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Prenatal Sex Determination: Ethical and Social Implications

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Abstract

This paper examines the significance of prenatal knowledge about the sex of the fetus for personalization, naming and prenatal bonding. Pregnancy is understood as a reciprocal event and a socially embedded process that affects not only the mother, but also partners, siblings and grandparents. Modern prenatal diagnostics make the unborn child visible and describable at an earlier stage, thereby facilitating personalization, for example, through early naming. This is described as a performative act of recognition and identity formation that symbolically integrates the unborn child into relationships, responsibilities, and family narratives without normatively defining its identity.

However, empirical findings show that knowledge of gender is neither a necessary nor a sufficient prerequisite for prenatal bonding. Its effect depends on individual expectations, psychosocial stress, social support, and the quality of medical communication. Ultrasound and prenatal diagnostics often also fulfil emotional and relational functions. Reactions such as 'gender disappointment' are usually temporary, but should be dealt with empathetically. Historically, early personalization has not been constant; rather, it has resulted from declining mortality, medicalization, and technical imaging. This opens up new possibilities for shaping relationships but also creates new normative expectations.

In the case of perinatal loss, knowledge of the sex can be a resource for some parents, supporting naming, rituals, and a narrative positioning of the child; at the same time, strong personalization can intensify grief without being pathological per se. Recognition and psychosocial support are crucial for the grieving process. International comparisons (including India, China, and Japan) show that ethical problems arise primarily where the female gender, in particular, is socially devalued. In addition, status and economic security are linked to this, and diagnostics are selectively instrumentalized.

In medical ethics, prenatal sex determination is acceptable under the principle-based model (autonomy, non-maleficence, care, justice) if it is communicated voluntarily, with sensitivity to potential harms, and with awareness of the care and context. Central to this is an understanding of autonomy that explicitly respects not only the right to information but also the right to informed ignorance. Blanket bans on information cannot resolve ethical conflicts; what is crucial is reflective, culturally sensitive counselling that does not reduce gender to a determining 'label' and that takes into account the social consequences, including possible discrimination.

Keywords: Prenatal diagnostics, Gender determination, Prenatal bonding, Naming, Perinatal loss, Medical ethics, Right to ignorance.

Introduction

The relationship between mother and child does not begin at birth, but develops during pregnancy. Pregnancy is therefore not only a biological condition, but also a relational and socially embedded process that, from the moment the pregnancy is known, to varying degrees, also affects the father/partner and other family members. This chapter focuses on the mother-child bond as a specific form of prenatal relationship formation [11,13,15].

Modern prenatal diagnostics (ultrasound and non-invasive genetic testing) enable early determination of the fetal sex. This technical development changes the perception of the unborn child:

it becomes visible and describable earlier and, with its sex, can often be named. This intensifies processes of personalization; at the same time, medical-ethical questions arise that concern not only the 'whether' of the information, but above all its communication, framing and consequences. Two questions are central here. How does early knowledge of sex influence the prenatal bond between mother and child – especially in terms of early naming? Moreover, what significance does this knowledge have for grief and farewell in the event of perinatal loss [27,28]?

This paper aims to analyse these questions in a historical comparison and from psychological, social science and medical ethics perspectives. Central to this context is an understanding of autonomy that encompasses not only the right to knowledge but also the right to ignorance.

Naming as Personalisation

Giving a person – especially a child – a name is a fundamental act of recognition and identity formation. Sociologically, this has performative power: it makes a person socially visible and is perceived with dignity [10]. In developmental psychology, identity is not just an 'inner self' but arises dialogically through attribution and relationship; the name functions as a symbolic medium through which a person is accepted into a community and recognised as unique [19]. In the case of unborn children, naming takes on a special meaning, as it refers to a prenatal personality. Unborn life is already understood as a relational counterpart, deserving dignity and the parents' responsibility [30]. In this context, naming marks a transition from biological existence to social relationships.

