Technological Advancement and International Human Rights: Is Science Improving Human Life or Perpetuating Human Rights Violations?

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TECHNOLOGICAL ADVANCEMENT AND INTERNATIONAL HUMAN RIGHTS: IS SCIENCE IMPROVING HUMAN LIFE OR PERPETUATING HUMAN RIGHTS VIOLATIONS?

Christine A. Khalili-Borna*

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I. INTRODUCTION

A. Science: Cure or Curse?

Improvements in scientific technology have allowed modern medicine to treat and cure some of the most painful and life-threatening illnesses, including polio, tuberculosis, and HIV. In many parts of the world, life expectancy has increased\(^1\) while mortality rates have decreased\(^2\), which is largely the result of greater scientific awareness in combination with the creation of life-saving procedures and devices. The potential exists for technology to continue to advance in ways that improve quality of life. Technological advancement in the study of science allows people to make lifestyle decisions that contribute to good (or better) health outcomes. For example, people may make informed decisions regarding exercise, smoking, what types of food to eat, and even when to have children. Further, most civilizations have learned the importance of basic sanitation such as hand-washing,\(^3\) waste disposal or burial,\(^4\) and clean water.\(^5\)

2. *Id.* at 10, 12 (indicating that mortality rates for almost all communicable diseases have decreased).
Access to general education and healthcare may also be improved through the creation of vehicles and roads which enhance the distribution of educative materials and improve the availability of doctors and medical staff. Better communication devices may also provide for better information dissemination systems so that people can gain better access to basic medical and safety information, and so that during an epidemic, vital information can be delivered more rapidly. Technology could also assist in achieving universal healthcare coverage by not only making medications and treatments available, but also by making them affordable.

Technology may also be used to enhance international monitoring through the creation, improvement, and use of more advanced transparency mechanisms. Communications devices such as telephones and computers may allow for better record-keeping. In turn, better record-keeping may assist in ensuring that both healthcare needs and human rights conditions are satisfied. Additionally, some discussion has touched on the possibility of utilizing Internet and satellite technology to monitor volatile areas early on during periods of conflict. The satellite images could indicate whether villages were being wiped out, people being forced to migrate, barricades being erected, water supplies being impacted, or homes being destroyed.

The human rights benefits of technology are fairly obvious. In the most brilliant and extreme cases, technology could provide for universal healthcare, universal education, and international protection against genocide. However, the potential of science is duplicitous in nature as this power to enhance life could easily be converted into a power to destroy life. Thus, recent advancements in medicine and technology may be creating a loophole for violations of human rights. In fact, one might wonder if science is advancing so quickly that it has surpassed human

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7. See, e.g., WHO, supra note 1, at 15–19.
9. See Metzl, supra note 6, at 727, 734–38; see also Jamar, supra note 8, at 4–5 (discussing benefits of online availability and access to national domestic laws).
10. See WHO, supra note 1, at 10.
11. See, e.g., Metzl, supra note 6, at 724–25.
capability to make ethical decisions regarding the appropriate use of technology.

This Note assesses the practices of pre-implantation and prenatal genetic screening and sex-determination through an international human rights framework founded in the Universal Declaration of Human Rights (Universal Declaration), the Convention on the Rights of the Child (CRC), and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). Part II of this Note looks at the international historical backdrop of eugenics to highlight past areas of concern with respect to eugenic theory and practice. Part III then considers modern day eugenics through the use of pre-implantation and prenatal genetic screening for disease and for sex. Part III also explores the issue of genetic screening and evaluates the implications for reproductive choice. Part IV then specifically looks at modern day sex selection and posits the possibility that pre-implantation genetic screening and sex-selective abortions are replacing infanticide. This section also includes short case studies of China and India. Based on this practical review, Part V suggests that there is a need for close observation of prenatal and pre-implantation genetic screening practices and that perhaps more stringent and specific international guidelines should be adopted and strictly enforced. This section further considers the possibility of banning sex-selective abortions entirely as this practice seems incompatible with the goals of the Universal Declaration of Human Rights, the CRC, and CEDAW. However, it should be noted that at present, it is unclear that the adoption and implementation of additional

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14. While it should be noted that the idea of a human right typically presupposes the existence of a human being, this Note does not address the question of when life actually begins. While it may be a stretch to argue that individual human rights apply to unborn and even un-implanted fetuses, it might still be accurate to claim that international human rights law sets forth standards and goals for nations and for humanity. Focusing thus on the objectives of such agreements, one might reasonably argue that the practice of eliminating the possibility of the birth of a human being based on the sex of the child seems to disregard the reasons underlying the existence of human rights law. In other words, if the objective of these conventions is indeed to eliminate discrimination against females and to stress the inherent equality of all humans, then allowing the perpetuation of practices, reproductive or otherwise, that divide people into preferred classes based on sex seemingly violates the spirit of these treaties. Breaching the essence of these agreements may have the effect of making such international law moot.
legislation alone will be sufficient to eradicate the larger underlying problem of deeply entrenched, systematic sex inequality.

II. HISTORICAL CONTEXT FOR CONCERN: Eugenics

A. Eugenics: Evolution of a Theory of Selection

Eugenic theory has been traced at least as far back as 1865, when Francis Galton presented the idea that humans should take control over their evolution. As early as the Fifth Century, philosophers such as Plato suggested how to deal with undesirable and imperfect offspring, while also discussing the value of mate selection and family planning. In 1883, Galton proposed the name *eugenics* for this system of selective breeding. The term *eugenics* is derived from the Greek word *eugenes* which means “good in birth.” Galton defined eugenics broadly, as “the science of improving stock, which is by no means confined to questions of judicious mating, but which ... takes cognizance of all influences that tend in however remote degree to give the more suitable races or strains of blood a better chance of prevailing speedily over the less suitable than they otherwise would have had.”

Galton also experimented with formulations such as how social control may impact the racial qualities of future generations, how science may improve inborn qualities of race, and how humans may further develop advantageous and desirable traits.

These definitions of eugenics may not seem dangerous in light of arguments for reproductive choice and autonomy. Due to the practical contexts in which eugenics has been used, however, a negative opinion about eugenics exists in the international community today. Because of

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19. Id.
20. Id.
21. Id. at 133–34 (“We have come to identify eugenics with the most terrible parts of its history. Eugenics evokes the image ... of [Nazi] Germany. Indeed, over every contemporary discussion of eugenics falls the shadow of the Third Reich.”); see, e.g., Convention for the Protection of Human Rights and Dignity of the Human Being with Regard to the Application of Biology and Medicine: Convention on Human Rights and Biomedicine, Apr. 4, 1997, 36 I.L.M. 817, E.T.S. No. 164, available at http://conventions.coe.int/Treaty/en/Treaties/Html/164.htm (stating that “[a]ny form of discrimination against a person on grounds of his or her genetic heritage is prohibited”) [hereinafter CHRB].
repeated negative experiences with eugenics used as justification for genocide and ethnic cleansing, the need arose to declare the universal inherent worth of all human beings. This sentiment appears in the language of many international conventions and agreements such as the Universal Declaration on Human Rights, the CRC, and CEDAW, all of which focus on the inherent "dignity and worth of the human person." While the language in these agreements does not explicitly mention eugenics, the goal is clearly to recognize the value inherent in every person, regardless of their genetic makeup or mental capacity.

