https://doi.org/10.48047/AFJBS.6.14.2024.7663-7676

African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

Ethical and Legal Considerations at the Intersection of Human Rights and Biomedicine: An In-depth Investigation

***Dr. Ivneet Walia, **Dr. Navtika Singh Nautiyal & ***Dr. Ripal Gupta**

*Fellow, South Ural State University, Russia
**Assistant Professor, SLFJPS, National Forensic Sciences University, India
***Assistant Professor, SLFJPS, National Forensic Sciences University, Gujarat
Corresponding author: email: navtika.nautiyal@nfsu.ac.in, 8979108248

Volume 6, Issue 14, Aug 2024

Received: 15 June 2024

Accepted: 25 July 2024

Published: 24 Aug 2024

doi: 10.48047/AFJBS.6.14.2024.7663-7676

Abstract

In the modern biomedical setting, once the sphere of human rights and medical morality gets intertwined, a plenitude of different issues arises. Initially, the cornerstone of human rights, including fundamental principles in international declaration instruments and conventions is the basis for biomedical practice. Moreover, the rise of biomedical engineering, including genetic engineering, organ transplantation, and assisted reproductive techniques, stimulated the development of novel ethical questions related to the issues of individual rights, privacy, and discrimination possibilities. Ethics of the developments require very thorough consideration so that scientific evolution and progress do not clash with the key human rights principles. On the other hand, the imports of healthcare law and legislature also bring another dimension to complicated contemporary discourse. Legal frameworks have to be carefully crafted to maintain the freedom of the individual and also promote public health interests. Such a situation often entails that the laws are to be interpreted differently every time depending on the changing society's values. Another example of inequity is the unequal distribution of healthcare facilities and facilitates, and the differences in the treatment outcomes all serve to expose the systemic injustices that impede human rights delivery in bio-medicine. What is needed to get beyond these harmful crooked issues is not only applying ethical concepts but also tackling structural inequalities and the promotion of equity in the healthcare systems. In summary, the establishment of the ethics and the law structures that cater to the protection of human rights in biomedicine and healthcare is essential for the affirmation of the dignity, autonomy and wellness of individuals in the healthcare systems. Therefore, this paper remains the key evidence for scholars, policymakers, and practitioners. Such calls for interdisciplinary dialogue and collaborative endeavours intended to guarantee ethically sound and legally effective biomedical practices that in turn, will ensure respect and protection of human rights are hereby relevant.

Keywords: - Biomedicine, Human Rights, healthcare law, Informed consent

1. INTRODUCTION

Biomedical technologies have transformed the healthcare system, giving contemporary medicine new tools for dominant treatment, greatly expanding lifespan and improving the quality of life for millions of people around the planet. Though they bring on these amazing wonders, complexity at the convergence of biomedical science, and human rights, arises at the same time. This widely-scoped academic study looks into the whole range of ethical and legal issues whose overlapping occurs at the intersection of human rights and biomedicine.[1]

The basis of ethical frameworks for biomedical practices is represented with the principle of international human rights, which is expressed in different declarations and conventions. In the essence of things ultimately human rights uphold the standards of dignity, autonomy, and equal treatment, which are the cornerstones of any ethical healthcare system.[2] The foundations of these principles ensure the protection of such fundamental values such as the right to life, the right to health, and body integrity, which are interlinked with many other facets of biomedicine.[3]

Since 1970s, the biomedical ethics has flourished, coming to the fore. As it is, bioethics in the recent times like medical ethics issues may be concerned, yet its originality could be related to the fact that it deals with much more complex issues and also that of different professional ethics. It involves understanding how all sides of the society, probably even the whole world, are impacted by modern scientific and technologic developments. Although life sciences issue themselves an exhausting question, there appear other ones that must be incorporated in this relationship between ethical, science and liberty. Apart from medical and life sciences essentially being applied to human beings, the decree in the title of the declaration practically defines the principles of it to be the rules that govern the way we treat the human dignity, human rights and fundamental freedoms. Through its mention in the international human rights law and high regard for human life in the specific held by bioethics, the Declaration illuminates the interrelationship between ethics and human rights in the context of bioethics.