Philosophically, the name is closely linked to the concept of narrative identity. Humans understand themselves as beings with a narratable life story, which begins with the act of naming [39]. The name functions as an anchor point for biographical narratives, enabling the organisation of experiences temporally and socially. From a theological perspective, naming also has a special significance. Naming is considered a creative and meaningful act that establishes relationships and responsibility. In biblical tradition, naming is understood as an expression of recognition and relationship-building (Gen 2:19–20). 'I have called you by name, you are mine (child),' says the Lord to the Israelites in Isaiah 43:1. *Hannah Arendt (1958)* [3] further emphasises with the term 'natality' that through birth and naming, humans enter the world of humans as a new beginning and become visible as unique beings.

Through prenatal sex determination, unborn children today often receive a name before birth, whereas historically this was usually only possible after birth. In this context, some people refer to the sex 'assigned' at birth. This term originally comes from gender activist discourse, although the determination of biological characteristics and, thus, sex is made medically [41]. What is relevant in terms of medical ethics is not the fact of knowledge itself, but the attribution of meaning that takes place in the context of relationships, expectations, and responsibility. Prenatal naming is thus not merely an expression of medical-technical possibilities, but also part of a previously unprecedented, comprehensive process of personalisation and relationship-building. It refers to an anticipated future, establishes emotional bonds, and structures responsibility without necessarily anticipating normative determinations about identity or life courses.

Pregnancy as a family development process

Emphasize how understanding pregnancy as a family development process can help researchers and professionals appreciate its impact on family relationships and dynamics, fostering a sense of relevance and importance. The scientific view of pregnancy has changed significantly in recent decades. While pregnancy was historically understood primarily as a biological condition of the mother, it is now described in developmental psychology, family sociology, and systemic research as a transition in the family system. Pregnancy, therefore, represents not only a physical change, but also a relational process that affects partnerships, sibling relationships, and intergenerational networks [12,14]. This perspective is important for prenatal diagnostics because diagnostic information not only triggers individual reactions in the mother, but can also affect family relationships and influence expectations, role models, and negotiation processes.

According to Bronfenbrenner's ecological model of development, human development is always embedded in social contexts. Even before birth, the unborn child is part of a microsystem consisting of parents, siblings, and extended family members [12]. Pregnancy thus changes not only the mother's life situation, but also the structure and dynamics of the entire family system. From this perspective, it becomes clear why the early visibility and descriptibility of the child – for example, through ultrasound images showing the face or through the disclosure of the sex – takes on not only medical but also relational significance: the unborn child becomes a social counterpart at an earlier stage, who is talked about, symbolically located and often also anticipatorily 'integrated into the family'. Research on the 'transition to parenthood' shows that it must be understood as a dyadic and systemic process. For professionals, recognizing how prenatal diagnostics influence family reorganization can inspire a sense of responsibility to support healthy family dynamics during pregnancy.

Involvement Of the Father and Partnership Dynamics

Empirical studies show that fathers' active involvement during pregnancy and prenatal care can positively affect mothers' psychological well-being and family adjustment [37]. Even before birth, fathers develop emotional bonds and increasingly identify with their role as parents [26]. In the context of prenatal sex determination, this dynamic takes on additional relevance because knowledge of the fetus's sex can influence expectations, identification processes, and role perceptions. Gender-related attributions often begin during pregnancy and are frequently reinforced or at least framed by concrete information [14].

Effects On Sibling Relationships

The expectation of a brother or sister changes existing sibling constellations even before birth. Research on sibling relationships shows that first-born children respond to the announcement of a sibling with adjustment processes ranging from curiosity to rivalry to insecurity [18]. If the sex of the unborn child is known, these processes can become even more differentiated: parents and siblings may develop specific expectations that structure role models and interaction patterns. Gender-specific ideas can thus influence the family relationship system even before birth [18].

Intergenerational Perspectives: The Role of Grandparents

Modern family research also emphasises the importance of intergenerational relationships. Grandparents are a key emotional and practical resource and are often actively involved in providing support during pregnancy and childbirth [6]. Prenatal sex determination can also activate or reinforce expectations at this level. In cultural contexts with pronounced gender norms, the disclosure of the fetal sex can influence intergenerational dynamics – for example, through different value attributions or traditional role models [6]. Pregnancy is therefore not only an event within the nuclear family, but part of an extended social network [12].

