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RELIGION, BIOETHICS AND THE HUMAN SUBJECT EXPERIMENTATION

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Abstract

Human subject experimentation is one of the ways by which scientists and medical practitioners seek advancement for their profession in relation to preventive and curative medicine. Though many have argued in support of human subject experimentation to the effect that it increases the number of lives saved, as well as improves the quality of lives, however, it is dehumanizing for it exploits human subjects and degrades their worth, dignity, rights, autonomy and personhood. How then can one balance or justify exposing human subjects to risk for the sake of the advancement of science? Can the desire for knowledge ever justify the inhumane or unethical treatment in experiments on human beings? Hence, this paper seeks to examine the various ethical problems associated with human subject experimentation. It shall also explore the theological and religious responses to the use of human subjects for experimentation and argue that theological and religious responses have humanizing trends for human subject experiment.

Introduction

Throughout medical history, research experimentation has played a central role in the development of knowledge, which is beneficial to human health. If medical progress were to depend solely upon the scientific by-product of experimentation-conducted incidental to therapy, medical science and human health care might still be in the dark ages. Human experimentation has achieved many spectacular successes; it has been an incentive to subjects to attain important benefits and avoid death or severe harm but not with great risk. While human experimentation has advanced man's knowledge and improved his life, it has failed to keep pace in the development of the safeguards needed to protect human rights (Beecher 274). How then can one justify exposing human subjects to risk for the sake of advancement of science? This paper shall explore the nature of human experimentation and critically examine the ethical issues associated with it, as well as the religious responses to these ethical issues. This work is divided into three sections: section one highlights the essential ingredients of human subjects experiments, section two highlights what is meant by humanization and exposes what is

dehumanizing about human subjects experiments, section three examines the theological and religious responses with a view to showing the humanizing trend in them.

Essential Ingredients of Human Subjects Experimentation

Experiment can be defined as the procedure or policy adopted in uncertainty to determine whether a thing will produce the desired purpose or brings about the desired outcome. In this sense, ordinary medical treatment is an experiment because the outcome for any particular patient is unknown. A doctor sees a patient, makes a diagnosis and then recommends some course of treatment, the doctor and the patient then wait to see what happens. There is no certainty that the treatment will have the desired effect because life processes are so varied. Consequentially, the reason people become ill and the effects of treatment can never be predicted with certainty. All a doctor can do is to predict the likelihood of success. From this perspective, doctors and health professionals have always experimented with their patients.

However, there are differences between treatment and experimentation; ordinary treatment should have a large amount of experimental evidence to show that it works, while experimentation will always have less certain outcomes. Experiment is more rigorously defined, controlled and observed than ordinary medical treatment. It has also been distinguished by the extent of risk to the patients or human subjects of the experiment and the lack of any therapeutic benefit to them. Human experimentation occurs whenever the clinical situation of the patient is consciously manipulated to gather information regarding the capability of drugs and devices. There are basically two types of human experimentation; therapeutic and non-therapeutic.

Therapeutic Experiment

This type of experiment is carried out with the hope that the patient, on whom the experiment is performed, will receive some benefits from the experimentation procedure. The experiment, either in the form of operation or drug testing is primarily aimed at curing the patient and restoring his health to normalcy (Dasaolu 81). Therapeutic experiment is humanizing for the benefits are intended directly to accrue to the subjects themselves and the society, it is designed solely to enhance the well-being of the patient and have a reasonable expectation of success.. Thomas Wall describes therapeutic experiment as primarily for the patient and largely for the society. He held that in addition to possibly helping the patient, the aim of the experiment is also to gain new knowledge that may benefit others in the future (112). The use of non-conventional radiotherapy to inhibit the progress of a malignant cancer is an example of a therapeutic experiment; it was not only beneficial to the patient but also for humankind.