Autonomy of patients as ethical criteria for biomedical routine lies at the root of existence. The right of individuals to make autonomous decisions on their own healthcare under the informed

[1] Beauchamp, T.L., & Childress, J.F. (2019). Principles of Biomedical Ethics. Oxford University Press.
[2] Dyer, A.R. (Ed.). (2018). Human Rights and Biomedicine. Bloomsbury Publishing.
[3] Gillon, R. (Ed.). (2019). Principles of Health Care Ethics. John Wiley & Sons.

consent, which is a baser of medical ethics, is emphasised.[4] In contrast to that though, it is not simple to obtain informed consent once the patients lack sufficient information, they are subjected to undue pression or they do not have the capacity to decide for themselves. On top of the existing health disparities that may result from different cultures, language barriers, and lack of access to education and healthcare, ethical issues concerning informed consent acquire particular importance and emphasize the need for contextually specific and culturally sensitive strategies.

In addition to these, the novel problems and issues concerning the individual rights and privacy that are created by the latest innovations in biomedical technologies need to be addressed. Case of the genetic engineering points to the issues of the ethics of reprogramming the human genome and the possibility of discrimination based on gene-based predispositions among other aspects.[5] Likewise, the use of artificial reproductive methods can be viewed with doubts as a tool of profit and exploitation of the vulnerable members of the society and as the tool of decisions of children. The presented ethical dilemmas in biotechnology illustrates the need of the strong regulatory frameworks that strike the balance scientific innovation with the ethical concerns to guarantee the protection of individual rights as well as the advancement of responsible innovation in biomedicine.

Moreover, the legal milieu where the healthcare sphere exists is a convoluted reflection of the intersection of individual rights, public health priorities, and societal values. Laws need to face up to the conflict of promoting individual freedoms and protecting public health, in a way that involves deals between distinct ethical principles and adapting laws to varied social norms which change all the time.[6] Yet, for instance, the medical ethics in end-of-life issues is related to a move for legalization, e.g., debating about physician-assisted suicide, where one needs to hold a delicately balance between the patients' rights and safeguarding society against possible abuse.

Besides, unequal health care and unequal outcomes of treatment are irrefutable indicators that the health injustices are still present in the biomedicine system, which makes it difficult to ensure that the human rights can be fully realized. The most notable contributors to the

[4] Gostin, L.O., & Taylor, A.L. (2019). Global Health Law. Harvard University Press.
[5] Rhodes, R., Battin, M.P., & Silvers, A. (Eds.). (2018). Medicine and Social Justice: Essays on the Distribution of Health Care. Oxford University Press.
[6] Mann, J., Gostin, L.O., Gruskin, S., & Brennan, T. (Eds.). (2017). Health and Human Rights: A Reader. Routledge.

disparities in healthcare access and health outcomes are socioeconomic factors like poverty, discrimination, and unequal resources distribution,[7] which just help to keep the vicious circle of the inequity and marginalization sporadic. Solving these injustices demands both of the right considerations and effective implementation of making the health care systems equitable and just.[8] The European Convention of Human Rights and Biomedicine is a transnational binding treaty aimed at protecting medical research and public health based on the developments in biology, genetics and health care. Rare legal tool, which gives the power to prosecute signatories, who fail to meet minimum level of protection, referring to the areas of biological research, medicine, and healthcare.

Since some value and ethical matters were still scattered within Europe, the regulating of the related domains was a nuisance. The other issue involved was the embryo research, being that Europe is split in its exact legal status of the human embryo, although, which was very cautious, the drafters of the convention just used the national margin of appreciation to give general guidelines for this case.