Healthcare System and Family-Centered Care

International guidelines on prenatal care increasingly recommend family-centred care that actively involves partners and other caregivers [46]. Pregnancy is explicitly understood as a psychosocial process that requires support on several levels. In the context of prenatal sex determination, this results in specific requirements for counselling and education: professionals must take into account that communicating the sex of the fetus not only elicits individual reactions from the mother, but can also have systemic effects within the family. Pressure to conform to expectations, gender-specific preferences, or cultural norms can influence decision-making and emotional adjustment [46].

Consequences For the Analysis of Prenatal Sex Determination

Against the background of the research presented, it can be concluded that prenatal sex determination cannot be understood in isolation as diagnostic information. Rather, it is embedded in partnership negotiation processes [14], paternal identity development [26,37], sibling dynamics [18], intergenerational expectation structures [6], and systemic family structures [34]. Early knowledge of gender can also structure family projections, role expectations, and relationship offers, depending on the cultural environment. This also explains why prenatal knowledge of gender often acts as a catalyst for personalization (e.g., through early naming) and can thus influence prenatal attachment development.

Prenatal Attachment: Concept, Measurement, And Clinical Relevance

In attachment theory, the early mother-child relationship is central to development [19]. On this basis, the concept of prenatal attachment ("maternal fetal attachment") has developed since the 1970s, encompassing thoughts, feelings, fantasies, and behaviors directed towards the unborn child [15]. Prenatal attachment is a multidimensional construct that involves mental engagement, protective behavior, and emotional investment. Prenatal attachment is not understood as a static personality trait, but as a dynamic process that changes and deepens over the course of pregnancy.

Reviews consistently show that pronounced prenatal bonding is associated with more sensitive maternal behaviour after birth, such as greater sensitivity and more stable interaction quality [1,13]. At the same time, prenatal bonding is sensitive to psychosocial stress: anxiety, depressive symptoms, and low social support can impair the development of bonding [4,21,36]. Prenatal diagnostics do not work solely through information, but through their embedding in communication and support [44].

Prenatal Naming as a Catalyst for Bonding and Personalisation

Empirical surveys show that the desire for prenatal sex determination is heterogeneous. Some pregnant women want to know the sex as early as possible, others consciously choose not to, and still others are ambivalent [25]. Many pregnant women also report that they do not see ultrasound examinations as exclusively medically necessary, but rather as serving to shape relationships and provide reassurance [35]. The medical-ethical conclusion is that gender information is not universally 'necessary' but requires an individualized, respectful service structure [15,28].

When knowledge of sex leads to naming, this can reinforce personalisation: the unborn child is addressed as 'someone' and not just 'something'. For many, this makes the bond feel more emotionally tangible; at the same time, personalisation can heighten expectations. It is therefore important to communicate gender not as a 'label of fate' but as one piece of information among many, leaving open the meaning that parents wish to give it [5].

A special case is so-called 'gender disappointment': reactions of disappointment when expectations are not met are usually temporary and are not clinically understood as a separate disorder; however, they can be shameful and should be dealt with empathetically in counselling rather than moralising [23]. In most cases, emotional adjustment occurs during pregnancy; persistent stress is more likely when additional psychosocial stressors are present [4,44].

Historical Changes in Pregnancy and Bonding

Medical history studies show that until the early 20th century, pregnancy was characterized by high maternal and perinatal mortality [32]. High birth rates, high risks for mother and child during childbirth, miscarriages, stillbirths and early infant mortality were common experiences that had a lasting impact on dealing with pregnancy and unborn life. Under these conditions, emotional reserve towards the unborn child was not an individual peculiarity, but socially widespread and culturally practiced.

Barbara Duden (1993) [17] describes how, for a long time, the fetus was primarily understood as part of the mother's body rather than as an independent entity. Pregnancy was primarily a physical experience for women, characterized by bodily sensations, uncertainties and social practices, but not by visual or objectifying approaches. Early personalization of the unborn child was neither self-evident nor culturally expected under these historical conditions.

It was only with advances in medicine, improvements in obstetric and neonatal care, and the associated decline in mortality rates that the social perception of pregnancy changed fundamentally. The medicalization of pregnancy, especially during the 20th century, led to the unborn child increasingly being viewed as an independent medical and moral subject. Imaging techniques such as ultrasound made the fetus visually accessible with its face and promoted processes of objectification, but also of personalization.

