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# EDITOR'S NOTE: ETHICAL USE OF NEW TECHNOLOGIES IN BIOMEDICAL RESEARCH AND HEALTHCARE

## NOTA DEL EDITOR: USO ÉTICO DE LAS NUEVAS TECNOLOGÍAS EN INVESTIGACIÓN BIOMÉDICA Y ATENCIÓN SANITARIA

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It is increasingly evident that in the practice of health science research and education, as well as in professional healthcare, the incorporation of innovative technologies occurs very rapidly. Safeguarding the value of life and maintaining its full functionality over time, together with the pursuit of a comprehensive state of health, are priority objectives for both individuals and society. This creates an obligation for public authorities to meet these needs in a timely and efficient manner, and at the lowest possible economic cost. As in other areas of human activity, new technologies have become invaluable tools for enhancing our capacity to prevent, care for, or cure people's health problems[1]. Furthermore, professionals, guided by their ethical duties, are the first to adopt them as soon as they recognize their usefulness in healthcare, and they are also the ones who evaluate the validity of their use from both technical and ethical perspectives.

Technology is undoubtedly an instrument that prolongs and projects human action, multiplying its effectiveness and better satisfying diverse human needs. As in other aspects of human life, a person's legitimate health needs can become intertwined with other, less appropriate demands, which can lead to an abuse of technology by professionals, healthcare managers, and patients themselves. Thus, we perceive that, within the undeniably positive dimension of technology, there also emerge uses and applications that do not foster human goodness, but rather, in many cases, can diminish it or even seek to abolish it. Technology does not have ethical responsibility in itself; this lies with people, who are the only ethical agents, and as such, they define the purposes of technology as well as when a specific choice is made regarding its use. In conjunction, not only must technology have as its ultimate purpose the respect and promotion of the dignity of each human being and respect for the common good, but also that its specific use not contradict an intended service to the person or humanity. Once again, technological advances bring us face to face, first and foremost, with

1 New technologies in medicine include artificial intelligence for diagnosis and data analysis, telemedicine for remote care, and augmented and virtual reality primarily for surgical training and planning. Some authors also believe that certain therapies supported by the above technologies could be considered within these technologies. These include biotechnology with gene therapies and genome sequencing, nanomedicine for targeted drug delivery and advanced diagnostics, and personalized or precision medicine. All of these innovations seek to improve diagnostic accuracy, personalize treatments, optimize medical procedures, and make healthcare more accessible, while also saving the state unnecessary costs.

the need to increase the ethical goodness of people. Its possibilities can, depending on the greater or lesser corruption of the human will, serve to promote a life that is good among human beings or increase particular interests, generating injustice and unhappiness among people. Regarding the latter, it is imperative to be vigilant against what I would call a universal human temptation: to concentrate the pursuit of human happiness on a specific reality or to focus on something that eliminates the obstacles that impede it. By placing excessive trust, for example, in so-called artificial intelligence (AI), beyond what is actually possible, our future well-being might involve not only reducing our living space but also encouraging the abuse of some individuals over others. In short, in assessing or discerning the ethics of new technologies applied to health, we must first ensure that their use is framed within a realistic anthropological conception of what human beings are. In this way, we will avoid the intrinsic virtuality of a given technological tool from being hypertrophied, thereby imposing a specific way of comprehending human life, health, and illness. Secondly, we must analyze whether the specific tool is fair and, as such, does not directly violate any fundamental human right, which would render it ineligible. Only after this should we move on to an evaluation of the appropriateness of using a given tool, taking into account the various contexts in which it may be useful. Logically, the effectiveness of the technology must be considered first—whether in diagnostics, prognosis, or treatment, and should be maintained at levels comparable to the specific option it is intended to replace or serve as an alternative to. Following this, its ethicality must be studied based on multiple parameters, including the patient's age, clinical condition, severity of the pathology, and family situation, among others. These assessments will assist the professional in making prudent judgments and in their decision-making regarding the patient, always respecting their dignity and psychophysical integrity, as well as social justice. All forms of discrimination arising from access to the use of this technology or from solutions derived from it that could be biased by excessively utilitarian criteria must also be avoided. In this way, the use or not of the technological tool will be conducted rationally, freely, and as such, responsibly, never delegating the final decision to the tool itself. This approach should lead to the introduction of technological applications in a justified and transparent manner, which favors their use under the supervision of specialists, healthcare managers, and the general public. Finally, the ultimate goal of incorporating new technologies in healthcare must be inscribed within a therapeutic objective, not one that fosters new situations of marginalization or discrimination. Ongoing supervision and validation are also necessary so that the assessments, diagnoses, or tasks in which these technologies participate do not become automatic and immutable resolutions, overshadowing the irreplaceable role of the healthcare professional. To this end, the practice of professional honesty is more necessary than ever, necessitating the study and development of competence in the use of these tools. This ensures that the tasks performed by these technologies are never impersonal, if there is always a human element behind them, coordinating and affording their meaning. Along these lines, as technologies increasingly assist in tasks related to rationality or voluntary decision-making, increased and careful supervision will be required so that their use by professionals does not become, through convenience or indolence, a mechanical process that could replace their own specific task or make them excessively dependent on them[2].