B. Eugenics in International and Transnational Contexts

Eugenics movements across the world have highlighted the dangers of eugenics. During the decades 1890-1920, in addition to the United Kingdom and the United States, numerous non–English–speaking countries, including, Norway, Brazil, and the Soviet Union, accepted and advanced eugenic ideas and practices. By the late 1920s, acceptance of eugenic theory was widespread, and many types of people were deemed "socially inadequate," or socially parasitic, and "were recognized as the target groups for sterilizations." Although many of the early eugenicists, including Francis Galton, were opposed to coercion, over time eugenics began to incorporate aspects of "coercion of people's reproduc-

22. See discussion infra Part II.B; see also GEORGE P. SMITH, II, HUMAN RIGHTS AND BIOMEDICINE 8 (2000). Smith states,

The need for a consensus on the universality of human rights—their international declaration, recognition, and protection—arose modernly as a consequence of the ravages of World War II. The Axis Powers' savage trampling on human rights, the holocausts of the gas chambers of Auschwitz and Dachau, and the use of the atom bomb on Hiroshima galvanized an international response to universalize a legal process for protecting human rights in the United Nations adoption in 1948 of the Universal Declaration of Human Rights.

23. CRC, supra note 13, pmbl.; CEDAW, supra note 13, pmbl.; Universal Declaration, supra note 13, at 71; see also CHRB, supra note 21, pmbl. (acknowledging the "need to respect the human being both as an individual and as a member of the human species ... [c]onscious that the misuse of biology and medicine may lead to acts endangering human dignity"; and "[r]esolving to take such measures as are necessary to safeguard human dignity and the fundamental rights and freedoms of the individual with regard to the application of biology and medicine"); see also AURORA PLOMER, THE LAW AND ETHICS OF MEDICAL RESEARCH: INTERNATIONAL BIOETHICS AND HUMAN RIGHTS 16 (2005).

24. Universal Declaration, supra note 13, art. 2; SMITH, supra note 22, at 8, 23.


26. SMITH, supra note 22, at 115. Those considered to be "feebleminded," "insane," "criminalistic," epileptic, visually impaired or blind, hearing impaired or deaf, diseased, and "dependents taken as orphans, ne'er-do-wells, the homeless, tramps, and paupers" were targeted. Id.
tive choices, for social ends, which may include improving the quality of the population, preventing suffering of future generations or reducing financial costs to the State."  

The Nazi campaign in Germany established and brought international public attention to the dark side of eugenics. By selecting against Jews, homosexuals, and the "hereditarily sick," the Nazis engaged in mass extermination to achieve their eugenic goal. In the scientific community, at least briefly, "the revelations of the Holocaust had all but buried the eugenic ideal." This extermination attempt, while one of the largest in scale, does not stand alone in the crusade for a perfect population taken to the extreme. The international community's view of eugenics has been tainted by numerous human rights disasters such as the Turkish slaughter of between one and two million Armenians from 1915-1923 (Armenian Holocaust), the Rwandan genocide in 1994, ethnic cleansing in Kosovo, and the ongoing crisis in Sudan, which make the threat of mass genocide realistic. The international historical experience with eugenics highlights the need for caution in any policy or practice, scientific, political, or otherwise, that may have eugenic motives or goals.

Against the backdrop of the atrocities of World Wars I and II and the Nazi experimentation with eugenics, the Universal Declaration of Human Rights was erected to create standards to protect humankind from such "barbarous acts which have outraged the conscience of mankind." The Universal Declaration's repeated "guarantees of 'human dignity' . . . established eloquent reminders of the need for the advances of biotechnology and genetic engineering to be tied to a basic understanding of,

28. Wikler, supra note 25, at 4-5.
35. Universal Declaration, supra note 13; see also Sheila McLean, Modern Dilemmas: Choosing Children 16-17 (2006); Smith, supra note 22, at 8.
and respect for, fundamental human rights."\(^{36}\) In light of this foundation for human rights protection, any future activity that touches upon eugenics, including genetic engineering, which "frequently does rely upon eugenics" to combat genetic disease,\(^{37}\) should be examined under the framework of the Universal Declaration and other related international human rights documents.

III. PRESENT CONTEXT FOR CONCERN: MODERN DAY EUGENICS

A. Genetic Screening: An Overview

It would be inaccurate to classify eugenics as an occurrence of the past. Recent advancements in nanotechnological capability, specifically as it pertains to genetics, have allowed the threat of our eugenic past to be carried into the present.\(^{38}\) First, it is important to recognize the invaluable contribution that the study of genetics has made to medical and healthcare advancements. Scientists have discovered that some diseases are genetically linked, which has allowed for improved research, diagnosis, and treatment of illness.\(^{39}\) Knowing what causes specific diseases may also aid in future prevention. However, present discussions of treating genetic diseases lead to suggestions for avoiding undesirable characteristics through gene therapy, which raises questions about the potential for another eugenic crisis.\(^{40}\)

There has been some discussion in certain social institutions about the utility of requiring genetic testing that could indicate whether a person might "develop or be a carrier of a hereditary condition"\(^{41}\) as a prerequisite for entry.\(^{42}\) But this screening for genetic diseases creates an avenue for discrimination by institutions such as insurance companies,

\(^{36}\) SMITH, supra note 22, at 23.

\(^{37}\) Id. at 113.


\(^{40}\) MCLEAN, supra note 35, at 9; TROY DUSTER, BACKDOOR TO EUGENICS 5–6 (2003).


\(^{42}\) GERARDS ET AL., supra note 39, at 2–3.
schools, and employers, especially because "[t]he benefits of genetic tests that screen for incurable conditions are often evaluated in economic terms, instead of in terms of benefits for the individuals being screened." It is important to note that it may be unclear what the tests are trying to determine and what they actually mean. While the results might indicate that a person has a genetic characteristic that might be linked to a certain disease, that person may not actually have the condition. In fact, many of the people who test positive on a genetic test "will never have a related illness, or will experience a lifetime of the asymptomatic [sic], presymptomatic or minimally symptomatic phases of the condition . . . . Genetic testing is not only a medical procedure. It is also a way of creating social categories."

Laws have been passed to combat such discriminatory behavior. In the context of rising healthcare premiums, however, one might envision hefty lobbying on the part of people who lack a genetic predisposition for specified diseases in order to keep their premiums low. A likely effect of such campaigning could be denial of insurance or underinsurance to those with a genetic pre-disposition for illness. Further, unless strict enforcement of anti-discrimination laws is practiced, it is conceivable that such institutions might deny access to people with undesirable traits and claim that the denial was grounded in some other reason unrelated to genes or potential health.

There are many potentially negative ramifications of considering pre-disposition to genetic illness in determining eligibility for medical insurance, strength as a candidate for a job, or even access to certain

43. See id. at 2; see also DUSTER, supra note 40, at 77; Munayyer, supra note 41; see generally Marisa Anne Pagnattaro, Genetic Discrimination and the Workplace: Employee's Right to Privacy v. Employer's Need to Know, 34 AM. BUS. L.J. 139 (2001).
45. Id. at 93.
47. RADERTZKI ET AL., supra note 39, at 28–37; see, e.g., Convention on Human Rights and Biomedicine, supra note 21, art. 11.
48. This seems more likely to occur in a group insurance system than in an individual private insurance scheme. See, e.g., APPEYARD, supra note 38, at 129 (discussing potential distortions in insurance markets); Arnold A. Dicke, The Economics of Risk Selection, in GENETICS AND LIFE INSURANCE: MEDICAL UNDERWRITING AND SOCIAL POLICY 49, 63 (Mark A. Rothstein ed., 2004) (comparing the consideration of group characteristics rather than characteristics of individual members in group insurance).
49. RADERTZKI ET AL., supra note 39, at 103–04.
50. Id. at 80 (discussing the reasons why existing restrictions on the access of insurance companies to genetic information are "unlikely to be maintained").
schools. Not only does this seem to violate a right to privacy, but all three of these situations touch upon important human rights principles, including the right to health and healthcare, the right to work, and the right to education. In explicit terms, it also violates the U.N. Educational, Scientific, and Cultural Organization’s (UNESCO) Universal Declaration on the Human Genome and Human Rights, which prohibits “discrimination based on genetic characteristics.” Furthermore, the Universal Declaration of Human Rights ensures that “[e]veryone, as a member of society, has the right to social security and is entitled to realization . . . of the economic, social and cultural rights indispensable for his dignity and the free development of his personality.” Arguably, denying a person access to a livelihood and the benefits of healthcare and insurance infringes upon that person’s social security and thus violates the Universal Declaration of Human Rights.