Unparalleled, informed consent was one of the most significant accomplishments in the content of the convention. Informed consent becomes the cornerstone of every medical act therein regulated: psychological treatments, donation of organs and tissues, and human experimentation with pharmaceuticals and clinical testing. All of the points discussed by the lawmakers should be a matter to be carefully thought through by the international community, some involving more specific legislation than others. Cooperation of the parties in finding answers to the listed questions most likely will result in a more integrated concept that will ensure establishment of more precise and practical solutions in the convention either via its amendments or specific annexes.

Specifically, this scholarship paper aims to bring out a detailed analysis and discussion of both ethical and legal implications at the intersection of human rights and biomedicine. The present investigation explores major ethical dilemmas, legal framework, and the systemic issues connected with medical practice through biomedical practice.[9] By this way, the study is intended to add further knowledges on the ethical and legal dimensions health professions

---

[7] UNESCO. (2005). Universal Declaration on Bioethics and Human Rights. Retrieved from http://portal.unesco.org/en/ev.php-URL_ID=31058&URL_DO=DO_TOPIC&URL_SECTION=201.html
[8] Ibid
[9] McLean, S.A.M., & Hope, T. (Eds.). (2017). Biomedical Law and Ethics. Oxford University Press.

confront Furthermore, the research intends to make interdisciplinary dialogue to be its main instrument that promotes ethically sound and legally robust biomedical practices which they do by upholding the basic human rights and improving the well-being for the people of societies.[10] The fact that study participants provide their informed consent is both a necessity for conducting research involving human subjects and a legal and ethical requirement. Engaging the informed consent issued an information and the capacity to consent on the participants of research will be able to consent.

This paper discusses the process through which informed consent is considered in the scope of biomedical research and underpins such a tendency in international legal standpoints. It emphasizes the consent difficulties in this rapidly advancing area, e.g. 'broad' or 'dynamic' or other similar consent approaches. Consideration is given to the particular situations in which consent from minors and other incapable persons can be debated along with the use of routinely gathered clinical data as a source of research and the use of old tissues from earlier clinical experiments and other historical materials and educational materials in research activities based on them.

The objectives of the research are to discuss the Informed consent is of key significance both for ethical and legal norms in research today.

a) Informed consent can only be sold as acceptable if the likely research participant is perfectly aware of the pitfalls and is free from undue influences or coercion. In rapidly moving projects where 'next generation' research is hard to target or predict, in some situations 'broad' or 'dynamic' consent may be used.
b) The research team has to deal with somewhat different situations when they work with a patient who is not capable of consenting.
c) When taking consent of proxies (like parents or spouses, etc.), the best interest of the incompetent person must be their only consideration.

2. ETHICAL AND LEGAL ASPECTS OF INFORMED CONSENT IN HUMAN RIGHTS AND BIOMEDICINE

Informed consent is a culmination of tempered events that emerged both from the clinical and research areas' milestones of the past 100 years. However, the principle of informed consent

[10] Ten Have, H., & Gordijn, B. (Eds.). (2018). Handbook of Global Bioethics. Springer.

varies along the period because of not only the development of medicine technologies also what kind of data are being obtained. In other words, the informed consent system falls short of the desired outcomes of medical research. It becomes a hugely significant prospective by now to bridge the divide and devise the new sets of links to the disconnection. In this paper, we do, therefore, focus on these three objectives. First, we give a brief account of developing of informed consent with bringing together different definitions of this concept. Next, the current research on the study topic is evaluated in terms of the outcomes group them thematically and address the issues. The word consent is defined under Article 6[11] of the Universal Declaration on Bioethics and Human Rights[12] discusses about the meaning and definition of consent. Furthermore, even in Article 7[13] it has been discussed that who can give consent. Lastly, ho to utilize consent in research is also been discussed, as a guideline and wise, to bring about enlightenment of future research within this field. By setting the standards of good practice, the principle of informed consent is the crucial cornerstone for the convoluted

