

## SCIENTIFIC FREEDOM & LIMITS- CLINICAL RESEARCH PERSPECTIVE

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**ABSTRACT:** Being a scientist, especially a clinical research one, is a noble but tough job. Scientific job is different from other jobs in terms of working hour and pressure; they need more freedom in their job & research that also put lots of responsibility on them. Research is funded by public money and it is the responsibility of scientists to gain maximum output from it. Clinical research is very complex and involves the use of animal, microbial as well as human samples and volunteers which make it more prone to ethical scrutiny. Minority of researchers who commit fraudulent use of public money & unethical clinical practice threaten public support for science. Now a day, there is growing concern of public and politicians on the freedom of scientists and unethical scientific practice in clinical trials. The most efficient measures to prevent scientific misconduct are awareness—notably, self-awareness—education and transparency. Most of the developed countries have formulated their own guidelines to ensure proper utilization and ethical clinical research and trials. Bangladesh is still lagging behind in terms of regulation and monitoring of clinical research and trials. This review aims to make related peoples to be aware of the necessity of its own guidelines for clinical research and trials.

**Key words:** Scientific, Freedom, Limitation, Clinical research

**INTRODUCTION:** Scientific Research is the only means of elucidating what is unexplored to human knowledge<sup>1</sup>. Scientists need freedom of thinking and research to gain maximum output of the money spent. The Universal Declaration on the Human Genome and Human Rights, which was adopted in 1997 by the General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), states that “freedom of research, which is necessary for the progress of knowledge, is part of freedom of thought”<sup>2</sup>. But, this freedom also raises the debate of implementation of some regulations to seal off any possible scientific misconduct<sup>3</sup>. Most of the more controversial issues in relation to freedom of scientific enquiry and research arise in the fields of medicine, biology and genetics where specific research potentially conflicts with the right to life or with the dignity of living beings including human<sup>4</sup>.

Some argues that bioethics and limitation in scientific freedom is suffocating the creativity of researchers in the biomedical field, and is seriously limiting the productivity of clinical research<sup>5</sup>. Other argues that as research is conducted by public money, there should be transparency, regulation and limitation in conducting clinical research so that ay research against morality should not be repeated again<sup>6</sup>.

**ABUSES OF SCIENTIFIC RESEARCH:** There have been many occasions in the past when shocking abuses of human rights were carried out in the name of scientific or medical research. The worst

examples are well known and include the atrocities carried out by Dr. Mengele and others in the concentration camps in Nazi Germany under the guise of medical experimentation<sup>7</sup> and the “experiments” carried out in the USSR in Stalin’s time by Prof. Ilya Ivanovich with the intention of interbreeding humans and chimpanzees<sup>8</sup>. Such abuses of human rights were by no means confined to totalitarian states, as the infamous example of the “Tuskegee Study of Untreated Syphilis in the Negro Male” demonstrates. This study concerned 616 African American males, who were given blood tests in 1932. Four hundred and twelve of those were diagnosed with syphilis. The test subjects were not told they had syphilis and were not treated for it despite the fact that after 1943 penicillin was available as a cure. The purpose of the research was to study the long term effects of untreated syphilis. The research was discontinued only in 1972 after a journalist reported on it. Meanwhile many medical experts had been aware of the study and had raised no objection<sup>9</sup>. What all these examples of human rights abuses have in common is that they were carried out on the subjects of the experimentation without their consent<sup>10</sup>.

**SCIENTIFIC FREEDOM IN RESEARCH INVOLVING HUMAN:** Research involving human genome and stem cells pose great threat to human race if conducted unethically. Introducing a sudden major discontinuity in the human gene pool might well create a major mismatch between our social order and individual capabilities<sup>11</sup>. Even a minor perturbation such as a marked change in the sex ratio from its present near equality could shake our social structures<sup>12</sup>. Debates on ethical practice and scientific freedom are thus mostly raised on research involving human subjects. Past unethical clinical research practice involving human subjects warns everyone about the necessity of regulations and scientific limits of clinical researchers<sup>13</sup>. Nuremberg code and the declaration of Helsinki reserve the right of any individual to choose himself/ herself to be included in any sort of clinical trial. To perform any clinical trial involving children, adult, elderly, handicapped or even prisoners, scientist must abide by some strict regulations and supervised by ethical review committees and the subjects could be included in these trials only by informed consent. No one is allowed to misuse scientific freedom for the sake of exploring new knowledge if it showed to be against human morality<sup>14</sup>.

