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## **The Significance of Bioethics in Emerging Countries: Evidence from Nigeria**

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### **Authors' Contributions**

This work was carried out in collaboration among all authors.  
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**Research Article**

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### **ABSTRACT**

The significance of bioethics in a developing country like Nigeria is the major focus of this study. Its relevance cannot be over emphasised. Bioethics put checks and balances into human conduct in medical research. This is necessary in a developing country (such as Nigeria) where socioeconomic factors may play a significant role in downplaying some of the principles supported by bioethics. Deliberate efforts like intentional introduction of bioethics at all levels of medical practice and research in Nigeria must be put in place to circumvent anarchy in medical profession

**Keywords:** Animal experimentation, bioethics, biomedical research, clinical trials, developing country.

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## INTRODUCTION

Science has proven that with enough time and resources dedicated to something, we can achieve anything. With the advent of science and technology, man has reinvented the world as we know it today. The health care sector has not been left out. There is reported advancement in field of medical science almost on a daily basis—from discovery of antibiotics and vaccines to use of prosthetic limbs, fetal surgeries to even talks of cloning a human being.

New medicines, biomedical procedures, and ways of altering plants and animals are bringing benefits to millions of people. However, these same new found knowledge and innovations also have the potential to bring harms or to raise other kinds of ethical questions about their appropriate use. While some research may be ongoing for purely medical reasons, human curiosity and ambition has now raised the question of whether to make genetic modifications available for cosmetic and commercial purposes. Also, in the case of medical research for medical reasons, does the end always justify the means? And do a select few have to suffer harm for ultimate benefit of a vast majority? What price do others have to pay in our quest for knowledge? How far should we go in our quest for knowledge and within what parameters are permit extreme measures? These and many more are the questions bioethics seeks to answer.

## CONCEPTUAL CLARIFICATIONS

Bioethics is a combination of two words- Bio and Ethics. “Bio” symbolises life or the state of being alive while Ethics is a philosophical discipline relating to concepts of good and bad, right and wrong, the moral life of a society or community. Bioethics, simply put, is ethics to the field of medicine,

biotechnology, biological and medical research and healthcare. Bioethics looks at "what should be done" when handling people and other living creatures. By way of definition, a field of study concerned with the ethics and philosophical implications of certain biological and medical procedures, technologies, and treatments, as organ transplants, genetic engineering, and care of the terminally ill (CPB, 2016)

Bioethics is a shared, reflective examination of ethical issues in health care, health science, and health policy. Science had always had ethical standards, handed down within each profession, and often without question. Until about five decades ago, the need for a more defined, robust, critical and publicly discussed ethical standard became obvious (MSU, 2016) The study of the social, and legal issues that arise in biomedicine and biomedical research cannot be overemphasised without which bioethics will have little or no significance. Bioethics encompasses several specialized fields, including medical ethics, which deals with ethical concerns in healthcare; research ethics, which addresses the ethical conduct of research; environmental ethics, which focuses on the impact of human activities on the environment; and public health ethics, which explores ethical issues in public health. It also includes legal ethics (NIH, 2016).

## Principles of Bioethics

Following the inhumane treatments reported as part of several many clinical trials and human experimentations, councils were set up and rules to govern how such trials should be conducted it avoid future occurrence of such evils. As medical technology evolved, many questions were raise related to abortion, euthanasia, selection of people for dialysis, war, capital punishment, organ transplants etc. The fundament principles of bioethics are outlined in Table 1.