With the establishment of prenatal medicine, pregnancy increasingly changed from a primarily physical event to one that was also increasingly mediated by medical technology. The fetus is no longer perceived solely by the mother through physical sensations, but also through medical images, measurements, and findings. Therefore, the father and other family members can form stronger emotional bonds with the unborn child. This development encouraged earlier emotional attachment and facilitated the formation of prenatal bonds, but it also changed the conditions under which bonding occurs.

Against this background, the early personalization of the unborn child should not be understood as an anthropological constant, but as a historically contingent phenomenon. It is the result of medical, technical, and social developments that have given rise to both new possibilities for shaping relationships and new normative expectations. The fact that early bonding and prenatal naming are taken for granted today is therefore not a timeless feature of human pregnancy, but rather an expression of specific historical constellations.

For the medical-ethical evaluation of prenatal diagnostics, this means that people must not generalize current ideas of bonding, responsibility, and personalization without reflection. Rather, it should be recognized that different historical and cultural contexts have been and continue to be associated with distinct forms of emotional closeness to the unborn child. Recognizing this historical conditionality opens up a reflexive space in which current normative expectations can be critically classified.

Prenatal Diagnostics, Knowledge of Sex, and Empirical Surveys

Empirical studies show that the desire for prenatal sex determination is by no means uniform. In surveys, only some pregnant women state that they definitely want to know the sex of their unborn child, while others consciously choose not to know or express ambivalent attitudes [25]. Knowing the sex is therefore not a universal need, but depends heavily on individual, social, and cultural factors. Studies on the motivation for prenatal diagnostics show that interest in ultrasound examinations is often not primarily medically motivated. Many pregnant women state that they use these examinations primarily to obtain information about their unborn child, for reassurance, and to build a relationship [35]. Prenatal diagnostics thus fulfil not only a diagnostic function, but also an emotional and relational one.

Furthermore, studies show that ideas about the sex of the unborn child often exist even before medical confirmation. Intuitive assumptions, wishes, or conjectures – even if they are not statistically accurate – contribute to the early personalization of the unborn child [33]. These ideas can structure bonding processes and shape emotional expectations independently of objective knowledge of gender. Empirical evidence suggests that knowledge of gender is neither a necessary nor a sufficient condition for prenatal bonding. Rather, the emotional relationship with the unborn child is the result of a complex interplay of individual dispositions, psychosocial conditions, biographical experiences, and medical support. Gender information can support this process, but it can also unsettle or ambivalently influence it, depending on the timing, context, and individual significance.

For the medical-ethical evaluation of prenatal sex determination, it is therefore crucial to take the interindividual variability in dealing with knowledge of sex seriously. In this context, autonomy does not mean offering all pregnant women the same amount of information or standardizing knowledge as fundamentally desirable; rather, it means respecting different preferences regarding information and ignorance. The empirically proven heterogeneity of attitudes argues against a standardized or implicitly normative practice of gender disclosure. In summary, empirical surveys show that prenatal sex determination plays a relevant role for many, but by no means all, pregnant women. Prenatal diagnostics are often emotionally motivated and part of a subjective relationship process. The ethical challenge lies not in the existence of gender knowledge, but in its sensitive, voluntary, and context-aware communication.

International Perspectives:

(India, China, Japan)

The findings to date make it clear that the ethical significance of prenatal sex knowledge is not universal but is shaped by cultural, social, and political contexts. International comparisons show that the ethical problems of prenatal sex diagnosis are based less on the diagnostic procedure itself than on society's attribution of meaning to sex and on structural power relations.