2 We must never forget that these technologies are human creations and, as such, are influenced by the contingency inherent in everything produced by humans. This must be kept in mind when using these tools, which we have generated and will continue to generate based on our knowledge. These tools, especially in the field of experimental sciences, are subject to a certain provisional nature, due particularly to the bias of much of their evidence and to a continuous increase in facts that could modify previous conclusions, generating new conceptual frameworks that integrate previous ones with newly discovered ones. I think this is important because some of these new technologies operate with information and objectives assigned by certain human beings and are governed by processes introduced by program designers. Along with this, we must not forget that within the field of human sciences, there are diverse positions on how to understand human nature and its various activities, which requires providing these technologies with a transparency that makes it easier for their users to recognize, at all times, where the elements of persuasion or conviction come from. In this last section, we must remember that, as in knowledge, so too in human decision-making, emotions play an important role and may be used to influence others toward a certain position or behavior. This means that new technologies, especially AI, should not "play" emotional games with those who use them, clearly de-

Such control or supervision tasks demonstrate that the tools used are precisely what their name indicates: tools for a task performed by a professional who, with their intention, anchors the results obtained with that technique in reality. The responsible adoption of a particular technological tool by a subject also hinders another human temptation: the tendency to lose one's sense of reality. Disconnection from reality, which can occur when one immerses oneself in an imagined or virtually generated reality, is very easy for humans, and adapting to it makes it increasingly difficult to recognize its unreality. This can create a danger: it can become a fictional world that replaces life itself. This, in the long run, can lead to greater exposure to suffering or even the exploitation of a person's weaknesses by others. Thus, the presence of a technically and ethically well-trained healthcare professional responsible for its use can bring out the best in a technological tool, eliminating the harmful effects of its misuse. Furthermore, it can even enhance close and personalized patient support to the point of improving the therapeutic alliance, avoiding the loneliness that patients might experience if they are abandoned due to excessive use of new technologies. Along these lines, the use of various tools with the ongoing support of a professional can easily prevent a certain level of personification from developing in relation to the use of various AI applications. This may occur both to healthcare professionals in data analysis, image recognition, or diagnosis[3], and to patients when they use these tools as a therapeutic aid. Ultimately, it is about not allowing the clinical relationship to become subordinate to "machines," nor for healing, caring, or research activities to rely on their activity.