**Table 1:***The four fundamental principles of bioethics*

Principle	Corollary Principles
Respect for autonomy	<ol style="list-style-type: none"> <li>1. We have an obligation to respect the autonomy of other persons, which is to respect the decisions made by other people concerning their own lives. This is also called the principle of human dignity. It gives us a negative duty not to interfere with the decisions of competent adults, and a positive duty to empower others for whom we're responsible.</li> <li>2. Honesty in our dealings with others &amp; obligation to keep promises.</li> </ol>
Beneficence	<ol style="list-style-type: none"> <li>3. We have an obligation to bring about good in all our actions.</li> <li>4. We must take positive steps to prevent harm. However, adopting this corollary principle frequently places us in direct conflict with respecting the autonomy of other persons.</li> </ol>
Justice	<ol style="list-style-type: none"> <li>5. We have an obligation to provide others with whatever they are owed or deserve. In public life, we have an obligation to treat all people equally, fairly, and impartially.</li> <li>6. Impose no unfair burdens.</li> <li>7. Combining beneficence and justice: We are obligated to work for the benefit of those who are unfairly treated.</li> </ol>
Non-maleficance	<ol style="list-style-type: none"> <li>8. We have an obligation not to harm others: "First, do no harm."</li> <li>9. Where harm cannot be avoided, we are obligated to minimize the harm we do.</li> <li>10. Don't increase the risk of harm to others.</li> <li>11. It is wrong to waste resources that could be used for good.</li> </ol>

Source: Authors (2024)

### Medical Research

By combining beneficence and non-maleficance implies that each action must produce more good than harm. Also, combining beneficence and justice implies that we are obligated to work for the benefit of those who are unfairly treated. Many institutions around the world have also established their own agencies and councils to monitor and govern ethical practices in medical science and have their own locally tailored code of conduct. Several organisations have published material to help people decide what is appropriate for them. The International Association of Bioethics (IAB) links bioethics from all over the world (Ignacimuthu, 2009).

Medical research, also known as biomedical research, is a research conducted to aid the development and knowledge in the field of medical science. It is an organised way to learn more about general health and way to prevent and treat diseases in the future. Most research studies are designed to ask questions that have not been answered yet. Through medical research, we have learnt a lot of answers to questions such as: can this drug treat a particular disease or merely suppress its symptoms? Or can a vaccine offer protection to more than one disease? Through medical research, effective treatment for many diseases such as hemophilia, which affects blood clotting have been discovered as well as combine vaccination against measles, mumps and rubella in a single shot.

## Goals of Medical Research

The desire to understand the effects of different treatments on health outcomes has long been a driving force behind medical advancements. For centuries, physicians and scientists sought to explore and compare the efficacy of various treatments, often through observation and anecdotal evidence. However, this curiosity was largely informal and lacked systematic methods or regulatory oversight. It wasn't until the mid-19th century that formal frameworks and organizational structures began to take shape, marking a pivotal moment in medical history. During this period, advances in scientific methodology, particularly the development of clinical trials and statistical analysis, enabled researchers to conduct more controlled and reliable studies. The establishment of medical societies, research institutions, and government bodies began to provide platforms for organizing, funding, and regulating medical research. This era saw the emergence of regulatory standards and ethical guidelines, which aimed to protect patients and ensure the integrity of scientific inquiry. The creation of medical journals further institutionalized research, allowing findings to be peer-reviewed and disseminated widely. This system helped transform medical experimentation from a fragmented endeavour into a more standardized and ethical practice, fostering trust in scientific outcomes and paving the way for modern clinical research. The goal of medical research is to improve the quality of life by enhancing public health, extend the length of life, reducing the stress burden of illnesses and disability and most importantly saving lives. Medical research involves many uncertainties and risks. It is however an important way to better understand and improve health care as well as prevention and treatment of diseases. The introduction of ethics helps mitigate risks, making

medical research studies as safe as possible.

## METHODOLOGY

Types of medical research vary and can be classified based on their study type as: Basic experimental research, Clinical research and or Epidemiological research. The study type used is determined by the research question one is seeking to answer. It is also influenced by the availability of resources such as finance, staffing, practical feasibility (organization, medical prerequisites, number of patients and or participants). Ultimately, the quality, reliability and success of a study is a function of the study design. The study design determines the type of study to embark on and must be specified before the study begins. If the wrong study type is chosen, the chances of successfully interpreting the research finding will be almost zero and the entire aim of the study will be defeated. In principle, medical research can be classified into primary and secondary. Primary research involves actual experimentation while secondary research involves reviews and meta-analyses of already available research (Röhrig, 2009).

Medical advancement requires experimentation which often uses animals and humans as objects of experimentation. The importance of Medical Research Medicine is not as straight forward as in other science disciplines as it does not have a set of principles that are valid in all cases. Rather every patient is different and what is an effective treatment for a vast majority of the population may not work for a select minority.