Non-therapeutic Experiment

Non-therapeutic experiments are performed on subjects with the intention of furthering medical knowledge. The research subject does not stand to derive any benefit from such experiments and he is considered as a mere tool or as means towards achieving other ends. In non-therapeutic experiments, the benefits are expected to be enjoyed by others. The subjects are to test a hypothesis, to permit conclusions to be drawn, and thereby to develop or contribute to knowledge. The problem with the non-therapeutic experiment has always been that of being unethical and dehumanizing as it violates human dignity, pride and values. Series of medical experiments on large numbers of prisoners, including children, by Nazi Germany in its concentration camps in the early to mid 1940s, during World War II and the Holocaust is a typical example of non-therapeutic experiment. Nazi physicians forced prisoners into participating; they did not willingly volunteer and no consent was given for the procedures. Healthy inmates were deliberately inflicted, poisoned and infected with all kinds of diseases to test immunization, drugs and treatment. The experiments resulted in death, trauma, great pain, and permanent disability. The experiment was nothing but medical torture, and it was considered as the highest form of dehumanization in medical history.

Ethical Issues associated with Human Experimentation

Experimentation on human subjects is essential to scientific progress and the promotion of medical well-being, but human subject experimentation becomes an issue in bioethics when the experiment may jeopardize the subject's life or health. Especially in a non-therapeutic experimentation that offers little or no benefits to the subject and carries a lot of risk with it. As a result of this, the use of human beings as experimental subjects generates ethical concerns. There is a need to justify exposing individual human subjects to risk for the sake of the advancement of science and examine its impact on inherent values of human being such as autonomy, dignity, and justice.

Exploitation of Human Subjects

There are historical records of manipulation of human beings especially in non-therapeutic experimentation; researchers deliberately infected human beings to test their theories without any apparent regard for the harm they caused those inflicted. The climax of exploitation of humans for experimentation in history was the deliberate Nazi crimes against humanity, performed for the sake of scientific advancement. Since non-therapeutic experimentation calls for one set of individuals to shoulder risks for the sake of others, the idea that some persons are being 'used' arises. If a person is enrolled as a subject in an experiment the results of which are foreseen to be beneficial only to others, the former is, in effect, being used by the latter to attain their ends. Admittedly, using people in this sense is not necessarily wrong if it is done with their consent and out of their own volition. But there is a thin line between taking advantage of help voluntarily

given and making use of people in a manner that reduces them to objects with no decision making capabilities. Due to their vulnerabilities, ignorance of relevant information, coerced participation, stress associated with illness, human subjects of experimentation are more exposed to the possibility of exploitation (De Castro 381).

Consent

The nature and quality of consent given by individual subjects are important in ensuring that exploitation does not take place. Voluntary consent given by adequately informed subject guarantees the exercise does not involve the use of human beings merely as a means. By giving voluntary consent, the subjects adopt the ends of the experiment as their own and identify with them. If they are used as means at all, it is for ends which effectively have become their own (De Castro 381). It is evident that only by obtaining informed consent can one be sure that one is treating the experimental subject as an end, and not merely as a means. Neglecting to seek consent would indicate a deeper failure to recognize the autonomy and the dignity of humanity. Ascertaining the validity of consent is important not only to ensure respect for individual autonomy but also to provide protection against harm, avoid the use of fraud or duress, provide the researchers with mechanism for self-audit and promote the process of rational decision-making. However, to ascertain the validity of consent, the consent must be voluntary and informed.

Voluntary Consent

The Nuremberg Code defines voluntary consent as the ability to exercise free power of choice and the interference of any element of force, fraud, deceit, or any ulterior form of constraint or coercion. Voluntary consent is important to ensure that the decisions made by subjects are truly compatible with their autonomous values. However, voluntary consent can become an issue even in therapeutic experimentation, when the patient is left with no option than to serve as a subject of experimentation. A patient diagnosed with chronic illness can be easily cajoled to opt for experimental care; where he thought chances of survival increased.