[11] **Article 6: Define Consent**
1. Any preventive, diagnostic, and therapeutic medical intervention is only to be carried out with the prior, free and informed consent of the person concerned, based on adequate information. The consent should, where appropriate, be express and may be withdrawn by the person concerned at any time and for any reason without disadvantage or prejudice.
2. Scientific research should only be carried out with the prior, free, express and informed consent of the person concerned. The information should be adequate, provided in a comprehensible form and should include modalities for withdrawal of consent. Consent may be withdrawn by the person concerned at any time and for any reason without any disadvantage or prejudice. Exceptions to this principle should be made only in accordance with ethical and legal standards adopted by States, consistent with the principles and provisions set out in this Declaration, in particular in Article 27, and international human rights law.
3. In appropriate cases of research carried out on a group of persons or a community, additional agreement of the legal representatives of the group or community concerned may be sought. In no case should a collective community agreement or the consent of a community leader or other authority substitute for an individual's informed consent.

[12] Universal Declaration on Bioethics and Human Rights, available at: https://www.unesco.org/en/legal-affairs/universal-declaration-bioethics-and-human-rights?hub=66535

[13] Article 7: Persons without the capacity to consent
In accordance with domestic law, special protection is to be given to persons who do not have the capacity to consent:
(a) authorization for research and medical practice should be obtained in accordance with the best interest of the person concerned and in accordance with domestic law. However, the person concerned should be involved to the greatest extent possible in the decision-making process of consent, as well as that of withdrawing consent;
(b) research should only be carried out for his or her direct health benefit, subject to the authorization and the protective conditions prescribed by law, and if there is no research alternative of comparable effectiveness with research participants able to consent. Research which does not have potential direct health benefit should only be undertaken by way of exception, with the utmost restraint, exposing the person only to a minimal risk and minimal burden and, if the research is expected to contribute to the health benefit of other persons in the same category, subject to the conditions prescribed by law and compatible with the protection of the individual's human rights. Refusal of such persons to take part in research should be respected.

connection between biomedicine and the rights of a human[14]. The right to make autonomous decisions about one's health and medical care is a crucial component of an individual's liberty.[15]