Medicine is inherently experimental because the field is rooted in the pursuit of understanding how different treatments affect health, which can vary widely among individuals and populations. Although many medical treatments are developed and tested through rigorous research before being widely accepted, their application remains dynamic and

adaptable. This is due to the complexity of human biology and the diversity of individual responses to treatment. Even the most established and widely accepted treatments, such as antibiotics, vaccines, or surgical procedures, are not universally effective in every case. Patients have unique physiological characteristics, genetic makeup, environmental factors, and health conditions that can influence how they respond to a given therapy. Therefore, ongoing monitoring, evaluation, and sometimes adjustment of treatments are necessary to determine their effectiveness for individual patients. Furthermore, as new research emerges and as diseases evolve (e.g., the rise of antibiotic-resistant bacteria or the emergence of new viruses), treatments that were once considered highly effective may need to be re-evaluated. Clinical practices must continuously adapt to these changes, which means that medical treatment often remains experimental at its core. Certain medical interventions that work well for the general population, might still have unanticipated effect in specific subgroups like children, the elderly, and people with underlying health conditions. As a result, doctors and researchers must constantly test and refine treatments to ensure that they are both safe and effective for different patient populations. This experimental nature of medicine reflects its evolving nature, where there is no one-size-fits-all solution, and ongoing study and innovation are crucial to improving health outcomes. Also medical research is instrumental in the development of new treatments, especially drugs, surgery and medical devices. Today there are more medical research underway than ever before as great advancement continues to be made in this field. Yet a lot is yet to be learnt about the functionality of the human body, the cause of diseases, prevention methods and cure. The field of medicine and healthcare extends beyond merely diagnosing and treating diseases; it encompasses a wide range of

interconnected disciplines that enhance our understanding and improvement of human health. Key areas include epidemiology, which studies disease patterns and their spread within populations, informing public health policies and preventive measures; health systems research, which analyzes how healthcare services are organized, financed, and delivered, aiming to improve access and optimize resources; and medical sociology and anthropology, which explore the social and cultural influences on health behaviours and healthcare practices. These disciplines investigate factors like economic status, education, and cultural beliefs, which can significantly affect health outcomes and the interaction between healthcare professionals and patients. Legal medicine applies medical knowledge to legal issues, addressing concerns related to patient rights, medical negligence, and healthcare regulations, while medical ethics focuses on the moral principles and dilemmas that arise in medical practice and research. It tackles critical questions about patient autonomy, beneficence, and justice, as well as issues like end-of-life care and the ethical conduct of research. By integrating insights from these diverse fields (epidemiology, health systems, social and cultural studies, law, and ethics), healthcare professionals and policymakers can develop more comprehensive and effective strategies to tackle the complex challenges faced in modern medicine.

To sustain their proficiency, physicians must keep up with the up-to-date findings in their area of practice. Even if they do not engage in research themselves, physicians must know how to interpret the results of research and apply them to their patients. Thus, a basic acquaintance with research methods is essential for competent medical practice. The best way to gain this knowledge is to take part in a research project, either as a medical student or following qualification. The most common method of research for practising physicians is the clinical trial.

Before a new drug can be approved by government mandated regulatory authorities, it must undergo extensive testing for safety and efficacy. The process begins with laboratory studies followed by testing on animals. If this proves promising, the four steps, or phases, of clinical research, are next:

- i. The drug is initially tested on a small group of healthy volunteers, often compensated for their participation. This phase aims to determine the appropriate dosage required to elicit a response in the human body, understand how the body metabolizes the drug, and assess whether the drug causes any toxic or harmful effects.
- ii. The testing is then expanded to include patients with the disease the drug is designed to treat. The primary objectives at this stage are to evaluate whether the drug provides any therapeutic benefits and to identify any potential harmful side effects.
- iii. The drug is administered to a large number of patients in a clinical trial and compared to another drug and/or to a placebo usually done under a double blinding study design.
- iv. The drug is licensed, marketed and monitored for the first few years, for side effects that did not show up in the earlier phases.