51. According to the Universal Declaration of Human Rights, “[n]o one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks.” Universal Declaration, supra note 13, art. 12.

52. Article 25(1) states,

Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

Id. art. 25(1) (emphasis added). This provision not only refers to health and healthcare, but also seems to encompass insurance because it specifically mentions the right to security in times of sickness and disability. Although, with the advancement of technology, at some point in time one’s genes might be within his control, as of now, they are still “circumstances beyond his control.”

53. Article 23(1) states, “Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment.” Id. art. 23(1).

54. Article 26(1) states, “Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be generally available and higher education shall be equally accessible to all on the basis of merit.” Id. art. 26(1).


56. Universal Declaration, supra note 13, art. 22.

57. See, e.g., Vincent O. Nmehielle, Genomics, Insurance, and Human Rights: Is There a Place for Regulatory Frameworks in Africa?, 2 Afr. J. LEGAL STUD. 20, 25–26 (2006); see generally GERARDS ET AL., supra note 39, at 47–58; see also id. at 92 (advocating for further, more specific legislation against genetic discrimination).
B. Genetic Testing: The Phenomenon of Designer Babies

Modern pre-implantation genetic diagnostic testing (hereinafter PGD), which is typically used in combination with in-vitro fertilization (IVF), tests for genetic pre-disposition to life-threatening diseases. Parents are then able to select embryos that are more likely to survive implantation and birth. PGD is already used in the United States, the United Kingdom, Spain, and India. Many argue that this practice falls within parents' reproductive and family planning rights. Further, the prospect of using science to eliminate disease may, at least initially, sound very promising. Additionally, under article 27 of the Universal Declaration of Human Rights, "[e]veryone has the right freely to participate in the cultural life of the community ... and to share in scientific advancement and its benefits." Even if this interpretation is likely not what the drafters of the Universal Declaration had envisioned when drafting article 27, there seems to be room for the argument that genetic testing simply makes use of available scientific progress.

However, one might argue that the goal of the Universal Declaration of Human Rights was to protect both against violations of the individual's human rights and those of humanity. Where it is science itself that perpetrates large scale human rights violations (violations against humanity), perhaps the right to access such science should be questioned. This idea is clarified in article 30 of the Universal Declaration of Human Rights, which declares that "[n]othing in this Declaration may be interpreted as implying for any State, group or person any right to engage in any activity or to perform any act aimed at the destruction of any of the

58. U. Meister et al., Knowledge and Attitudes Toward Preimplantation Genetic Diagnosis in Germany, HUM. REPROD., Oct. 7, 2004, at 232. Other countries such as Germany and Austria are much more hesitant about utilizing any reproductive mechanisms such as PGD that may touch upon eugenics. Germany is especially sensitive as a result of its past experiences with eugenics and with discrimination against disabled people. Id.

59. See, e.g., CRC, supra note 13, arts. 24(1), 24(2). The CRC provides for "family planning education and services" to promote the "highest attainable standard of health." Similarly, CEDAW seeks to ensure "the right to protection of health and to safety in working conditions, including the safeguarding of the function of reproduction." CEDAW, supra note 13, art. 11(1)(f). CEDAW further seeks to "eliminate discrimination against women in the field of healthcare in order to ensure, on a basis of equality of men and women, access to healthcare services, including those related to family planning," and to "eliminate discrimination against women in rural areas in order to ensure, on a basis of equality of men and women, that they participate in and benefit from rural development and in particular, shall ensure to such women the right ... to have access to adequate healthcare facilities, including information, counseling and services in family planning." Id. arts. 12, 14(2)(b). Article 16 of CEDAW also recognizes the same rights of men and women "to decide freely and responsibly on the number and spacing of their children and to have access to the information, education and means to enable them to exercise these rights." Id. art. 16(1)(e).

60. Universal Declaration, supra note 13, at art. 27(1) (emphasis added).
Arguably, the right violated is an article 3 "right to life," though admittedly, this might be a bit of a stretch. While setting off a bomb in the middle of a civilian village during peacetime would be a clear infringement on the article 3 "right to life," the lines are more blurred in the case of genetic manipulation and selective abortion.

Even in the presence of the article 27 human right to science, it is arguable that this right is not absolute, where a person attempts to use science to determine more than just the likelihood of survival and possibility of illness of an embryo as a basis for counter-selection, but also considers the sex of the embryo. Essentially, genetic screening allows scientists and parents to separate traits into categories and select for those that are desirable or better rather than those characteristics that are more undesirable. One fear that exists is that parents could begin to use genetic engineering to select or design virtually every aspect of their child, from eye color and intelligence to athletic ability and even personality. One might question the type of parent who would try to control everything about his or her child before birth and how this parent might react when the child develops an independent personality. Further, one might wonder about the impact on the child himself. How much of this child’s personality is really his and how much of it is determined by the selections made by his parents? It is interesting to consider such a scenario in light of article 22 of the Universal Declaration of Human Rights, which provides that “[e]veryone, as a member of society . . . is entitled to realization . . . of the economic, social and cultural rights indispensable for his dignity and the free development of his personality,” and the similar language in the CRC which provides in its preamble “that the child, for the full and harmonious development of his or her personality, should grow up . . . in an atmosphere of happiness, love and understanding.”

One major problem with creating “designer” babies is that

[b]y making many conditions seem avoidable, genetic technology may exaggerate the influence of genetic factors on the development of the human personality and encourage narrow,

61. Id. art. 30 (emphasis added).
62. Id. art. 3.
63. APPELYARD, supra note 38, at 9; COUNCIL ON BIOETHICS, supra note 38, at 101; see generally MCLEAN, supra note 35, at 175.
64. But see ALLEN BUCHANAN ET AL., FROM CHANCE TO CHOICE 156 (2000) (suggesting that seeking to have the “best” child is a perfectly natural instinct for parents).
65. CRC, supra note 13, pmbl.
66. Michael Seamark & James Mills, Now, the “Right” to Choose a Baby’s Sex 24 Hours After the U.S. Designer Baby Storm, DAILY MAIL, Oct. 5, 2000, at 1.
socially-determined standards of health and normality. This viewpoint may reinforce existing prejudices against individuals with disabilities or traits that do not satisfy the cultural ideal.67

Reinforcing such stereotypes risks stigmatizing disabled individuals, thereby infringing on their status as "equal . . . members of the human family."68 Further, this mentality can be dangerous because "by making ourselves more uniform, we become even more sensitive to difference," which may lead to discrimination and, ultimately, attempts to eradicate difference.69

C. Genetic Screening: The Risk of Stigmatizing the Disabled as a Genetically Inferior Sub-Class

With illness too, strict and inflexible standards of health and normality could create a sub-class of disabled persons.70 Looking at the genetics of disease "creates a pressure for normality, and this pressure is intrinsically discriminatory because it amounts to a negative judgment of the abnormal people we see around us."71 Disability already carries with it a certain level of stigmatization, but in a society in which people routinely select against such characteristics and refuse to have children with disabilities, those who "slip through the cracks" and are born with a disability could be stigmatized further.72 Additionally, people who happen to acquire an injury later in life by accidental means might also be viewed with similar disdain, thereby forcing them to the fringes of society. Perhaps the reason that healthcare standards for the disabled have improved over time is because a community has formed and rallied for attention and care.73 In a potential future society in which people with disabilities are almost entirely eliminated, it seems unlikely that without an interest group to rally, these few people would be treated with the level of care and respect necessary or medically feasible.74

The argument that incurable chronic illness carries with it a high burden both on parents and families as well as on society may hold some