Relationship of dependence to the researchers can also endanger the voluntary nature of consent. The possibility of intimidation, whether intended or not, cannot be ruled out even if the subject is motivated by a conscious desire to support the objectives of the medical research. Even when unrecognized, fear or deference to authority may be so strong that they negate or diminish the subject's ability to make truly free decisions. The use of compensation and other incentives to attract subjects is also problematic. Too much compensation could undermine autonomy by inducing individuals to take unreasonable risk (De Castro 382). To enhance the capacity for the self-determination, subject should be able to relate situations to themselves, deliberate about alternatives, relate alternatives to their own values and rank them, select options and understand the consequences of those options.

Informed consent

To validate consent, a subject needs adequate information to enhance his ability to make an understanding and enlightened decision compatible with self-determined value systems. Nevertheless, under what circumstances can consent be considered fully informed? This question can be approached by examining the epistemological issues pertaining to informed consent. The epistemological concern arises because the notion of "being informed" is not too clear. To what degree can a subject be informed? How much information, and what specific sorts of information should a person have before his consent can properly be said to be informed? It has been argued that a subject can never be fully informed. For a subject to be fully informed, he would have to know as much as the physician knows about the diseases, risks, complications, statistics about similar cases, and perhaps a range of other facts. If people had to know all these facts, theories and statistics in order to be fully informed, consent could rarely be given even for the most therapeutic procedures, much less for a variety of experiments employing human subjects. Hence, we should probably focus on the area of ascertaining what information is relevant for an experiment subject's consent to be sufficiently informed.

Another epistemological issue is the difficulty that the physician or experimenter faces in determining whether the experimental subject has the requisite understanding of the relevant information to grant his informed consent. Patients or experimental subjects may be given the necessary information, but for a variety of possible reasons, they may not adequately process or comprehend that information. So when experimental subjects have been properly informed, the subjects may nonetheless remain uninformed (Macklin and Sherwin 448). In view of the foregoing issues, a prospective subject should have all the information necessary to make a decision that relates the options to the subject's self-determined values. The explanation must suit their level of understanding. Their inability to fully comprehend medical and scientific explanation cannot be an excuse to withhold information and bypass consent requirement (De Castro 383).

Volunteers

A subject should not be tricked or coerced to take part in an experiment; it should be a willful and voluntary act. Subjects who are usually coerced into participation are; children, imprisoned convicts, inmates of mental hospitals or domiciliary institutions, soldiers, patients, employees, and students in medical, educational, or research facilities. Subjects in this category may be coerced, often by subtle means, because of their vulnerable station in life. If the experiment is therapeutic, its benefit to the patient should dictate the course of action but in a non-therapeutic experiment; when it is not directly beneficial to the subject, their inclusion may be permitted only if the risks are very negligible. Children and mental patients cannot give consent because they lack the ability to fully understand an explanation of a proposed experiment. This give rise to the question, regarding which person, besides the experimental subject, ought to be allowed

to grant consent? A person who has appropriate legal authority to make health care decisions for the subject can grant consent but only when the risk is minimal and the benefit is abundantly significant. Prisoners can also give consent although their consent cannot be completely voluntary due to their compromised and dependent status. Therefore, to prevent involving prisoners in cruel, inhumane and exploitative experiment, prisoners should only be involved when the risk of harm is minimal.

Justice and Human Subjects

Justice is an issue in human experimentation considering the distribution of burdens, the availability and the use of benefits, the solicitation and compensation of subjects, the provision of compensation for injury and the setting of priorities and the direction in the use of research funds and resources. The recruitment of experimental subjects may be a venue for exploitation in the form of uneven distribution of risks among different segments of the population. In effect, particular persons and groups that invariably get a bigger share of the risk burden than others are being taken advantage of (De Castro 385). The selection process of the subjects ought to be fair and not biased due to race, status, or ethnic group. The selections of research subjects must be scrutinized to ensure that some set of people are not being systematically selected simply because of their easy availability, compromised position or vulnerability. There should be fair distribution of burdens and benefits in the participant experience and the research outcomes.