## DOSCOURSE

### Significance of Bioethics in Medical Research

Ethical decisions, both significant and trivial, confront us daily. Questions arise such as: What is the right course of action? What is the best way to live? What holds value, and what are our obligations to each other? Who bears responsibility, and for what? How should we respond to moral dilemmas given their specific

contexts? On what ethical grounds are such claims made?

The healthcare sector is no exception, particularly when providing care to individuals with diverse values in a pluralistic, multicultural society. Bioethics addresses these questions within the framework of modern medicine and healthcare. It draws on a wide array of secular and religious traditions to encourage civil discourse on both contentious moral issues and those where there is broad consensus.

In such a diverse world, where do we find ethical guidelines when there is disagreement or uncertainty about the right course of action? These guidelines must be broadly acceptable to both religious and non-religious individuals across various cultures. In healthcare, ethical principles—while not absolute—serve as strong guides for action. Given the complexity of clinical cases and the multitude of ethical principles applicable to various situations, these principles are not seen as fixed rules but as tools to help navigate moral duties in unique circumstances.

In both clinical practice and scientific research, it is generally accepted that these ethical principles can be applied, even in complex cases, to guide decision-making and help determine moral obligations (McCormick, 2013; MSU, 2016). Bioethicists aim to enhance public understanding of both moral philosophy and advances in healthcare technology. They also recognize how medical innovations can reshape our perceptions of health, illness, and ultimately, life and death (CPB, 2016).

Bioethics has played a transformative role in shaping how healthcare and medical research are conducted, establishing new ethical standards for the treatment of patients and the responsibilities of researchers. One of the most significant contributions of bioethics is the emphasis on patient autonomy—the right of individuals to know what is being done to their bodies

and to refuse treatment if they choose. This principle of informed consent is now a fundamental part of healthcare. Similarly, researchers are required to ensure that participants in their studies are fully aware of the procedures and potential risks involved, and that they have the right to opt out. Institutional review boards (IRBs) have become a near-universal mechanism to evaluate proposed research, ensuring that these ethical standards are upheld (MSU, 2016).

Beyond patient rights and research ethics, bioethics addresses a broad range of moral questions. These include debates over the boundaries of life, such as the ethics of abortion and euthanasia, the role of surrogacy, and the allocation of limited healthcare resources, like organ donation and healthcare rationing. It also tackles the question of whether people have the right to refuse medical care based on religious or cultural beliefs. However, the field of bioethics is not without internal disagreements. Bioethicists debate the scope of their discipline—whether it should focus exclusively on the ethical evaluation of medical treatments and technological innovations or extend to all actions that impact living organisms. Some argue for a narrower approach, limiting bioethics to questions related to human medical treatments and interventions. Others advocate for a broader view, which includes the ethical treatment of any organisms capable of experiencing fear or suffering (Rumore, 2009; Röhrig, 2009). These differing perspectives highlight the complexity of bioethics, as it seeks to balance the moral implications of advancing scientific knowledge with the rights, values, and dignity of both humans and other living beings.

### **Bioethics, Corruption and Poverty**

With the advances in technology comes along massive changes in the way research and development projects are carried out. More and more clinical trials

have been approved that require human subjects in large number to meet the required statistical benchmark. This implies that many patients all over the world are more like to become a part of one research or another. Although the outcome of the research maybe for the collective good, it is worthy to note that such participation may brew unethical scenarios making it more valuable to the research than to the participants of the research. Firstly, a researcher may not be able to effectively combine the duties of a research and a physician on the same patient. The physician's role in the physician-patient relationship is different from the researcher's role in the researcher-research subject relationship, even if the physician and the researcher are the same person. The physician's primary responsibility is the health and well-being of the patient, whereas the researcher's primary responsibility is the generation of knowledge, which may or may not contribute to the research subject's health and wellbeing.

In developing countries like Nigeria, Physicians may be approached to assist in enrolling subjects for the research by the researcher and are sometimes offered money of other incentives to gain their cooperation. When such clinical trials are carried out in developing countries where poverty and corruption are endemic, the physicians are very likely to enrol participants by denying them access to healthcare services and or other drugs unless they participant in the trial and sign the consent forms. The physician's pursuit of research benefits can sometimes come into conflict with their duty to provide patients with the best available treatment. It may also clash with the patient's right to receive all necessary information to make a fully informed decision about whether to participate in a study. However, these potential issues can be addressed. The core ethical values of a physician (compassion, competence, and respect for patient autonomy) are equally applicable to

medical researchers. Therefore, there is no inherent conflict between the roles of a physician and a researcher. As long as physicians adhere to the fundamental principles of research ethics, they should be able to incorporate research into their clinical practice without difficulty.