**SCIENTIFIC FREEDOM IN RESEARCH INVOLVING ANIMALS:** Perhaps the first question to be clarified in any discussion of animal research is: which animals are to be included within the scope of consideration?<sup>15</sup>

Two primary issues can be identified in the animal research debate: (1) the consequences of the research and (2) the moral status of animals. Proponents of animal research usually advance arguments that appeal rather straightforwardly to the principle of beneficence. The weak form of the argument can be formulated as follows: Good consequences are achieved through the use of animals in research. A somewhat stronger claim is that at least some of these good consequences can be achieved only by means of animal research; that is, no alternative (nonhuman) means to the desired end exists<sup>16</sup>.

The empirical background for the strong claim by proponents of animal research is that intact, live animals respond to research interventions in complex ways that cannot be simulated through any other research technique involving non-animal systems. For example, administering a drug to a dog or presenting a learning stimulus to a rat may produce a complex reaction that affects multiple physiological systems<sup>17</sup>. At present such a response simply cannot be duplicated through the manipulation of cells in tissue culture or even through the use of sophisticated computer simulations. In theory at least, human subjects could be substituted for animal subjects and would be capable of producing the same kinds of complex response. However, given the painful, invasive, and even lethal character of much animal research, the use of humans in such research would itself pose serious ethical Problems<sup>18</sup>.

Critics of animal research can also appeal to the principle of beneficence. In response to the weak form of the proponents' argument, the critics urge that alternatives to animal research be more

vigorously explored and more actively employed. However, If animal research is the only means for achieving a desirable consequence, then the critic can respond by insisting on a conscientious weighing of research benefits against harms to animals<sup>19</sup>.

The second major issue in the animal research debate is the moral status of animals. This issue closely parallels the problem of personhood and the question of Fetal status. Some argued that animals can have rights because they have, or can have, interests. Among the rights ascribed to animals is the right to be treated humanely. Again some regarded animals as mere machines<sup>20</sup>.

To explain the moral status of animal, let us consider whether humans with extremely limited intellectual capacities- for example, severely retarded individuals-should be involved in painful or fatal research, as animals often are. Negative answer is based on the premise that we cannot "safely permit anyone to decide which human beings fall short of worthiness". Some will argue that "our respect for the interests of [infants and mentally retarded humans], and our neglect of the members of other species with equal or superior capacities, is mere 'speciesism'-a prejudice in favor of 'our own kind' that is analogous to, and no more justifiable than, racism"<sup>21</sup>.

**SCIENTIFIC FREEDOM IN RESEARCH AT THE MOLECULAR LEVEL:** When we move from the world of vertebrate animals to that of bacteria, viruses and DNA, our ethical problems concerning the research subjects are immediately simplified. Here there is unlikely to be a problem of sentience, and little philosophical ink has been spilled on the moral status of *E. coli* bacteria<sup>22</sup>.

Recombinant DNA research involves the joining of segments of DNA- the basic genetic material in all living things. This technique is important for many kinds of laboratory research, but in addition it has potential technological applications in such diverse fields as medicine, agriculture, and industry. Indeed, recombinant DNA methods are already being employed to produce medically important hormones, such as insulin and human growth hormone<sup>23</sup>.

Recombinant DNA research is of philosophical interest primarily as another instance in which risk-benefit analysis seems appropriate. Numerous reports depicts the potential benefits of recombinant DNA research and technology but cautions that the enthusiastic use of new technological capabilities in large-scale programs of genetic engineering could introduce "a sudden major discontinuity in the human gene pool" and thus could destroy the delicate balance between biological evolution and human culture<sup>24</sup>.

A reasonable public policy on recombinant DNA research in effect should combine the principles of autonomy and beneficence: the freedom of scientific inquiry should be protected unless the negative consequences of research significantly outweigh its positive consequences<sup>17</sup>.

**CONCLUSION:** It is the nature of scientists to shake every tree possible to explore ay field unknown to them. To do so, sometime they may perform some experiments that may stand against human ethics. For this reason, many countries formulates and imposed regulations on scientists performing research involving humans, animals or even recombinant DNA. To impose any limit upon freedom of inquiry is especially bitter for the scientists whose life is one of inquiry; but science has become too potent. It is no longer enough to wave the flag of Galileo. Such type of regulations may protect the human race against greater threats in future.

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