67. Munayyer, supra note 41.
68. Universal Declaration, supra note 13, pmbl.
69. Appleyard, supra note 38, at 138 (noting that because there exists a naturally strong eugenic impulse, people want to have "'good' children" and thus "expect others to do the same rather than burden society with 'bad' children"). Eventually, "those who give birth to handicapped children that could have been aborted may come to be seen as blameworthy." Id.
70. Id. at 135–36.
71. Id. at 135.
72. Id. at 135, 138.
73. See, e.g., Alan Stockdale & Sharon F. Terry, Advocacy Groups and the New Genetics, in The Double Edged Helix: Social Implications of Genetics in a Diverse Society 80, 80–100 (Joseph S. Alper et al. eds., 2002).
74. See generally id.
merit. However, characterizing a person as a burden not only stigmatizes that person and her family, but also undermines the dignity of that person and her family.\footnote{75} Such an argument also ignores the philosophy of article 1 of the Universal Declaration of Human Rights, which recognizes that “[a]ll human beings are born free and equal in dignity and rights.” The CRC also establishes that

States parties shall respect the responsibilities, rights and duties of parents or, where applicable, the members of the extended family or community as provided for by local custom, legal guardians or other persons legally responsible for the child, to provide in a manner consistent with the evolving capacities of the child, appropriate direction and guidance in the exercise by the child of the rights recognized in the present Convention.\footnote{76}

With this statement, article 5 stresses the importance of respecting parents’ and relatives’ roles in raising children. The language “to provide in a manner consistent with the evolving capacities of the child” and “appropriate direction and guidance,” recognizes that the needs and capabilities of each child differ and that individualized treatment may be necessary to serve the best interests of the child.\footnote{77} Such a flexible standard serves the interest of protecting the equality and dignity of every child and his or her family including when children are born with disabilities. Under article 5, not only should handicapped children be respected, but so should their parents.

Further, article 23 of the CRC provides that “States Parties recognize that a mentally or physically disabled child should enjoy a full and decent life, in conditions which ensure dignity, promote self reliance and facilitate the child’s active participation in the community.”\footnote{78} It might be difficult to meet the standards set forth in articles 5 and 23 sufficiently where there is social pressure not to have children with disabilities. Specifically, the “conditions which ensure dignity” standard (article 23) would unlikely be met where conditions are such that relatives and par-

\footnote{75. Paul, supra note 15, at 133 (“Though the word ‘eugenics’ is scrupulously avoided in most biomedical reports about prenatal diagnosis, except where it is strongly disclaimed as a motive for intervention, this is disingenuous. Prenatal diagnosis presupposes that certain fetal conditions are intrinsically not bearable” (citing Abby Lippman, Prenatal Genetic Testing and Screening: Constructing Needs and Reinforcing Inequalities, 17 Am. J.L. & Med. 15, 24–25 (1991)); see also Appleyard, supra note 38, at 135, 137.)}

\footnote{76. CRC, supra note 13, art. 5 (emphasis added).}

\footnote{77. The text of the CRC relies on the recurrent theme that “the best interests of the child shall be a primary consideration.” See CRC, supra note 13, arts. 3, 9, 18, 20, 21, 37, 40. Surely, the best interests of the child also involve being born into and raised in a world without gender discrimination.}

\footnote{78. Id. art. 23.}
ents of the disabled person are made to feel uncomfortable for not selecting against having a child with disability "who will be seen as a cost to society." If articles 5 and 23 of the CRC were truly realized, parents would not feel pressured or face judgment for having a child with a disability because society would be respectful and supportive of their choice.

D. Genetic Modification: A New Kind of Eugenics

Arguably, genetic engineering is a form of modern day eugenics, although most geneticists and parents would probably avoid such classification. Perhaps the most distinguishing feature of modern day eugenics, as compared to historical eugenics, is that while eugenics of the past tended to be perpetuated by a state actor, modern day eugenics is facilitated through genetic alteration and elimination by those closest to the individual, namely parents, relatives, doctors, employers, and insurers. In fact, in order to protect the goals of current human rights treaties, States may need to take on the positive obligation of drafting legislation and enforcing policies that will preserve a genetically unaltered population. It might even be important, from a human rights perspective, to consider whether "future generations have a right to inherit an unmanipulated gene pool."

While the Universal Declaration of Human Rights stresses the importance of the inherent dignity of the individual, it does not specifically mention the genetic integrity of the individual. Clearly, scientific capability in the area of genetics was not nearly as advanced at the time the Universal Declaration was drafted but perhaps one could argue that the idea of genetic freedom is encompassed in article 2, which entitles everyone "to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status." The recognition of equal dignity of all human beings without reference to any of the aforementioned distinctions arguably implies a respect for cultural diversity. Perhaps this could further be extended to a parallel need for respect for genetic diversity, which would be compromised by genetic manipulation.

79. Appleyard, supra note 38, at 135.
80. Paul, supra note 15, at 133-34. Paul further stated that "over every contemporary discussion of eugenics falls the shadow of the Third Reich. No wonder geneticists resist the label. To call their enterprise ‘eugenics’ is thereby to condemn it." Id. at 134.
81. Munayyer, supra note 41.
82. Id.
Recognizing the importance of genetic diversity, another argument equates what it calls “gene-ocide” \(^3\) with genocide: “Broad application of genetic technology is arguably comparable to genocide as defined by the Genocide Convention. It involves the intentional destruction of the physical integrity of a genetic group and the implementation of measures to prevent births within that group.” \(^4\) One major question raised by the options made available by genetic engineering is whether it in fact enhances or restricts reproductive freedom.

E. Genetic Selection: Expanding or Limiting Reproductive Autonomy?

As history has revealed, “[p]lacing responsibility for social problems on the traits or predispositions of certain individuals can justify policies of discrimination or exclusion in the interest of enhancing efficiency or maintaining social control.” \(^5\) Ultimately, the world view of genetic essentialism has traditionally led to policies that restrict the reproductive rights of individuals, for it suggests that order in a society depends on the genetic qualities of its population and impresses upon members of society that only those ideal traits should be continued. \(^6\) Surely advancements in medical technology have given men and women more reproductive choice by allowing them to use family planning mechanisms to decide when to have children. In fact, many of the relevant international treaties discuss the need for family planning mechanisms and reproductive autonomy and stress the importance of healthcare for the mother as well as for the child. \(^7\) Technology has advanced to the point of allowing people to not only decide when to have children but what types of children to have. \(^8\) At first glance, this seems to expand greatly the reproductive options available to a woman. \(^9\) It seems to allow her to have the child she truly wants, basing this determination on any reasons that are important to her. \(^10\) However, one might argue that this perceived augmentation of freedom of choice is but an illusion because it neglects to account for the social pressures to abort or select against dis-

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83. Id.
84. Id.
86. Id.
87. See sources cited supra note 60.
89. Id.
90. Id. at 128; see also Council on Bioethics, supra note 38, at 66.
abled and otherwise undesirable fetuses and, therefore, reproductive autonomy arguably has been restricted.91

Some have gone so far as to suggest that the aim of genetic testing is yet another way of controlling women’s reproductive processes.92 With advancements in technologies such as IVF and PGD, many aspects of procreation involve more than just the woman’s choice. “[T]he number of children that women should have, the timing of their conception, their sex . . . [a]most everything seems to be controlled by some agency other than women themselves. This raises the basic question of who should have the control: scientists, religious establishments, the State, or women themselves?”93

In much of the developed world, prenatal tests designed to detect the condition of the fetus are a routine aspect of prenatal care. Private insurance companies have begun to cover at least some sort of prenatal testing.94 More specifically, ultrasounds “are routinely performed regardless of the mother’s age and provide information that she may use to guide her care throughout pregnancy.”95 Other tests that may be covered by insurance for those who can afford it,96 “such as chorionic villus sampling or amniocentesis, do not influence the woman’s care during pregnancy but provide information intended to help her decide whether to continue the pregnancy if fetal impairment is detected.”97 However, researchers have noted that some women do not find such information an


92. SUSAN MERRILL SQUIER, BABIES IN BOTTLES: TWENTIETH CENTURY VISIONS OF REPRODUCTIVE TECHNOLOGY 100 (1994).

93. Id. (quoting R.P. Ravindra).

94. Adrienne Asch, Prenatal Diagnosis and Selective Abortion: A Challenge to Practice and Policy, in THE DOUBLE EDGED HELIX: SOCIAL IMPLICATIONS OF GENETICS IN A DIVERSE SOCIETY, supra note 73, at 123, 125.