Is there a Duty to serve as a Subject?

Do human beings have the duty to serve as research subjects? Since the benefits of knowledge derived from biomedical research are useful to everybody in general, it has been suggested that everyone must share in the task of generating such knowledge by serving as research subjects (McDermott 39). Advocates of the argument justifying human experimentation argued that it is our obligation to sacrifice for the betterment of others especially the future generation. It was argued that present members of the society have a quasi-contractual obligation to reciprocate the benefits that have been made available to them through the participation of previous generations in bio-medical research. Therefore, it is the duty of the present generation to participate as subjects in research that could be of benefit to future generations.

However, it is not true that the benefits of medical research are always available to everybody. If these benefits are available at all, the drugs, procedures or implements that result from successful medical research usually have to be paid for by their users. Hence, those who refuse to serve as subjects cannot be classified as freeloaders. Their payment for medical care constitutes a market-determined compensation for the services rendered (albeit indirectly) by others. Indeed, research cost contributes an increasing proportion to the cost of medical care. Under such circumstances, it would be disingenuous to speak of

a duty to serve as a subject of research, arising from society's right to research benefits (De Castro 386).

Moral philosophers have reacted differently to this question. While some philosophers believe that we need to make sacrifices for the benefit of the future at all cost since it is the right of those in the future generation to have that obligation. Other philosophers are of the view that our obligation to promote the continuance of the human race should be based on the consideration of value rather than of rights. However, someone should not take unreasonable risk especially in a non-therapeutic experiment all in the name of duty or obligation. Human dignity and total respect for a person's integrity surpass any societal obligation, be it to the present or future (Dasaolu 90).

Controls, Placebos and Deception

Placebo-controlled studies are a way of testing a medical therapy in which, in addition to a group of subjects that receive the treatment to be evaluated, a separate control group receives a placebo treatment. Participants are divided into groups and given different treatments, to make comparison between the groups. One group of the experiment is called the "control"; the control group provides a background against which the experimenters can judge the success of their treatment. A control is needed because a patient's symptoms will sometimes improve simply because they believe that they are being given treatment. This makes it hard to know the effect caused by the therapy and the result of the patient's own emotional response to it. Control groups help to separate the physical from the psychological effects of the treatment.

The control group is given a dummy treatment called placebos but due to natural healing ability and psychological effect, many patients will get better even when no treatment is given. In this case, the participants do not know whether they are taking the treatment or the placebo. The aim is to separate the effect caused by a person's simple belief in the value of the therapy, from the genuine physical effects of the treatment (Vere 2-3). However, experiments that use placebos have ethical problems; it has potential for deceit when it is used even though effective treatment exists for the condition. The subject may think they are receiving treatment for their illness but they are only taking placebo. The Declaration of Helsinki only allows placebos to be employed in human experimentation where there is no existing treatment that can be used to give an appropriate comparison. Hence, when a well-accepted treatment is available, the use of placebo control group is unacceptable and unethical.

Unnecessary Experimentation

Another ethical issue in human experimentation is conduction of unnecessary experimentation especially by pharmacists. Pharmacists develop new drugs which are tested on humans. These are generally considered acceptable, provided volunteers give informed consent; though there is no way a subject can be fully apprised of the risks in

advance, since that is what the test is meant to determine. However, many of the new drugs developed offer little or no benefit beyond those existing treatments because they are just a copy of an existing drug.

Experimentation on Human Embryos

The ethical issues arising from the use of human embryos for experimentation arise not from the matters of autonomy or consent but from the question of status of an embryo. Is an embryo a human being? Does it have a moral status and rights? Does it deserve the moral respect of human beings? To answer these questions, there is a need for the clarification of the early stages of fertilization and embryonic development.