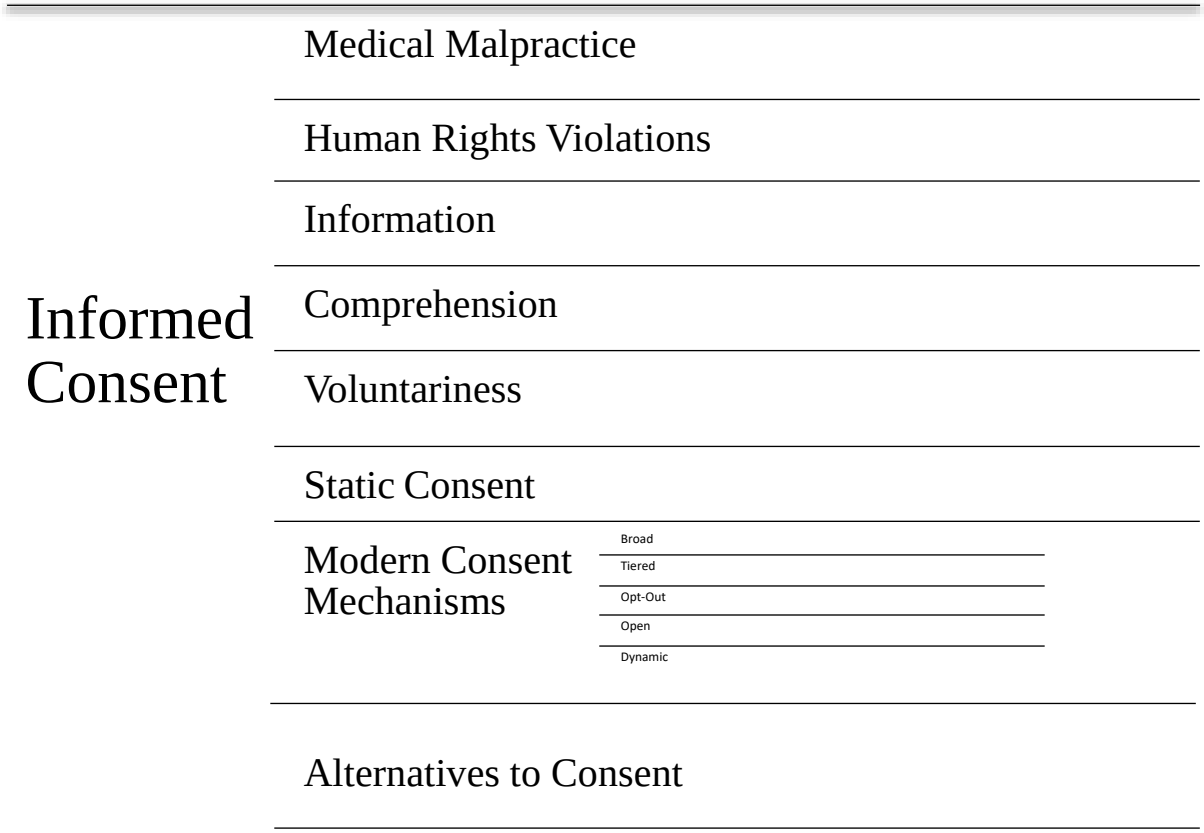

Figure 1: Informed consent and legal issues

The practice of informed consent is the result of people's repeated mistreatment during the clinical and research period covering almost a century. In the course of time, there were certain evolution notions of the ethical basis of the idea of informed consent which were triggered by both progress in medicine and type of data collected, among the others. Due to this, the goal of informed consent ceased to be connected with the goals of a medical research. One could say that the increasing importance of this chasm is driving the need to shed light on it, and specifically to create new frameworks that are meant to overcome this gap. Our focus in this paper is to familiarize the reader with the broader history of informed consent, introduce the modern aspects of informed consent within the observational medical research arena (i.e.: which is in parallel a phenomenon termed as virtual research or data-driven research), discuss

[14] Beauchamp, T.L., & Childress, J.F. (2019). Principles of Biomedical Ethics (8th ed.). Oxford University Press.
[15] Emanuel, E.J., & Grady, C. (Eds.). (2015). The Oxford Textbook of Clinical Research Ethics. Oxford University Press.

possible outcomes, and begin proposing some solutions on how to simply things up in a consent endeavour.

For someone to give informed consent, he or she needs to be fully apprised of the type of research and the participant's role in it, to appreciate and understand the research and to be able to say yes to[16]. Yet, the original consent sought was for only a single study that defined a time period and purpose in advance[17]. There came up a sharp growth in the amount of big data alongside the construction of vast biomedical data depots, thus making it all more complex to foretell how the subject's data will be utilized. Hence, informed consent is even harder to be obtained.

2.1 Significance of Informed Consent

Informed consent, after all, acts as the basis of the biomedical ethics complicated by the existence of the human dignity and right of self-realization.[18] It is an idea that an individual has a right to get informed about the medical condition and what treatment or alternative medication is available, and on which process to do research. Numerous respects to persons, beneficence, and justice aimed at informed consent requirements should be satisfied in guarding public well-being.[19]

2.2 Challenges in Informed Consent

Albeit human subjects cannot be deprived of their informed consent prevalence of ethical norms, there are some difficulties a person faces.[20] The abundance of medical data that individual's access, the significant difference in the health literacy and brain capacity among people of different ages or educational level can pose a barrier for understanding the risks, pros, and cons of the treatment/research participation. Besides that, the disparities might influence