"Conflict of interest" in medical research is defined as a situation where professional judgment related to a primary concern—such as the patient's welfare or the validity of research—may be unduly influenced by secondary interests, like financial gain (Röhrig, 2009).

The abuse of patient confidentiality is often bridged in teaching hospitals as the physician tends to assume the role of a lecturer with the aim of impacting on the students rather than the rights and welfare of the patients. Again there is a huge conflict in interest especially in medical cases the patients would prefer to treat as private or personal. Many times these private matters are discussed openly with impunity to the detriment of the patients' mental wellbeing.

Accurate reporting of research results is essential, but unfortunately, there have been numerous cases of dishonest practices in scientific publications. Common issues include plagiarism, data fabrication, duplicate publication, and "gift" authorship. While these unethical practices may temporarily benefit the researcher, they can cause significant harm. Patients may receive incorrect treatments based on inaccurate or false findings, and other researchers may waste valuable time and resources attempting to replicate flawed studies.

**Whistle-Blowing** -To prevent or expose unethical research, anyone aware of such behaviour has a responsibility to report it to the appropriate authorities. Unfortunately, whistle-blowers are not always supported, and in some cases, they face punishment or ostracism for attempting to reveal misconduct. Junior members of research teams, such as medical students, may find it particularly

challenging to act on their suspicions, feeling unqualified to judge the actions of senior researchers and fearing repercussions for speaking out. Nevertheless, they should at least refuse to engage in clearly unethical practices, such as lying to research subjects or fabricating data. If they witness such behaviour, they should take whatever steps they can to alert the relevant authorities, whether directly or anonymously (Chmielewski, 2004).

### **Bioethics and Religion**

Many religious groups have their own accounts and analysis of bio-ethical issues and have established rules and guidelines on how to handle these issues from within the standpoint of their respective faiths. Infusing bioethics and religion could be quite challenging as many faithful's regard the beliefs and teaching of their faith as absolutes. This brings about division as to which medical practise should be considered acceptable and universal. For instance, a Jehovah Witness may choose not to accept any blood related product as a form of medical intervention even if his life depends on it. The Catholics are against abortion but may consider it acceptable if the life of the mother and or the child will be severely damaged and quality of life impaired. This was demonstrated during the Zika virus epidemic in southern America. These have brought about what is known as the extrinsic and intrinsic objections to bioethics.

In the Western world, ethical standards are largely rooted in Judeo-Christian principles. Within society, those who fail to adhere to these ethical standards often face sanctions, and laws enforce consequences for unethical behaviour. Ethical thinking involves a careful process of considering how our actions affect the individuals or institutions we serve. While many decisions are routine, we may occasionally encounter an



ethical dilemma in unexpected situations that require immediate judgment and response (Chmielewski, 2004).

### **Bioethics as an emerging branch of science**

Bioethics emphasizes on a seeming "dehumanization" of medicine by the increasing power of science and technology.. Remedies were sought by bring together humanities, ethics, and human "values" into the medical prospectus. Ethics was one among the humanistic disciplines, but not as a dominant one. Later on, ethics assumed a dominant role as more multifaceted problems emerged from the rapid pace of biological research. With time, the need for a more rigorous and more formal analysis of their moral standing was obvious. Philosophically-trained ethicists had a leading role and began to teach, write, intensely inducing medical education and practice. Bioethicists come from a wide variety of backgrounds and have training in a diverse array of disciplines. The field, once dominated by formally trained philosophers, has become increasingly interdisciplinary. Presently the range of dilemmas has become so broad that ethicists must, themselves, draw on disciplines well beyond their expertise e.g., law, religion, anthropology, economics, political science, psychology etc. It blends philosophy, theology, history, and law with medicine, nursing, health policy, and the medical humanities. Insights from various disciplines are used to analyse the complex interaction of human life, science, and technology. Although its questions are as old as humankind, the origins of bioethics as a field are more recent and challenging to describe in a single view. The field of bioethics now addresses a wide array of concerns, ranging from challenging personal decisions in clinical settings to controversies over stem cell research and the implications of reproductive technologies. It also encompasses broader