In India, the combination of prenatal sex diagnosis, a pronounced preference for sons, and socio-economic factors led to systematic gender-specific selection. Empirical studies document that the availability of prenatal diagnostics, in conjunction with cultural norms and economic incentives, has contributed to distorted gender ratios among newborns [40]. Despite legal bans on prenatal sex determination and disclosure, the problem of selective abortions persists in certain regions, pointing to the limited effectiveness of purely legal regulations without social change. Similar developments can be observed in China, particularly in the context of the decades-long one-child policy. The combination of state-controlled reproduction, traditional preference for male offspring, and access to prenatal diagnostics led to significant distortions in the sex ratio at birth and, consequently, in the population [24]. These developments have long-term demographic and social consequences, such as a so-called 'marriage squeeze', and highlight the ethical sensitivity of prenatal sex diagnostics in discriminatory contexts [22].

In contrast, studies from Japan paint a very different picture. Despite the widespread availability of prenatal diagnostics, no systematic gender-specific selection patterns have been detected [20,38]. Although gender preferences also exist culturally in Japan, they do not lead to selective abortions in a comparable way. Among other things, this is attributed to different family structures, lower economic incentives for sex selection, and a different social embedding of prenatal diagnostics. These international differences illustrate that the ethical problem of prenatal sex determination does not result from the information itself, but from its social and cultural contextualization. Prenatal diagnostics do not act in isolation, but reinforce existing social norms and inequalities. Where gender is linked to social status, economic security, or family obligations, knowledge of gender can be selectively exploited.

For the medical-ethical assessment, this means that prenatal sex determination cannot be evaluated independently of social power relations and gender norms. International experience argues against sweeping ethical judgements and underscores the need for context-sensitive regulations. While restrictive legal measures appear necessary in certain countries, experience in other contexts shows that responsible prenatal sex diagnosis is possible without giving rise to systematic ethical problems.

Perinatal Loss and Grief

The loss of a child during pregnancy or around the time of birth represents a profound psychological and existential burden for the parents concerned. Miscarriages, stillbirths, and early neonatal deaths are associated with intense grief reactions, which are often made more difficult by social invisibility and a lack of recognition. While prenatal losses have historically been rarely discussed publicly or ritualized, both the legal framework and psychosocial norms have changed significantly in recent decades. In attachment theory, grief is understood as a reaction to the loss of a significant relationship [28]. Against this background, grief following perinatal loss is not primarily linked to the duration or visibility of the relationship, but to its subjective significance. Prenatal attachment can reach a high level of emotional intensity even before birth, so that the loss of the unborn child is experienced as the loss of a relational counterpart.

In this context, prenatal information about the sex of the child takes on special significance. It can help to give the lost child an identity, symbolically embed it in the family history, and structure the grieving process [4]. Knowledge of the sex is often important for naming, welcoming, and farewell rituals, and a narrative positioning of the child, which, for many parents, is an important resource for coping with grief. The growing practice of individual burials, such as those in so-called star-child graves, reflects this shift in society's approach to perinatal loss [9]. At the same time, prenatal knowledge of the sex can intensify the emotional intensity of grief. The more the unborn child is personalized and integrated into plans for the future, the more painful its loss can be. However, this intensification is not to be equated with pathological grief. Empirical studies show that an intense grief reaction after perinatal loss is usually a normal and appropriate response to the loss of a significant relationship [7,31].

In terms of medical ethics, this implies an obligation to take prenatal bonding and subjective attributions of meaning seriously without making normative judgements about them. For some parents, knowing the sex and the associated personalization is an important prerequisite for saying goodbye and grieving. For others, consciously foregoing such information can be part of a self-determined way of dealing with loss. Even in the context of perinatal loss, the right not to know must therefore be respected as an expression of individual autonomy. The decisive factor in the grieving process is not so much the information available as the social recognition of the loss and the quality of the psychosocial support that accompanies it. Studies show that a lack of recognition, trivializing reactions from those around them, or a lack of professional support can increase the risk of complicated grief processes [28]. Conversely, empathetic, appreciative support can help to integrate grief and reduce long-term psychological stress.

For medical practice, this results in an ethical responsibility not to treat perinatal losses as purely medical events, but to recognize their relational and emotional dimension for the mother and also for other family members. This includes empathetic communication, recognition of prenatal bonding, and sensitive support for individualized farewells and mourning. In this context, prenatal knowledge of sex should not be assessed as a risk or resource in itself, but rather as part of a subjective framework of meaning that must be respected and supported.