95. Id. at 124.

96. While this Note does not address the issue in great detail, it might at least be worth noting that where healthcare is not universal and where some women have access to good insurance plans and others do not, true reproductive freedom arguably is not universal. As long as some women may obtain the kind of prenatal diagnosis that allows them to determine the specific disabilities of their potential child, while those living in poverty do not have the same access, such a policy has the potential to further divide classes and to further stigmatize disease. One might imagine a scenario in which most, if not all, wealthy insured women were able to abort their fetuses with disability because doctors were able to detect such disability through amniocentesis, whereas poorer women who did not have access to such services did not have the knowledge to make an informed choice about carrying out their pregnancy. See generally Taylor, supra note 55, at 495.

enhancement to their ability to choose because they feel that an expectation to abort exists. Further, a growing number of individuals and groups have expressed the view that "the technology is itself based on erroneous assumptions about the adverse impact of disability on life." The argument from this perspective focuses on what is communicated about societal and familial acceptance of diversity in general and disability in particular.

A major counterargument is that as long as people have the ultimate choice of whether to have a child either in conformity with or rebellion of societal pressures, their autonomy has not been restricted. This point, while valid, may underestimate both the complexity of the choices that parents-to-be presently encounter and the intensity of community pressures, especially without open and frequent discussion about genetic selection.

IV. MODERN DAY EUGENICS

A. Use of Genetic Screening to Determine Child Sex: Is Pre-Birth Sex Selection Replacing Infanticide?

1. Access to PGD May Be More Complicated Than a Simple Right to Science

In some cases, parents use PGD to select against the sex of their child when they are at risk for having children with certain sex-linked (or X-linked) diseases such as Tay Sachs. While some new technologies have served similar aims, "they have raised to prominence the goal of avoiding the birth of children with sex-related genetic disorders." 

98. See, e.g., Hernández-Truyol, supra note 91, at 661.
100. Id. (discussing the fear that people might begin to classify homosexuality as a disease that can or should be selected against).
101. See Susan Markens, Invisible Women, in THE DOUBLE EDGED HELIX: SOCIAL IMPLICATIONS OF GENETICS IN A DIVERSE SOCIETY, supra note 73, at 102, 102–3 (noting that there is a lack of involvement of women in discussions regarding genetic screening even though women are often the people affected and the ones making the ethically difficult decision, and noting a lack of discussion generally).
102. It should be noted that the terminology "pre-birth sex selection" is intended to encompass both pre-implantation genetic engineering and sex-selective abortions.
103. Gérard Tuchdjian et al., Clinical Applications of Fetal Sex Determination in Maternal Blood in a Preimplantation Genetic Diagnosis Centre, 17 HUM. REPROD. 2183, 2183 (2002).
The Council of Europe's Convention on Human Rights and Biomedicine condones sex selection only where it bypasses serious inherited sex-linked diseases, but not all European Union members have adhered. In the United Kingdom, private clinics not part of the state-owned National Health Service are permitted to offer sperm sorting for sex selection. France has until now taken a softer line with no explicit regulations concerning sex selection, while Germany prohibits all forms of PGD under all circumstances, even to prevent disease.¹⁰⁵

In light of the international experience with eugenics and in the spirit of the Universal Declaration of Human Rights, CEDAW, and the CRC, the German position seems to satisfy these ideals with the greatest consistency. The practice of selecting against sex to eliminate a sex-linked disorder, while a much more internationally acceptable reason for sex selection, still raises eugenic concerns.¹⁰⁶ The idea that some people use pre-implantation and prenatal testing to determine, aside from health disorders, whether the child is the “right” sex is unsettling.¹⁰⁷ Perhaps more disturbing is that the sex of the child may be viewed with similar disdain as other undesirable genetic characteristics such as disease. The methods and motivations behind sex selection have varied throughout history ranging from a desire to have children of the “culturally preferred gender, to ensure the economic usefulness of offspring within a family, to achieve gender balance among children in a given family, and to determine a gendered birth order.”¹⁰⁸

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¹⁰⁶. Another issue that raises some concern is the variability of interpretation and classification of a genetic defect:

Screening for a defective fetus where there is near universal consensus about the seriousness of the defect is one thing. When there is a high variability in the clinical expression of a genetic disorder, a host of new issues surfaces. When there is disagreement about the very nature of whether a 'defect' is a defect or an arbitrary social assessment of aesthetics and or potential dependency, the issue then shifts away from the advisability of medical intervention strategies for health purposes to the question of who should decide...the more immediate concern that already affects the lives of millions of people is the development of the earliest stages of genetic screening and its overlap with existing social groups.

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2. PGD and Infanticide: A Distinction without a Difference?

Infanticide is not a new concept. It was used by mothers in Britain as well as in the American Colonies and in the early United States from the sixteenth through nineteenth centuries.109 Much earlier than that, there is evidence that the Babylonian and Chaldean populations between 4000 and 2000 B.C. practiced infanticide.110 These early instances of infanticide were often performed by women who were unwed and pregnant and in cases where the infants were "sickly or disabled"111 as a form of "delayed abortion."112

Historically, most of the cases of offspring selection involved male babies selected over female infants. The foundation for this preference took many forms:

The reasons underlying the desire for male children vary across cultures and through time. Generally, families in patrilineal cultures prefer to have at least one son, if not a predominance of sons. This preference depends on three sets of factors that determine the value of women (1) economic factors (including values assigned to women’s work, their ability to contribute to family income or labor, and whether they have dowries), (2) social factors (particularly kinship, marriage patterns, and religion), and (3) psychological factors.113

Other conditions that are conducive to female infanticide are arranged marriages in which "[d]owry, or wealth tribute ... accompanies the bride,"114 the denial of daughters’ "access to the natal family’s accumulated wealth,"115 "costly or socially threatening" circumstances surrounding the potential marriage market,116 and "surfeits of unmarriageable males" at the lowest levels of society.117

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111. Id. at 5.
112. HOFFER & HULL, supra note 109, at 154–55.
114. Id. at 16–18.
115. Id. at 17.
116. Id. at 18.
117. Id.
118. Id. at 18–19 (noting that as the number of unmarriageable males increases, so too does the number of daughters who must be taken out of the marriage market).
Clearly under today’s standards, infanticide is banned as it violates article 3 of the Universal Declaration of Human Rights “right to life” and article 6 of the CRC, which states that “every child has the right to life” and requires that “State Parties shall ensure to the maximum extent possible the survival and development of the child.” Thus, one important question that must be examined is whether pre-implantation and pre-birth genetic testing resulting in selection against an embryo of a certain sex provides for, or encourages, a modern form of infanticide. The preamble to the CRC recognizes that “the child, by reason of his physical and mental immaturity, needs special safeguards and care, including appropriate legal protection, before as well as after birth.” Infanticide is clearly unacceptable from a human rights standpoint under the CRC, and a positive obligation exists to protect the child. While an arguable distinction between pre-birth extermination and post-birth extermination may exist, even if pre-birth extermination is not infanticide, practices of selective fertilization and selective abortion should warrant serious attention if they are being utilized as a replacement mechanism to achieve the same effect of infanticide. Even though PGD may prevent more “unwanted babies from being born,” where babies are unwanted based on their sex alone, the international community and States Parties should enforce the relevant conventions to promote adherence to the principle of equality by helping to rectify the underlying inequality that bolsters such preferences.