issues such as international human subject research, public healthcare policy, and the allocation of limited resources. Bioethics tackles significant questions, including the purposes and goals of the life sciences and healthcare, the meanings of distributive justice, and challenges in global health. Bioethicists delve into profound topics such as the meanings of life and death, pain and suffering, and the associated rights and responsibilities.

While the initial aspiration to humanize medicine has faced challenges, notable progress has been made that benefits patients, the medical profession, and society as a whole. Medical morality has evolved into a formal, systematic study of a wide range of critical issues impacting humanity. The current major challenge lies in understanding the relationship between theoretical principles and practical applications (Pellegrino, 1999).

As the field continues to grow, bioethics has emerged as a significant influence on legislation, public policy, and other practical applications of its theoretical foundations. Some argue that what started as a multidisciplinary area of study has now become a distinct discipline in its own right. The literature in bioethics is expanding, with numerous journals and publishers contributing to the field. There are hundreds of professionals specializing in clinical ethics consultation, as well as dedicated bioethics departments in traditional academic institutions. Training and educational programs are proliferating, offering certifications, Master's degrees, and even a few PhD programs in Bioethics. Various guilds and societies have been established for bioethicists, with the American Society of Bioethics and Humanities (ASBH) being the largest. ASBH has also formed a standing committee to address the absence of a code of ethics for clinical ethicists and is developing a certification process as well (CPB, 2016).

## **Bioethics as a local and global phenomenon**

Medical personnel all over the world are required to learn and relearn improved and novel ways of treating their patients. They have to keep abreast ongoing trends in the field of medical science and in order to do this, they will have to actively or passively be a part of a medical trial. Regardless of the locality, physicians will have to try out recommended drugs and or products from the outcome of clinical trials conducted previously by others on their patients and observe the outcome for themselves. Outcome of research done across the globe can still find its relevance in a different and peculiar society as human diseases are not always restricted geographic location. This makes the medical research a global phenomenon and bioethics a concern to practitioners all over the world.

### **How much of self-sacrifice does bioethics require?**

It has been argued that the principles of bioethics to a large extent focus on individual right and not so much on community or societal wellbeing. It is very possible that the collective rights of individuals in a society may in the end be detrimental to the societal good, culture and values. There is a tension between long range interests of society, science and progress on one hand and the rights of the individuals on the other hand. Stem cell cultures, gender selection, abortion, organ transplants, surrogate parenting, cloning, transgenic modifications all pass the test of non-maleficence but may have serious implication on culture and societal values over time. We need to ask what society will be like if everyone behaved in a certain manner or exercised their rights to autonomy (Ignacimuthu, 2009).

For instance, when profit-making research companies successfully genetically modify an organism to produce a beneficial trait in human such as

a vitamin or protein to aid digestion and decide to have sole patent and commercial rights to this genetically modified organisms, the question becomes should they commercialise and even monopolise the sale and distribution of these vitamins knowing very well that the DNA (which is the basic molecule of the discovery) was freely given to them by nature? How then will they recover the monies invested in carrying out the research? How will they fund future researches if they always have to obey the principle of justice thereby making the supplement available and affordable for all? Should the use of genetic engineering only benefit a few rich individuals would can afford these supplement or do we abolish the treatment altogether so that equity can reign protecting rights to improved healthcare of the weak and poor considering the financial and economic implications? How sustainable is the virtue of charity when access to certain medical intentions requires a lot of money? Is it right to patent the human gene knowing the practical reality of money to be made from genetically engineering of the human gene or any other gene? Does a bioethicist necessarily have to remain “poor” in order to further the cause of ethics in medical science? What then are the rewards of upholding the standards of ethics?