An egg produced by the ovaries of a woman meet sperm travelling along the fallopian tube and fertilized there. The eggs, when fertilized, spend the first four days making cells. It starts as two, and multiplies during this time to four, sixteen, and onwards. The next ten days are occupied with the formation of placenta, the amnion, the umbilical cord and the other membranes that will be the support-system of the embryo when it is formed. After that comes the clustering of cells together to form what is known as the primitive streak, which will develop fairly rapidly into the spinal column and central nervous system of the embryo (or embryos, for twinning can occur during these first fourteen days by a division of cells). Until the first fourteen days have passed there is no differentiation of cells: any might form part of the either, say, the placenta, or the embryo itself. By eight weeks of fertilization, however, the placenta and all the protective membranes have separated from the embryo, and all the main organs of the body and all the limbs have been formed (Warnock 391).

Experimentation on human embryo has brought many benefits, which include the discovery of invitro fertilization (IVF), causes of spontaneous abortion (miscarriage), new methods of contraception, and the possibility of detecting faulty genes in very early embryos and even replacing them. Despite all these benefits, it was argued that there is no justification for experimentation on human embryo because it leads to the destruction of the embryo. Other human subjects may be used for experimentation with their consent but embryo cannot give consent. The embryos are only used as a means to an end because the benefits that come from the experimentation are not used for them but for others. Because it was agreed that any embryo that has been used as a subject of experimentation must be destroyed, it must not be implanted in the woman's uterus for it might have been damaged. Though it is tagged "destroyed", but to terminate life at any stage is called nothing than killing.

Moreover, even if experimentation on human embryo might be justified by its consequences, it is nevertheless an experiment that would inevitably lead to the death of an embryo. No matter the usefulness or the benefits of the experiment, any embryo used for experiment has already been doomed to destruction from the start. Though these

embryos could not suffer pain, they could and did suffer death, which was worse (Warnock 393). The debate over experimentation on human embryo intensified due to the advancement of embryonic stem cell research. Embryonic stem cells were said to cure degenerative disease for they can be used to repair damaged organs and body part. Those in support argued that embryo lack sentience which makes it inappropriate to be called living human being. While others argued that to get embryonic stem cells, the embryo has to be cut open, thereby, killing the embryo to extract stem cells. Therefore, it is completely unethical to do embryonic stem cell research, which necessitates the killing of a living human embryo with moral status to obtain stem cells.

Thus, while the embryo's moral status need not prevent us from killing it, it should nevertheless have some practical deterrent effect against killing it, since it requires that the destruction is for justifiable reason. There should be restrictions on the treatment of embryo that would show respect for them (which are independent of justifications for their destruction). These restrictions are:

(1) Human extracorporeal embryos should be used in research only if the research goals cannot be obtained by other methods (Final Report ix).
(2) The use of the extracorporeal embryos more than fourteen days old should be avoided or diminished, since some of the morally significant onset of embryonic individuation (McCormick 1-15) regards this point.
(3) Researchers should avoid considering extracorporeal embryos as property and in particular should avoid buying and selling them.
(4) Researchers should recognize that the destruction of extracorporeal embryos provides a reason for them to have and demonstrate some sense of regret or loss.

Further, handling extra corporeal embryos with respect in the lab should never be an empty or insincere gesture but might include acquiring only the minimum number of embryos required to achieve the research goals and disposing of the remains of used embryos in a way respectful of their status (for example, the remains might be treated as if they are corpses and be buried or cremated) (Meyer and Nelson 22-23).

Theological and Religious Responses to Human Subject Experimentation

With scientific advancement, experiments involving human subject have increased. These experiments conducted on human subjects have shown the extent of potential threats of unregulated human experimentation on human life. Due to the threat it poses to human life, different religions have responded to it by deducing ethical guidelines from religious perspectives, in order to curb the excesses of human subject experimentation. In this paper, Islam and Christianity responses to human subject experimentation will be examined.