[16] Institutional Review Board Required components of informed consent. https://www.irb.cornell.edu/forms/consent.htm
[17] Choudhury S., Fishman J.R., McGowan M.L., Juengst E.T. Big data, open science and the brain: lessons learned from genomics. Front Hum Neurosci. 2014;8 [PMC free article] [PubMed] [Google Scholar]
[18] Appelbaum, P.S., & Grisso, T. (2008). Assessing Patients' Capacities to Consent to Treatment. New England Journal of Medicine, 358(6), 601–607.
[19] Joffe, S., Cook, E.F., Cleary, P.D., Clark, J.W., & Weeks, J.C. (2001). Quality of Informed Consent in Cancer Clinical Trials: A Cross-sectional Survey. The Lancet, 358(9295), 1772–1777.
[20] World Medical Association. (2013). Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects. JAMA, 310(20), 2191–2194.

patient to be unable to exercise autonomy, and could hinder the process due to cultural and linguistic barriers.[21]

Furthermore, informed consent is not only based on ethical considerations, but also is stipulated in various legal edicts and ethical rules. The international Helsinki Declaration and the domestic code of rules for researchers in the United States are present to perform a legal umbrella for the conduct of subjects' research. Such procedures accentuate the position of those who have given their consent, have enough information and have colleagues who are fully capable or qualified. In short, "informed consent" is a moral practice at the core of medical research on maximizing the right of an individual to self-agency and preserving the idea of the rights of humans. Even though this is a very challenging thing, still, the obtained one allows to save the ethic consequence of medical and research operations.

3. CHALLENGES IN BIOMEDICINE AND HUMAN RIGHTS

The intricate web of biomedical innovations brings together a diverse group of ethical and legal concerns with the principle of human rights, which is arguably a landscape fraught with tension and potential. This part deals with the opportunities and threats that concurrently exist in the points of human rights and biomedicine. This paper can provide significant input into the discussion surrounding the ethical and legal dilemmas present in the field of biomedicine because it identifies and elaborates such problems and makes practical suggestions how they can be solved.

3.1 Informed Consent and Freedom of Choice

An important feature of biomedicine ethics is the informed consent, in which a person has the authority to independently control his/her medical treatment. Nevertheless, achieving veritable informed consent in practice might appear as the most difficult task that doctor and patient can face because of the complexity of the medical information, power differentials between those who are responsible for any decision and patients, and linguistic or cultural barriers.[22]

3.2 Genetic engineering and challenges

[21] U.S. Department of Health and Human Services. (2018). 45 CFR 46: Protection of Human Subjects (Common Rule). Federal Register, 83(245), 61693–61750.
[22] Beauchamp, T.L., & Childress, J.F. (2019). Principles of Biomedical Ethics (8th ed.). Oxford University Press.

Human genome information can be used to uncover genetic diseases and can even lead to discrimination due to the highly sensitive nature of this type of information. Genetic engineering introduced this unique era of personalized medicine, which, at the same time, offers a lot of information about the hereditary disposition of people to different diseases. Nevertheless, genetic privacy issue has raised much as the discrimination based on the genetic data. Lacking privacy protection, people might not be open for undertaking genetic tests as the data can be utilized against them by the insurances, employer, and other entities preventing to exercise their right.

3.3 Access to Health Care Service

While the health as a human right is acknowledged, disparity in service delivery both within and about states is still vital both in-country and internationally. Unequal availability of suitable living conditions, environmental obstacles, and pervasive institutional injustices in access to significant medical treatments and interventions are included as main contributors to the vast array of disparities in health experienced among the marginalized populations.[23]

Although biomedicine has proved to be of immense assistance in saving lives, and improving health as well as people's quality of life, it has also opened many issues in the human rights realm which demand robust and proactive solutions. The concepts of informed consent, genetic privacy, as well as the issues of access to health services may need to be defined as stakeholders hold the rights of autonomy, justice, and dignity as the baseline of biomedical practice. Implementation of the legislative reforms, ethical guidelines and the initiatives focused on health equity will serve as tools to guide global community to take the lead in handling the bioethics while protecting the rights and the well-being of people around the world.