As CEDAW defines it,

119. Universal Declaration, supra note 13, art. 3.
120. CRC, supra note 13, art. 6(1).
121. Id. art. 6(2). It should be noted however that China has a reservation against article 6, stating, “[T]he People’s Republic of China shall fulfil [sic] its obligations provided by Article 6 of the Convention under the prerequisite that the Convention accords with the provisions of Article 25 concerning family planning of the Constitution of the People’s Republic of China and in conformity with the provisions of the Law of Minor Children of the People’s Republic of China.” CRC, Declarations and Reservations, 1577 U.N.T.S. 3 (Mar. 2, 1992), available at http://www2.ohchr.org/english/bodies/ratification/11.htm#reservations.
122. CRC, supra note 13, pmbl. The preamble to the CRC also recalls that the obligation “to extend particular care to the child has been stated in the Geneva Declaration of the Rights of the Child of 1924 and in the Declaration of the Rights of the Child adopted by the General Assembly on 20 November 1959 and recognized in the Universal Declaration of Human Rights, in the International Covenant on Civil and Political Rights (in particular in articles 23 and 24), in the International Covenant on Economic, Social and Cultural Rights (in particular in article 10) and in the statutes and relevant instruments of specialized agencies and international organizations concerned with the welfare of children.” Id.
123. See, e.g., Editorial, Let Nature Decide, S. CHINA MORNING POST, Apr. 3, 2000, at 18 (highlighting that “[p]ushed to an extreme, sex selection techniques could be regarded as the greatest invention ever because they can stop infanticide on the grounds of sex”).
124. Id.
the term "discrimination against women" shall mean any distinc-
tion, exclusion or restriction made on the basis of sex which has 
the effect or purpose of impairing or nullifying the recognition, 
enjoyment or exercise by women, irrespective of their marital 
status, on a basis of equality of men and women, of human 
rights and fundamental freedoms in the political, economic, so-
cial, cultural, civil or any other field.  

Excluding women from society by not permitting them to be born, 
thereby denying them status as a human being, arguably constitutes dis-
crimination under this definition because at least theoretically, women 
are being denied equal access to life. Thus, because women are being 
restricted and ultimately excluded from entering the human race, one 
might posit that while no human rights may be directly violated because 
there is no human being in existence, surely the goal of international 
human rights law is compromised. Thus, while PGD may not be the 
equivalent of infanticide, where it violates fundamental human rights 
ideals, some sort of preventive action should be taken.

3. Infanticide: A Practice of the Past?

Infanticide, particularly female infanticide, "still occurs in many 
parts of Asia, particularly in south-central and eastern Asia." In tra-
ditional patriarchal societies in which primogeniture existed, "the rules of 
primogeniture exerted great pressures on women to give birth to boys, 
because only males could be heirs to the family fortune. Such discrimi-
natory rules have long been discarded in most modern societies, but 
remnant values favoring boys still linger." Interestingly, this preference 
for male babies survives despite the fact that "[m]ales are generally more 
susceptible to death in the first year of life . . . and throughout childhood 
males continue to have higher mortality rates. In addition to increased 
vulnerability to genetic disorders, male infants are more susceptible to 
infectious diseases, particularly those of the digestive and respiratory 
tracts."

The United Nations Population Fund and the government of the Re-
public of Korea sponsored a symposium in 1994 at which scholars 
presented papers on son preference in Asia. Strong son preference was 
detected in Bangladesh, China, India, Nepal, Pakistan, South Korea,

125. CEDAW, supra note 13, art. 1 (emphasis added).
126. HUDSON & DEN BOER, supra note 113, at 49.
127. Let Nature Decide, supra note 123.
128. HUDSON & DEN BOER, supra note 113, at 49 (footnote omitted).
129. Id. at 48.
Taiwan, and Vietnam. Sex ratio estimates from around the world tend to reflect the likelihood that this preference has been acted upon. As of 2003, some estimates showed a ratio of boys to girls per 100 of 108.6 in Yugoslavia, 108.7 in Egypt, 109.7 in Hong Kong, 110 in South Korea, 110.9 in Pakistan, 117 in Delhi, India, 117 in China, 118 in Cuba, and 120 in Azerbaijan, Armenia, and Georgia.

India and China in particular exemplify why female infanticide and male sex selection are wholly incompatible with the Universal Declaration of Human Rights, CEDAW, and the CRC, and should not be permitted. Notably, “[a]s the two largest societies in the world, China and India comprise more than 38 percent of the world’s population. Because of the socially sanctioned practice of offspring sex selection, both societies have surpluses of young adult males (ages 15-34) larger than any that natural forces could produce.” Currently, the imbalance between the number of young males and young females in China and India arguably is larger than in any other historical period.

B. Case Study: Sex Selection in China

“[A] long history of female infanticide” accompanies the strong preference for sons that is well-rooted in traditional Chinese culture. Female infanticide in China may be traced as far back as the fifth century B.C., when a baby girl who had been abandoned was found under a dike. One major explanation for son preference is that it is correlated to the low position of women under the traditional hierarchal Confucian system. In the twentieth century, several reforms were enacted to alter this low position of women. The Communist Revolution of 1949, for example, strived to attain “[e]quality, including gender equality.” One such attempt at equality came through the drafting of a new marriage law, which “attempted to abolish concubinage, dowries, female infanticide, selling of children (particularly daughters), prostitution, and the general subordination of women through patriarchal structures.” Even though the communist movement “declared equality for men and women,” in effect, the impact of the revolution on the equal treatment of

130. Id.
131. COUNCIL ON BIOETHICS, supra note 38, at 61.
133. Id.
136. MEYER & OBERMAN, supra note 134, at 5-6.
137. HUDSON & DEN BOER, supra note 113, at 148.
138. Id. at 149.
men and women was “mixed.” For example, even though the Marriage Law of 1949 gave women the right to hold and inherit property, in reality, there was little recognition of the law.

Preference for male babies became particularly salient in 1979, when China implemented a one-child-per-family policy, with the aim of curbing rapid population growth. Although the one-child policy did not formally become law until 2002, the government had been enacting the policy since 1979. The Chinese government gave the rationale that the one-child policy was necessary for “raising the quality of the people (tigao renminde suzhi),” which at the time was substandard due to what some characterized as overpopulation in China. The official view was that population control was the only alternative to “poverty, high infant mortality, and malnutrition,” and would therefore improve the quality of life of the Chinese people. However, this belief has arguably proven to be inaccurate, at least as it pertains to young girls, as the one-child policy has triggered a dramatic rise in the abandonment and infanticide of baby girls. The implementation of the policy also correlates with an increase in the number of abortions of female fetuses. Despite the illegality of the use of ultrasound machines to determine fetal sex and the illegality of the practice of sex selective abortion, by 1994 there were more than 100,000 ultrasound machines in China, many of which are believed to have aided in both of these procedures.

The Chinese government attempted to reduce the rate of female infanticide and selective abortion by amending the underlying cultural norms and laws thought to contribute to the preference for sons. For example, instead of placing the burden of parental care on one sex, new laws required male and female children alike to care for their parents and attempted to equalize inheritance rights. However, it seems that “the

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139. Id.
140. Id.
141. Id. at 6. The original policy which began in the early 1970s was referred to as “wan, xi, shao” (“later, farther apart, and fewer”). It was not a mandate but rather sought to encourage families to choose to use family planning to have fewer children. Id. at 152.
142. Id.
144. Li, supra note 91, at 150.
145. Id. at 166–67, 170; see also HUDSON & DEN BOER, supra note 113, at 171–73.
146. See id. at 154; Li, supra note 91, at 166–67, 169.
147. HUDSON & DEN BOER, supra note 113, at 171.
148. See id. at 174.
149. Id. at 19–20; see also id. at 249–50 (indicating further attempts by the Chinese government to use propaganda to encourage elderly parents to rely on both sons and daughters for care).
customs favoring sons are so deeply entrenched that to date, these changes have had little effect.” According to a 2000 census revealing the existence of 653 million men and 612 million women in China, the effect that one-child policy and male preference has had is overwhelming as it has resulted in 41 million “missing” females or a surplus of 41 million men. Further,

the large number of unmarried males in China has attracted interest in the press. As one journalist notes, there were 48 million unmarried men in China in 1992 (for men of all ages above 25), and he suggests that this number will increase easily to 80 million in the near future if current sex ratios at birth continue. Similarly another source suggests that China may already have 90 million bachelors.