Medical Ethical Classification According to the Principles of Biomedical Ethics

The Beauchamp and Childress (2019) model is suitable for systematic medical ethical evaluation of prenatal diagnostics and sex determination. This model distinguishes between four basic principles: autonomy, non-maleficence, beneficence, and justice. It allows for a differentiated assessment that does not result in blanket bans or unreflective liberalization, but rather assesses the ethical quality of prenatal diagnostics based on how they are applied and communicated.

Autonomy and the Right Not to Know

The principle of autonomy requires that prospective parents be able to make decisions based on sufficient, comprehensible, and voluntary information. Autonomy encompasses not only the right to knowledge but also, explicitly, the right not to know [29]. This protects individuals from receiving medical or genetic knowledge about their own body or their unborn child against their declared will. In Germany, this right is enshrined in law in the Genetic Diagnosis Act (§ 1 GenDG). It is an expression of informational self-determination and part of the general right to privacy. Internationally, the right not to know was recognised early on in medical ethics, for example in the Declaration on the Rights of the Patient by the World Medical Association [45] and in the Universal Declaration on the Human Genome and Human Rights by UNESCO (1997) [43], which enshrines the right of every individual not to be informed about test results. In the context of prenatal sex determination, the right not to know has a dual significance. On the one hand, it functions as an individual protective right that allows pregnant women to consciously refrain from being informed of the sex of their unborn child, for example, in the context of ultrasound examinations.

On the other hand, according to Section 15 (1) of the German Genetic Diagnosis Act (GenDG), doctors in Germany are only allowed to disclose the sex of the unborn child after the 14th week of pregnancy, even if it can be determined earlier. This is intended to prevent gender-specific selection. In this case, the right not to know has not only an individual ethical effect, but also a preventive social effect. Empirical findings show considerable individual variation in the desire for gender knowledge. Autonomy, therefore, does not mean maximizing information, but enabling self-determined decisions, including the legitimate renunciation of knowledge. What is ethically problematic is not knowledge or non-knowledge, but their implicit standardization as self-evident or necessary.

Non-Harm

The principle of non-harm obliges us to minimize avoidable physical and psychological stress. Prenatal knowledge of sex can have an emotional impact and intensify expectations, disappointments, or grief, as discussions on gender disappointment and perinatal loss show. At the same time, there is no empirical evidence that knowledge of sex per se leads to pathological attachment disorders or pathological grief. The ethical problem is therefore not the information itself, but its insensitive, unreflective, or normatively charged communication. A damage-preventing practice requires situation-appropriate communication, consideration of individual vulnerabilities, and the option to explicitly refrain from providing certain information.

Care

The principle of care emphasises medical professionals' responsibility for the psychological and relational well-being of pregnant women and their families. Prenatal diagnostics should not be understood as merely communicating findings, but as a relationally embedded act of communication. The findings on prenatal bonding show that medical care, the quality of information provided, and psychosocial support moderate emotional processes during pregnancy. The principle of care is particularly important in the context of perinatal loss. Recognition of prenatal bonding, the subjective significance of knowing or consciously not knowing the sex, and individual forms of farewell and mourning are part of ethically responsible care. In this context, care means not judging different needs, but providing professional support.

Justice

The principle of justice refers to the social implications of prenatal diagnostics. International comparisons show that prenatal sex determination has been associated with structural gender discrimination and selective abortions in certain cultural and political contexts. At the same time, in other countries, it has not had any such effects despite its widespread availability. It follows that the ethical evaluation of prenatal sex determination must not be carried out in isolation, but must always be conducted in the light of cultural norms, social power relations, and health policy frameworks. Justice, therefore, does not require a general ban on information, but rather context-sensitive action and, where necessary, regulatory safeguards to address structural discrimination.

Ethical And Social Implications of Prenatal Sex Determination

From a medical point of view, prenatal sex determination is primarily additional diagnostic information in the context of prenatal diagnostics. From a social science and ethical perspective, however, it goes beyond purely medical information. Since pregnancy must be understood as a process embedded in family and society [12,14], knowledge of the fetal sex touches on normative ideas, cultural value attributions, and social power structures.