Islam and Human Experimentation

Islamist jurists respond to human subject experimentation with the Islamic understanding of knowledge expansion including that of medical science as reflected in various Qur'anic verses, and in the tradition of Prophet. Islam promotes acquisition of knowledge which includes studying of religious teachings, as well as readings on the natural environment and medicine, which may involve experimentation. Islam allows medical treatments that are set to reverse diseases pathology, mitigate its effects or stop further progress of its effect. Islam also allows scientific activities, practices and experimentation that are designed to increase our understanding of the nature of ailments, as well as the functions and the efficiency of drugs and related healing practices.

However, Islam sets ethical guidelines that are designed to govern medical researches involving human subjects. It includes ethical principles such as respect of person, beneficence, non maleficence and justice. Islamic ethical guidelines of human experimentation stress the need for distinguishing between therapeutic and non-therapeutic experiment. Informed consent by a legally competent research subject is mandatory, but this does not legalize risky non-therapeutic experimentation with no potential benefit. Muslim jurist noted that researches should be conducted in a dignified manner that honors human life, health, dignity and rights. The ethical guidelines of human experimentation are part of Islamic ethical teachings. Quran chapter 17 verse 71 states that almighty Allah (s.w.t) "honored the children of Adam". This connotes that human beings are to be respected; the rights, dignity and honor of human beings are to be respected in human experimentation. The right of humans to make decisions implies that participation in human experimentation should be achieved only by means of voluntary consent (Tariq and Abdulrezaq 216). When recruiting a married woman for research, it is Islamically preferable to obtain the husband's consent.

A basic purpose of Islamic law is to "secure benefits for people and to protect them from harm" (El-gendy and Al-Awadi 121). This is termed beneficence, which implies that human experimentation is only acceptable when it secure benefits for people. Another one is termed non maleficence, which signifies the obligation of not inflicting harm on anyone intentionally. The Islamic shari'ah teaches that harm should not be inflicted or reciprocated. This denotes that a researcher should not inflict any harm knowingly on the experimental subject. Also, among the basic teachings of Islam is to be just, as reflected in Quran chapter 5, verse 8, and chapter 6 verse 135, which teaches fair dealing in all matters of life including human subject experimentation. Justice in human experimentation therefore, entails treating subjects fairly with due respect, regardless of their race or social status. There should be equitable distribution of burdens and benefits in the selection of subjects in research. In all, Muslim jurists permitted human subject experimentation in as much as it is morally justified and complies with Islamic Divine teachings.

Christianity and Human Experimentation

Christian community views the human being from the spiritual perspective. It believes that man is not just a physical being but also a spiritual being. Therefore, to have human experimentation that will consider the nature of human person and treat human being with value, researchers have to understand the human body as the tangible dimension of a unitary personal reality, which is at the same time corporeal and spiritual. He is not permitted to conduct an experiment which could conceivably result to mutilation or suicide because man is not just a "matter" to be used but an image of God. This will consequentially help the researcher to treat the human body with respect considering his complex corporeal-spiritual unity. In an experiment, the interest of the subject should be treated with respect. This can be seen in Jesus teachings in Luke 10:25-37, he taught of the need to treat others with high degree of respect that we would like for ourselves.

Christians believe that God created everything and has given us the power to understand the world around us. All truth comes from him, so, there are no ethical limits to the knowledge of the truth, and that is, there are no "barriers" beyond which the human person is forbidden to apply his cognitive energy. However, precise, ethical limits are set out for the manner the human being in search of truth should act since what is possible is not always morally permissible. Christianity upholds that there are no ethical standards when God is removed from science. If such happens, men will be propelled by the dictum 'the end justifies the means' which was condemned in the Bible that no matter the reasons, it is unlawful to do evil so that good may come. This denotes that even if the intention of human experimentation is to promote human health and advancement in science, it is wrong to do anything that contradicts God's commandment.