4. SOLUTION IN BIOMEDICINE AND HUMAN RIGHTS

4.1 Boosting Communication and Public Education

Identifying a comprehensive approach to modify this issue is needed. Healthcare providers are upholding that clear communication with patients is necessary; therefore, the provided information must be comprehensible and should be taking individual preferences and cultural backgrounds into account. Besides that, health literacy of the general population should be

[23] World Health Organization. (2021), Health Equity.

promoted since this will facilitate people to be actively involved in their own healthcare decisions and this is far in respect to the principle of autonomy.

4.2 Through Law Making Activities and Ethical Codes of Conduct Will Be Put in Place

Against this threat, the state should erect some measures like legislation and ethical guidelines and uphold them. Legal arrangements should ban the exploitation of genetic information for discriminatory goals but the individual's privacy and autonomy should always be protected. Besides, professional organisations and research institutes have a key responsibility that is to standardise and observe ethical principles that ensures a Genetic data is accurately used in the biomedical research and clinical practice.

4.3 Solution: Inequities in Health Care: Valuable Initiatives and Policy Change

Making a commitment to equitable access to healthcare is not an option but rather a concerted effort at the policy, institutional and community levels. A necessary step for a government is to prioritize health equity initiatives that fight for the removal of healthcare access barriers such as improved infrastructure in the areas deprived, universal healthcare coverage, and provision of resources that are in line with the determinants of social health. As well, health care providers ought to engage in culturally appropriate practices that are attuned to the needs of the different patient groups and thus can lead to an equalized distribution of health care services.

5. THE WAY FORWARD

The bioethical perspective emphasizes ethical and legal dimensions as an inevitable part of our intricate journey of biomedicine, hence ought to be addressed to keep in line with the human rights principles. The remaining part of this part will rely on the work and ideas of other researchers and discussants. It will suggest the possible strategies and standards to develop an ethical and legal framework within the biomedical field. Through exploring more evolve concepts and promoting multiparty collaboration we will be able to work in a direction where the biomedical progress is guided and controlled by principles of fairness, rule of law, and respect to human rights.[24]

[24] Lo, B., & Field, M.J. (Eds.). (2009). Conflict of Interest in Medical Research, Education, and Practice. National Academies Press (US).

5.1 Enhancing Education and Training

The mainstage for increase of ethical and juridical aspects of biomedicine is studies and training performed by health care specialists. Medical curricula must cover not only bioethics, human rights and relevant legal principles with greater width and depth, but also must provide a chance for the students to practice the cases they may face in life[25]. This could be done, moreover, as well as through educational programs for a life-long learning and training services for healthcare providers focusing on the new ethical dilemmas and legal responsibilities appearing in the field.[26]

5.2 Promoting Interdisciplinary Collaboration

Effective resolution of ethical and legal challenges in biomedicine requires collaboration across diverse disciplines, including medicine, law, ethics, and social sciences. Establishing interdisciplinary research consortia and collaborative networks can facilitate knowledge exchange, interdisciplinary dialogue, and the development of innovative solutions to complex ethical dilemmas.[27] By bringing together experts from various fields, we can harness collective wisdom and expertise to address the multifaceted issues at the intersection of human rights and biomedicine.

5.3 Application of Technology for Moral Determination

Digital health technologies development has not only created possibilities but made it easier to weave ethics into the biomedical practice. Decision-support tools, AI algorithms, and electronic health records can be utilized to aid ethical decision-making processes, take care of the informed consent process and see that legal regulations are being followed.[28] With the help of technologies, we could improve the ethical side of biomedical researches and clinical practices as well as protect the rights and welfare of the patients and research-participants.[29]

---

[25] Sulmasy, D.P. (Ed.). (2010). Methods in Medical Ethics (2nd ed.). Georgetown University Press.
[26] Emanuel, E.J., & Crouch, R.A. (2014). The Oxford Textbook of Clinical Research Ethics. Oxford University Press
[27] Pimple, K.D. (2002). Biomedical Ethics and the Shadow of Nazism: A Conference on the Proper Use of the Nazi Analogy in Ethical Debate. Johns Hopkins University Press.
[28] Faden, R.R., & Kass, N.E. (2014). Ethics and Public Health: Model Legislation for Communicable Disease Control. Oxford University Press.
[29] Kaye, J., & Stranger, M. (Eds.). (2018). Principles and Practice in Biobank Governance. Routledge

