, S. (2019). Dissecting racial bias in an algorithm used to manage the health of populations. *Science*, 366(6464), 447–453.
- [53] Oshana, M. (2006). *Personal autonomy in society*. Book. Ashgate.
- [54] Parry, M. (2013). *Broadcasting birth control: Mass media and family planning*. Book. Rutgers University Press.
- [55] Pergantis, P., Bamicha, V., Skianis, C., & Drigas, A. (2025). AI chatbots and cognitive control: Enhancing executive functions through chatbot interactions: A systematic review. *Brain Sciences*, 15(1), 47.
- [56] Price, W. N., & Cohen, I. G. (2019). Privacy in the age of medical big data. *Nature Medicine*, 25, 37–43.
- [57] Protopapadakis, E. (2011). *Environmental ethics: Arne Naess and deep ecology*. Athens: Book. Sakkoulas.
- [58] Rajkomar, A., Hardt, M., Howell, M. D., Corrado, G., & Chin, M. H. (2018). Ensuring fairness in machine learning to advance health equity. *Annals of Internal Medicine*, 169(12), 866–872.
- [59] Raphael-Leff, J. (2018). *The psychological processes of childbearing*. Book. Routledge.
- [60] Raucher, M. (2021). Jewish pronatalism: Policy and praxis. *Religion Compass*, 15(7), e12398.
- [61] Richie, C. (2020). An Evangelical environmental bioethic: A proposal. *Ethics & the Environment*, 25(2), 29–44.
- [62] Rodríguez, M. L. (Ed.). (2023). *Bioethics of displacement and its implications*. Book. IGI Global.
- [63] Sallam, H. N., & Sallam, N. H. (2016). Religious aspects of assisted reproduction. *Facts, Views & Vision in ObGyn*, 8(1), 33.
- [64] Samuel, G., & Richie, C. (2023). Reimagining research ethics to include environmental sustainability. *Journal of Medical Ethics*, 49(6), 428–433.
- [65] Schenker, J. G. (2021). Human reproduction: Religious perspectives. In *Clinical management of infertility: Problems and solutions* (pp. 3–17).
- [66] Serour, G. I., & Serour, A. G. (2017). Ethical issues in infertility. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 43, 21–31.
- [67] Shapiro, G. K. (2014). Abortion law in Muslim-majority countries. *Health Policy and Planning*, 29(4), 483–494.
- [68] Sheoran, N. (2015). 'Stratified contraception'. *Medical Anthropology*, 34(3), 243–258.
- [69] Simos, C. (2025). Managing intense behavioral outbursts in schools: Innovative digital interventions for student self-regulation and teacher support. *Global Journal of Engineering and Technology Advances*, 25(3), 001–018.
- [70] Simos, C. (2025a). From theory to collaborative practice: Information and communication technologies as catalysts of unity, empathy, and inclusion in schools—bridging general and special education. *GSC Advanced Research and Reviews*, 25(2), 135–154.
- [71] Simos, C. (2025b). Evaluation of the neuropsychological tests CPT, Stroop, and WCST in detecting ADHD: Potential for integrating ICT in diagnostic practice. *Global Journal of Engineering and Technology Advances*, 24(2), 131–140.
- [72] Simos, C. (2025c). All together at recess: When technology builds human bridges of inclusion. *World Journal of Biology Pharmacy and Health Sciences*, 24(2), 489–500.
- [73] Simos, C., & Katsiamoura, G. (2025). The use of digital tools to enhance inclusion in the classroom. *World Journal of Advanced Engineering Technology and Sciences*, 17(1), 465–477.

- [74] Simos, C., & Xyloparkioti, E. (2025). Punishment or skills? Technology that transforms the management of student behavior in special education. *Global Journal of Engineering and Technology Advances*, 25(3), 031–050.
- [75] Simos, C., Larios, N., & Katsiamoura, G. (2026). Artificial intelligence in addressing school-related anxiety in adolescence: Digital approaches and inclusive perspectives in secondary education. *World Journal of Advanced Research and Reviews*, 29(1), 1485–1508.
- [76] Simos, C., Larios, N., & Papoutsis, C. (2026). Artificial intelligence and adolescent emotional well-being in inclusive secondary education. *World Journal of Advanced Research and Reviews*, 29(1), 1509–1527.
- [77] Stathopoulou, A., et al. (2018). Mobile assessment procedures for mental health and literacy skills in education. *International Journal of Interactive Mobile Technologies*, 12(3), 21–37.
- [78] Stephenson, R. (2006). District-level religious composition and adoption of sterilization in India. *Journal of Health, Population and Nutrition*, 100–106.
- [79] Stensvold, A. (2015). *A history of pregnancy in Christianity: From original sin to contemporary abortion debates*. Book. Routledge.
- [80] Stern, A. M. (2015). *Eugenic nation: Faults and frontiers of better breeding in modern America* (2nd ed.). University of California Press.
- [81] Turner, J. V., & McLindon, L. A. (2018). Bioethical and moral perspectives in human reproductive medicine. *The Linacre Quarterly*, 85(4), 385–398.
- [82] Thoma, M., Fledderjohann, J., Cox, C., & Adageba, R. K. (2021). Biological and social aspects of human infertility. In *Oxford Research Encyclopedia of Global Public Health*.
- [83] UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. <https://unesdoc.unesco.org/ark:/48223/pf000038>
- [84] Wilkinson, S., & Williams, N. J. (2020). Should we allow “AI” to decide embryo selection? *Bioethics*, 34(8), 777–785.
- [85] World Health Organization. (2021). *Ethics and governance of artificial intelligence for health: WHO guidance*. World Health Organization.
- [86] Weschler, T. (2015). *Taking charge of your fertility: The definitive guide to natural birth control, pregnancy achievement, and reproductive health* (20th anniversary ed.). William Morrow.
- [87] World Health Organization. (2025). *Ethics and governance of artificial intelligence for health: Guidance on large multi-modal models (LMMs)*.
- [88] Zorea, A. W. (2012). *Birth control*. Book. Bloomsbury Academic.