This process can be a little tricky because there is no order of priority as to which of the principles of bioethics holds more value when it is found conflicting with another. When these questions and many more are asked, a researcher ought to remind him/herself of the core principles of bioethics, the purpose of their calling into the chosen career path, deciding for themselves the line of best fit within the set parameters. It is generally conceded that the common good should have logically determined amount of precedence over individual rights. Some basic rights of an individual may have to be overruled by acknowledged rights of the society. Biomedical researchers as well

as all personnel in the field of medical science and technology are encouraged to be selfless, making the greater good for their entire goal (Jecker *et al.*, 2007).

## CONCLUSION

The evolution of science and technology has no doubt brought about profound changes in our lives both directly and indirectly, hence the need for bioethics to maintain order, sanctity and dignity of life at the same time to the revolutionaries and develop these technologies. Humans are very creative and highly imaginative beings. It is said that even the most genius of men are yet to use up to 15% of our brains potential, the extent to which we can evolve in the realms of science and technology cannot be fathomed let alone curtailed but for bioethics. If everyone was left to live by their personal moral convictions alone and follow their own scientific desires and imaginations; we would end up destroying ourselves, bring our race to extinction, destroying the planet and possibly the entire universe. In order to save our race and planet from the inevitable self-destruct mode it will take if ethics are not put into play, we need to stop and reflect on how we got to this point and how we can reframe and restructure the researches being conducted. A proper balance has to be set to the extent at which we can take medical research yet conserve the fundamentals of our humanity, bearing in mind the humans are moral beings and we therefore have the moral and ethical responsibility to protect and reserve life and nature. Careful considerations should be taken with every action and decision weighed not just for the now or benefit of a few individual but for the collective good of mankind and our future.

Before embarking on a medical research, we need to ask ourselves first what the real propose of the research is, then decipher which research is needed and what its impact is likely to be.

Research funders, participants, clinicians and policy makers should work together to ensure that more attention is given to researches with a wider positive impact ratio is enhanced. Academic institutions should recognise and reward researchers on a long time basis to encourage them to do more of impactful studies while making the assessments and true meaningful impact of their research easily felt by all. Finally, researchers themselves should always remember why they choose their career paths and do more to protect an environment conducive for research for the benefit and health of the people worldwide.

## Declaration of conflict of interest

There is no conflict of interest in this study.

## REFERENCES

- Chmielewski, C. (2004). The importance of values and culture in ethical decision making. Accessed on October 13, 2024 from <http://www.nacada.ksu.edu/Resources/Clearinghouse/ViewArticles/values-and-culture-in-ethical-decision-making.aspx>
- CPB (2016) Centre for practical bioethics. What is bioethics? Accessed on October 7, 2024 from <https://practicalbioethics.org/what-is-bioethics>.
- Hojnacki, W. (2004). Three rules of management in managerial decision making. Graduate Course conducted in the School of Public and Environmental Affairs, IndianaUniversity, South Bend.
- Ignacimuthu S.J. (2009). *Bioethics*. Alpha Science International.

- Jecker, N.S., Jonsen A.R., & Pearlman, R.A., (2007). *Bioethics* (2<sup>nd</sup> edition). Jones and Barlett Publishers Inc.
- McCormick, T.R. (2013). *Principles of bioethics ethics in medicine*. University of Washington School of Medicine Press
- Michigan State University (2016). *What is bioethics?* Center for Ethics and Humanities in the Life Sciences Press
- National Institute of Environmental Health Sciences (2016). What is bioethics? NIEHSReport
- Pellegrino E.D. (1999). The origins and evolution of bioethics: Some personal reflections. *U.S. National Library of Medicine*, 9(1), 73-88
- Röhrig, B., Jean-Baptist, P., Wachtlin, D., & Blettner, M., (2009). *Types of study in medical research. DtschArztebl Int.*, 106(15), 262-268
- Rumore, M. (2009). The Hatch-Waxman Act 25 years later: Keeping the pharmaceutical scales balanced. Accessed on October 13, 2024 from [www.pharmacytimes.com](http://www.pharmacytimes.com)
- Schuklenk, U. (2005). Module one: Introduction to research ethics. *Developing world bioethics*, 5(1), 1-13
- Thompson, D. (1993). Understanding financial conflicts of interest. *The New England Journal of Medicine*. 329(1), 573–576.