5.4 Advocating for Policy Reforms

Biomedical policy formulation is key and has a significant impact on the ethical and legal nature of biomedicine. Efforts of advocacy aiming at shifting legislative agendas, developing healthcare regulation standards and advocating for the introduction of ethical rules can direct important law provisions within biomedical systems[30]. Moreover, construing partnerships with policy makers, advocacy group and civil society groups would increase voices of the humanity to safeguard the human rights, healthcare equity and biomedical research ethics.[31]

The progress of the ethical and legal issues at the crossroads of human rights and biomedicine is a job that needs joint focus and a multidimensional approach. Through education and training, further call for collaboration and teamwork, proper use of technology as well as advocacy for reforms, stakeholders are able to overcome the complex challenges and still uphold the principles of autonomy, integrity, and human rights. As we pave the way into the future, let us never lose sight of the goal of ensuring that a biomedical future is ethical, legal and compliant with the universal values of human rights and dignity.

6. CONCLUSION

In biomedicine where ethical principles, laws, and human rights constitute a complex and dynamic milieu, it is definitely a field that is hard to navigate. The in-depth research that we have conducted at the crossroads of human rights and biomedicine has revealed the wide range of complexities and possibilities that are involved in the legal and ethical debates in biomedical procedures. During the studies the major themes are highlighted, that emphasize relatedness of ethical principles, legal accountabilities and realization of human rights in biomedical settings. The ethical and legal controversies in the field of biomedicine are varied and rather intricate since health care delivery and research are very complicated issues. The core of the dilemmas lies in the need to protect the fundamental bioethical principles – autonomy, beneficence, non-maleficence and justice. These principles direct the ethical decision making and they influence the ethical behavior of biomedical professionals. Besides, this examination has demonstrated the need for a multidisciplinary and complex thinking in ethics and law in biomedicine. With integrating interdisciplinary fields such as medicine, law, ethics, and social sciences, we can

[30] Childress, J.F., Meslin, E.M., & Shapiro, H.T. (Eds.). (2017). Belmont Revisited: Ethical Principles for Research with Human Subjects. Oxford University Press.
[31] Dawson, A., & Verweij, M. (Eds.). (2012). Ethics, Prevention, and Public Health. Oxford University Press

utilize collective knowledge and expertise to address even the most complex ethical issues and create new ways of implementation of human rights principles.

Consequently, our work has also has shown that there is a vital role for policy modification and ethical advocacy in creating the jurisprudence of contemporary biomedicine. Lawmaking, regulative standards and ethical principles are indispensable in ensuring the rights and good condition of participants in bio research and the patients who will take medical aid. Approached that advocates for health equity, protecting genetic privacy, receiving informed consent and proficiently using resources are important in engendering meaningful system change in biomedicine. In the aftermath of our study results, we are addressing the challenge of the practical biomedicine through the involvement of many responsible parties whose effort is needed to achieve desirable results. Healthcare providers, policymakers, researchers, ethicists, and various civil society organization must work jointly to learn how to be coordinated in the biomedical domain at the same time keep the principles of justices, autonomy, and respect for human rights alive.

Integrity of ethical principles, lawful compliance and protection of human rights are, undoubtedly, the key points to consideration when biomedical practice is involved. Therefore, the ethical and legal issues under consideration at the borderline of human rights and biotechnology underline the predominance of these elements. Through the usage of multiple approaches such as interdisciplinary collaboration, the advocacy of policy developments and the provision of a solid moral support, we would step up into a future where biomedical advances are legally and ethically responsible and would not compromise the dignity and fundamental of human rights.