The ultimate aim of human experimentation must be the integral good of man. The means, procedures, it uses must fully respect every person's inalienable dignity as a person, his right to life and his substantial physical integrity. Pope, John Paul II, asserted that "the church respects and supports scientific research when it has a genuine human orientation, avoiding any instrumentalization or destruction of human being and keeping itself free from the slavery of political and economic interests." (John Paul II 4). The church will serve as a watch dog to identify and to point out to the society the values rooted in the dignity of the human person that are indispensable if we aspire to the true good of everybody, with the goal of deducing from them the ethical directives that can guide those involved in medical research field. This will consequentially prevent subject from being abused and exploited.

Christianity upholds the sanctity and dignity of human life for we are all created by God in his image (Genesis 1:27). According to Christian tradition, it is believed that every person is of infinite value, with the ability to make choices. Therefore, subjects should give informed consent before experimentation is conducted and special attention must be paid to the treatment of human subjects who are vulnerable and incompetent especially

in non-therapeutic experimentation. The researchers should be properly trained both in scientific and ethical fields, to be able to communicate in simple, and concise language without confusion or misinterpretation to aid informed consent. Subjects must be treated as a free and responsible individual not just an object that serves as a means to an end. Hence, any experimentation which degrades us as humans and diminishes our personhood is wrong.

Christians believe that the human embryo should be treated as precious human life made in the image of God, rather than as a disposable research material. The Bible affirms in this connection that human life begins at conception, it was recorded in Psalms 139:13-16 that "for you created my inmost being; you knit me together in my mother's womb. I praise you because I am fearfully and wonderfully made; your works are wonderful, I know that full well. My frame was not hidden from you when I was made in the secret place, when I was woven together in the depths of the earth. Your eyes formed my unformed body." This Bible verses depict that God oversees our entire life both in the womb and after the womb (Bioethics 5). Therefore, ending the life of an embryo, even if not yet born, is morally wrong and cannot be justified, regardless of how noble the cause may be.

Conclusion

Human subject experimentation brings tension between freedom of scientific inquiry and protection of individual inviolability. Commitment to human dignity and autonomy has served as constraint to medical advancement, while allegiance to human dignity and autonomy invites neglect to advancement of science and vice versa. The pressures of experimentation have affected the doctor-patient relationship, where the physician is the researcher while the patient is the subject for experimentation rather than treatment. The physician-therapist has been "cross-bred" with the ever emerging scientific investigator whose attitudes and loyalties are conditioned more by the laboratory than by his patients and whose preoccupation is, therefore, with designing and conducting effective experiments to solve problems not readily unraveled by simple and unsystematic clinical observations (Cheriff, etal 1604). A physician has to place his priorities of care for the sick and the desire for continued medical progress through scientific inquiry. These priorities may conflict and create ethical problems because he has to develop and redefine medical knowledge without sacrificing the welfare of the patient.

Moreover, if the emphasis in medical science shifts from therapy to experimentation, the quest for scientific discovery and medical advancement will undermine the morality of the physician to the extent that the patient's rights and well-being will be violated. However, if one depends on therapy alone without considering experimentation, scientific inquiry will move on a slow pace which could affect the health of human beings. This places us in a dilemma because we cannot overlook one for the other. Hence, there is a need to balance human experimentation and human's right and welfare

to achieve medical progress that will be advantageous to the subject and researcher, as well as scientific advancement.

From the views of bioethicist and theologians, it is observed that their common quest is a balanced society interest, which will protect individual well-being and autonomy and encourage the acquisition of knowledge through scientific investigation. This can be achieved if the researcher adheres to the ethical principles regulating human experimentation, which are not only considered in bioethics but also from religious perspective. These ethical principles include respect for human rights and dignity, sanctity of life, beneficence, non-maleficence, and justice. These will help to prevent unlawful, inhumane and unethical human experimentation, which expose humans to risk for the sake of the advancement of science and birth humanized medicine.

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