These numbers alone may indicate that even with laws granting girls the right to equal access to primary education and granting the right to own land, the long-standing preference for male babies has proven to be stronger than the government of China’s newfound desire for equality. These goals were further obstructed by the one-child policy, which, in the long term, perhaps will be more effective than originally intended in controlling the size of the population. Not only did the policy initially restrict the number of children one could have, but now, it has effectively eliminated the possibility of procreation for at least a portion of the population due to the vast outnumbering of males to females.

C. Case Study: Sex Selection in India

Sex selection in India “is bound up with the history of the country, its religions, the evolution of its social structure, and the changing role of women.” A woman’s status may vary “according to religion, position within the social hierarchy, region, economy, and even within each family according to birth order.” Similar to the situation in China, India’s rising unbalanced sex ratio indicates that even if there are no longer “entire villages without females, as in India’s past, the number of females

150. Id. at 19.
151. Id. at 179; see also Judith Banister, Shortage of Girls in China Today, 21 J. POPULATION RES. 1, 2 (2004) (noting that “[d]aughters are lost primarily through sex selective abortion, secondly through excess female infant mortality, and thirdly through neglect or mis-treatment of girls up to age three, in cities as well as rural areas”). Banister further notes that this “shortage of women” is not due to inaccurate or “faulty” data. Id.; see also Li, supra note 91, at 166–67.
153. Id. at 65.
154. Id.
missing from the population has increased greatly as the population [has] soared.\textsuperscript{155}

The predominant belief among social scientists evaluating female infanticide and sex-selective practices is that infanticide is largely correlated with social status. In most cultures, especially in India, property ownership is one major factor that helps determine and assign status.\textsuperscript{156} In light of the continued preference for men, it might not be shocking to learn that until the recent passage in 2005 of amendments to the Hindu Succession Act of 1956, in some states women were not permitted to own land at all.\textsuperscript{157} While female infanticide has occurred even in regions where women were allowed to own property, prevalence of female infanticide is markedly higher where women could not own property and where the greatest number of restrictions on female ownership of property exists.\textsuperscript{158} It should also be noted that in addition to distinction based on sex, there has also traditionally been different treatment under the laws “relating to marriage, divorce, adoption, and inheritance,” based on religious law and tradition which differ among Hindus, Muslims, and Parsis.\textsuperscript{159}

In 1971, India passed the Medical Termination of Pregnancy Act which was intended to allow abortion only in life-threatening situations or when grave injury to the mother’s physical or mental health was likely.\textsuperscript{160} But, only a few short years after the passage of this Act, with the development and introduction of amniocentesis in India in 1974, “there were early reports that the test was being used less for the detection of birth defects than for sex determination.”\textsuperscript{161} Within two years, more than twelve clinics had been opened all over India to “fill the very determined requests for prenatal knowledge of the fetuses’ sex.”\textsuperscript{162} A report came out in the late 1980s indicating that approximately 78,000 fetuses had been aborted in India between 1978 and 1982 for what were

\begin{thebibliography}{99}
\bibitem{156} See, e.g., L.S. VISHWANATH, FEMALE INFANTICIDE AND SOCIAL STRUCTURE: A SOCIO-HISTORICAL STUDY IN WESTERN AND NORTHERN INDIA 14–16 (2000).
\bibitem{157} Even with the new amendments to the Hindu Succession Act of 1956, restrictions on female ownership of property may still exist in several states in India. See, e.g., Hindu Succession Amendment Act Comes into Force from Sept. 9, HINDUSTAN TIMES, Sept. 9, 2005; Monsoon Proposal: Bills to Empower Women, ECON. TIMES (New Delhi), May 25, 2005; Chirdeep Bagga, India Cabinet Opts to Further Equalise Inheritance Rights for Daughters, TIMES OF INDIA, Dec. 17, 2004.
\bibitem{158} See, e.g., VISHWANATH, supra note 156, at 15.
\bibitem{159} Indira Jaising, Violence Against Women, the Indian Perspective, in WOMEN’S RIGHTS, HUMAN RIGHTS 51, 52 (Julie Peters & Andrea Wolper eds., 1995).
\bibitem{160} DUSTER, supra note 40, at 35.
\bibitem{161} Id.
\bibitem{162} Id.
\end{thebibliography}
believed to be sex selection purposes. In fact, the situation began to get so out of hand because "[s]o many Indian physicians . . . ignored the 1971 law prohibiting abortion for sex preference that the government began a new round of hearings in the late 1980s to consider legislation to restrict the use of new technologies for sex determination of the fetus." Several Indian states including the state of Maharastra have enacted legislation to ban the use of prenatal sex determination. Unfortunately, such legislation seemingly has had little impact on the practice of sex determination and son preference. Further, some would argue that the passage of legislation alone is insufficient to combat this great discrimination against the female sex.

The introduction of new technologies in the area of reproductive and genetic medicine has served to further complicate the issue of sex selection in India. Although PGD was intended to detect birth defects and abnormalities, the technology has been "misused to 'eliminate' girl children." Evidence of this trend of eliminating girl children is further reflected in the "decline in female child sex ratio, particularly in Chennai, which had come down to 906 female children for every 1,000 male children in 2003" and in Namakkal District where, as of 2004, the sex ratio at birth was 903 girls for every 1000 boys. Normally, the sex ratio should be close to a 1:1 ratio with room for slight variation, so a variation of 97 females per every 100 males would be a fairly normal occurrence. However, a ratio of 90-91 girl babies for every 100 male babies as indicated in Chennai should raise alarm.

In response to such alarming numbers, many non-governmental organizations (NGOs) in India have banded together to form the Campaign Against Sex Selective Abortion (CASSA) to lobby the government to strictly enforce the Pre-Conception and Pre-Natal Diagnostic Techniques Prohibition of Sex Selection Act of 2002 (PCPNDT) in letter and in spirit. The group has also "demanded enforcement of ethical practices among doctors, amendment to medical code of ethics against the backdrop of doctors promoting abortion of girl child fetuses . . . and

163. Id. at 36.
164. Id. at 35–36.
165. See, e.g., id. (noting that Maharastra introduced such legislation in 1988).
166. See, e.g., Jaising, supra note 159, at 56.
168. Id.
170. DUSTER, supra note 40, at 35.
171. Human Chain Against Sex Determination, supra note 167.
ensuring that the district authorities actively implemented the PCPNDT Act.\textsuperscript{172} Such action is necessary in light of the fact that many clinics and medical staff ignore the provisions of the PCPNDT Act.\textsuperscript{173} The great fear of CASSA and other international NGOs is that “the sex selection and sex selective abortion of unborn daughters \[are\] bound to accelerate the downward slide of the female along the demographic ladder.”\textsuperscript{174}

D. Lessons from Recent and Current Sex Selective Practices

The examples of recent and current practices in China and India highlight the problem with sex selection of any kind, whether it takes place before or after the birth of a child. Even though “sex selection might ameliorate the situation of some individuals, it lowers the status of women in general and only perpetuates the situation that gave rise to it . . . . If we believe that sexual equality is necessary for a just society, then we should oppose sex selection.”\textsuperscript{175} CEDAW recognizes that “a change in the traditional role of men as well as the role of women in society and in the family is needed to achieve full equality between men and women.”\textsuperscript{176} Allowing the continuation of sex selection under the misnomer “reproductive freedom” only helps to perpetuate antiquated and inequitable roles of men and women and to violate basic human rights.\textsuperscript{177}