Gender Preferences and Social Value Attributions

International research shows that in certain cultural environments, there is a preference for a particular gender, often for male offspring. These preferences can be reflected in reproductive decisions when sex is known early. Sex-selective practices are an expression of deeply rooted gender norms and structural inequalities [42]. In such contexts, prenatal sex determination can contribute to the reproduction of social discrimination. From a bioethical perspective, it has also been noted that the possibility of early gender knowledge can lead to the instrumentalization of unborn life. In its statements on prenatal diagnostics, the German Ethics Council emphasises the potential to influence social expectations and shift normative standards *(German Ethics Council, 2013)* [16].

Sex Selection and Reproductive Freedom

The question of the ethical evaluation of prenatal sex determination lies at the intersection of reproductive autonomy and social responsibility. From a liberal perspective, decisions about pregnancy and information are fundamentally a matter of self-determination for the pregnant woman. At the same time, demographic analyses indicate that sex-selective abortions can lead to demographic imbalances in the long term [42]. In some countries (e.g., India, China), a significant shift in the sex ratio at birth has been observed, which is attributed to selective practices [8]. This raises the question of whether individual freedom of choice is influenced by structural inequalities when social norms place a higher value on certain genders. As a relational process, reproductive decisions are thus also embedded in social contexts [12].

Reproduction Of Gender Norms

Early commitment to a gender can activates gender-specific attributions even before birth. Developmental psychology research shows that parents often formulate gender-related expectations during pregnancy [26]. This concerns attributions to personality and temperament, clothing choices, toy selection, room design, linguistic address, and symbolic role models. Thus, prenatal sex determination can contribute to the early reproduction of binary gender norms, since from a social constructivist perspective, gender is not exclusively biologically determined, but is socially constructed and stabilized. The medical visualization of gender reinforces this social categorization.

Medical Ethics Perspective

The WHO recommendations on prenatal care emphasise that pregnant women should receive high-quality, respectful care, including comprehensive, informed, and non-directive counselling [46]. The disclosure of sex should therefore not be done in isolation, but embedded in comprehensive information about medical, psychosocial, and ethical aspects.

In Germany, the legal regulation on Non-Invasive Prenatal Testing (NIPT) stipulates that the sex may only be disclosed after the 12th week of pregnancy. This regulation aims to prevent sex-selective abortions. This shows that the legislator recognizes the social dimension of sex determination. In contrast, there are no clear guidelines on gender disclosure in the USA. This means that it is medically possible and legally permissible to determine and disclose the sex of the fetus as early as is medically reliable.

Discrimination, inclusion, and diversity

Another ethical issue concerns intersex and non-binary perspectives. Prenatal gender determination usually operates within a binary system (male/female). This can obscure the diversity of gender identities. However, modern gender studies question the reduction of gender to chromosomal or anatomical characteristics. In this context, there is debate as to whether the routine early disclosure of gender reinforces social notions of gender as a fixed biological category.

Summary Assessment

Prenatal sex determination is not a purely medical act, but a socially embedded event with potential implications on:

a) familial expectation structures
b) partnership dynamics
c) intergenerational norms
d) social gender relations
e) reproductive decision-making processes

When considering the implications of prenatal sex determination, it is therefore important to emphasize that this practice is embedded in a complex web of individual autonomy, family dynamics, and social power structures. The ethical assessment must take into account both the self-determination of the pregnant woman and possible structural mechanisms of discrimination. Pregnancy, as a family development process, provides the central frame of reference for understanding the social significance of this diagnostic information [12,14].

Prenatal sex determination is neither per se conducive to bonding nor fundamentally problematic. It can facilitate naming and personalization, thereby supporting prenatal bonding processes, but it is neither a necessary nor a sufficient condition for bonding. The communicative, psychosocial, and cultural framework is ethically decisive: a justifiable practice requires voluntariness, respect for the right not to know, sensitivity to harm, and context-aware counselling [2,5].

Transparency Note

The AI-based language model ChatGPT (OpenAI) was used to support linguistic revision and manuscript structuring. The author is solely responsible for the content, argumentation, interpretation of the literature, and ethical evaluation. The programs DeepL and Grammarly were used to translate the text from German.

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Conflict of Interest

None.

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