The general understanding is that “[s]ex selection is intrinsically wrong. Whether achieved through brutal killings or ‘painless science,’ this practice is still repugnant because it reinforces gender discrimination.”\textsuperscript{178} Compatible with this idea, the preamble of CEDAW and the

\begin{footnotesize}
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\item \textsuperscript{172} \textit{Id.}
\item \textsuperscript{173} \textit{See Sex Determination Tests Going on Unhindered in Namakkal District, supra note 169.} The article notes that under Indian law, these centres should be registered as Genetic Laboratories. But they are registered as clinics and ultrasound centres. A hospital in Namakkal town has two scan centres at two different places. But investigation revealed that only one of them has been registered. Another revelation is that none of the clinics is \[sic\] maintaining ‘detailed records’ as per the Act. Very few clinics maintain records. Many clinics are not approved under the MTP Act. Yet abortions are being carried out . . . . A particular hospital in the town maintains an 80 page antenatal case register with ‘nil’ entry.”.
\item \textsuperscript{174} \textit{Id.} Further, “[i]t was found that no hospital or clinic in the town submitted periodical reports to the appropriate authority. \textit{Id.}
\item \textsuperscript{175} \textit{Human Chain Against Sex Determination, supra note 167.}
\item \textsuperscript{176} \textit{Asch, supra note 94, at 123} (quoting Dorothy C. Wertz & John C. Fletcher, \textit{Sex Selection Through Parental Diagnosis: A Feminist Critique, in FEMINIST PERSPECTIVES IN MEDICAL ETHICS} 240, 242 (1992)).
\item \textsuperscript{177} \textit{CEDAW, supra note 13, pmbl.}
\item \textsuperscript{178} \textit{See, e.g., Hernández–Truyol, supra note 91, at 653–54.}
\item \textsuperscript{179} \textit{Let Nature Decide, supra note 123; see generally Hernández–Truyol, supra note 91, at 653–54.}
\end{itemize}
\end{footnotesize}
Universal Declaration of Human Rights reaffirm "the principle of inadmissibility of discrimination and proclaims that all human beings are born free and equal in dignity and rights and that everyone is entitled to all the rights and freedoms set forth therein, without distinction of any kind, including distinction based on sex." Such discrimination cannot be defended as harmless because it violates the principles of equality of rights and respect for human dignity, is an obstacle to the participation of women, on equal terms with men, in the political, social, economic and cultural life of their countries, hampers the growth of the prosperity of society and the family and makes more difficult the full development of the potentialities of women in the service of their countries and of humanity.

Further, CEDAW requires that State Parties "take all appropriate measures: (a) To modify the social and cultural patterns of conduct of men and women, with a view to achieving the elimination of prejudices and customary and all other practices which are based on the idea of the inferiority or the superiority of either of the sexes or on stereotyped roles for men and women." Whether the preference is based in concepts of status, finance, or even the physical make-up of the family, any preference for a child based on sex either before or after the child is born should be prohibited.

179. CEDAW, supra note 13, pmbl.
180. Id.
181. Id. art. 5(a). It should be noted that India has expressed a reservation to article 5(a) declaring that the Government of the Republic of India "shall abide by and ensure these provisions in conformity with its policy of non-interference in the personal affairs of any community without its initiative and consent." Convention on the Elimination of All Forms of Discrimination Against Women, Declarations, Reservations, Objections and Notifications of Withdrawal of Reservations Relating to the Convention on the Elimination of All Forms of Discrimination Against Women, at 14, U.N. Doc. CEDAW/SP/2006/2 (June 23, 2006).
182. Although some might distinguish selecting for a child of a certain sex based on societal preference for a child of what society deems to be a more socially and economically utile sex, and an individual desire to have a child of a certain sex in order to balance out the family make-up, I do not. While the motives may be indicative of systematic discrimination versus individual discrimination, CEDAW seems to warn against any distinction or discrimination based on sex. Further, the latter example seems to mirror the former Japanese eugenic practice of "mabiki" or "thinning." Under this practice, parents would either keep or "return" a newborn baby depending "in part on the sex of the infant and in part on that of previous children." HUDSON & DEN BOER, supra note 113, at 45.
V. Conclusion

This Note has highlighted some of the foreseeable human rights issues that may accompany scientific advancements such as genetic screening. Ultimately, the danger does not lie in the information that is derived from such tests, but rather in the misuse of such information. In theory, genetic screening was intended to serve as a mechanism to expand reproductive options and autonomy. However, whether it takes the form of community pressure or requirements by insurance and healthcare providers, genetic testing has increasingly been used to impress limitations on reproductive freedom by projecting expectations of the type of children people should have detailing both sex and health status.

It is not the goal of this Note to advocate for infringement on reproductive autonomy of men and women. Nor is the aim to suggest restricting the right to family planning. If anything, improving access to family planning services and birth control methods while also expanding universal access to sex education for men and women, may help to alleviate some of the pressures that force families to choose between having a girl or boy child. By expanding availability of less technologically complex family planning horizons, the international community and State Parties arguably can make huge strides by providing the tools to alleviate the underlying inequalities, many of which are related to poverty in some way, that compel families to select for boy children. It would probably be naïve, however, to believe that expanding available birth control options alone would be sufficient to combat hundreds, perhaps thousands, of years of discrimination against women and preference for men.

Furthering the goals of relevant international law indubitably calls for the repeal of laws that reinforce, either in aim or in application, unequal treatment and rights of men and women. Laws such as those that restrict ownership of property, access to education, choice in marriage partner, or any other right conferred on human inhabitants anywhere

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183. See, e.g., CEDAW, supra note 13, arts. 2(d), 2(e), 2(f). Article 2 states, in relevant part,

States Parties condemn discrimination against women in all its forms, agree to pursue by all appropriate means and without delay a policy of eliminating discrimination against women and, to this end, undertake: . . . (d) To refrain from engaging in any act or practice of discrimination against women and to ensure that public authorities and institutions shall act in conformity with this obligation; (e) To take all appropriate measures to eliminate discrimination against women by any person, organization or enterprise; (f) To take all appropriate measures, including legislation, to modify or abolish existing laws, regulations, customs and practices which constitute discrimination against women.

Id. art. 2.
within any given country, highlight and perpetuate preference for one sex over the other. Until men and women are equal under the laws, there is not much hope of realizing the equality of men and women. Furthermore, laws should be applied equally. It would be futile to allow women rights under the laws to own property, for example, when in fact, no women were actually able to purchase or inherit property. Penalties too should be imposed for violations of laws advancing the equality of both sexes. Where communities refuse to enact or properly enforce such laws, fines and perhaps even harsher punishments should be imposed.

Creating greater acceptance and appreciation for all individuals is perhaps the most effective way to ensure respect for the dignity of every individual. While sex selection on an individual basis may seem harmless, it has large-scale ramifications that impact the proper functioning of the community, State, world and humanity. Therefore, sex selection even on an individual basis touches more than just the reproductive rights of a single individual or a couple of individuals but rather impacts fundamental human rights and human advancement globally. For the aforementioned reasons, at the present time, selection against a child of a certain sex, for any reason, whether it pertains to cosmetics, health, social preference, or otherwise, and whether it takes place before conception, before birth, or after birth, should not be sustained. Furthermore, because evidence indicates that recent technologies have already been abused to select for male babies and because the potential exists for other types of discrimination, the international community should adopt and enforce more stringent and specified guidelines to monitor scientific practices and to protect against future large-scale human rights violations. Because the use of genetic screening carries with it such great potential for destruction, open discussion is also necessary among all levels of national and international communities. However, it remains uncertain whether such measures will be adequate to eliminate entirely the practice of sex selection based on bias.