Finally, it is well known that, over the past fifty years, there has been continuous ethical progress in the field of healthcare, focusing on increasingly exquisite protection of all aspects related to patient privacy. This privacy is highly vulnerable to violation, both due to the increased vulnerability caused by illness and to the knowledge of aspects of the patient's privacy acquired as a result of the clinical relationship, whether as a result of the disease being treated or in connection with it. The use of these new technologies and the potential they may hold cannot be used to justify any regression in the area of confidentiality, as we have a human right to have our privacy respected. Nobody's good reputation should ever be diminished or become part of a social media spectacle that exploits the thirst to know, nor should they be exposed to such an extent that it cedes a certain level of control over one's life to others.

I conclude with a series of recommendations that I believe are implicit in the above reflections. a) New technologies applied to health must contribute to the growth of human beings as such, facilitating greater awareness and responsibility regarding one's own dignity. b) New technologies are instruments, a way of expanding an individual's possibilities, enabling them to grow as a person and contribute to the good of others. Given their potential, they can be highly effective in increasing the bonds between human beings; however, at the same time, their design or use against the goodness of human beings can cause greater harm when related to very specific capacities of human nature, whether in the intellectual or volitional spheres. c) Along with this, we must always be responsible for their application, ensuring their proper use, supervising the results, guiding their development, while also safeguarding users from any possible confusion or deception between reality and the virtual realm generated by these technological tools. In particular, it is necessary to avoid any phenomenon of personal transfer or possession, in which feelings, emotions and patterns of human relations are unconsciously projected onto the tool, or the tool subtly dominates the user psychologically. d) Finally, and in relation to that previously stated—all these technolo-

monstrating their inhumanity, and their designers should avoid, as far as possible, producing idealizations or emotional dependencies in their users, resulting from a misrepresentation of them.

3 In my opinion, within healthcare services, where professionals make extensive and continuous use of various data evaluation tools, such as clinical images, that later have a significant impact on healthcare, it is necessary for the benefit of the patient and their corresponding appropriate professional care, to take measures—which can configure internal protocols—to supervise this work, reducing not only the errors that may occur but also the updating of programs, their suitability, as well as the possible modification of the results based on the characteristics of the patient and their clinical condition.

gies are human products and have errors, such as those specific to AI called "hallucinations"—it is important to disseminate to society an integral vision of the human person, so that it is not belittled before our own eyes by the same reality that we have generated, which only imitates some human qualities. In these technological applications, there is little more than an appearance of humanity and a reality that lacks the most essential part of humans: consciousness with its reflective reflexivity, understanding, which actively generates new concepts in connection with real objects[4], a human will that wants to want[5] and, as such, freely loves, desires, and tries to achieve what it wants responsibly.

4 The Aristotelian-Thomistic theory of knowledge has always recognized that human intelligence possesses a passive dimension, receptive to concepts, but that these concepts emerge from the sensory data provided by the senses. Therefore, this intelligence has an active dimension. It is an agent that makes evident or manifests—abstracts—from this sensory information an essential concept that will later enable other tasks of reason, such as judgment or logical reasoning. This presupposes that human intelligence, unlike that of animals, "is capable of apprehending means as means, which is to say that man can not only know the things that are means, but also, precisely, realize that those means are such. What distinguishes humans from animals is, at this point, a human's capacity to know that the environment is a means, which in turn implies, in general, that humans have the faculty of knowing 'being.' This faculty is what is called understanding, and by possessing it, humans are not limited to the grasp of concrete and singular corporeal forms but can also extend it to the abstract corporeal forms and, in general, to everything that is." Millán Puelles, A. Fundamentos de Filosofía. Madrid, Ediciones Rialp, 7th edition, 1970.

5 "Not only through love does man seek to grow in his being on a physical, psychological, or ethical level, but his most intense loving, his deepest love, is related to other men. Thus, we can observe that in human life, there is a special type of love that we call benevolent or friendly. This type of love, defined in Greek terms as "Agape," seeks to unite with the other—something that is the effect of all types of love—but not by appropriating the other, but rather by giving oneself to the other, seeking their good and making it as effective as possible. It is a love that attempts to affirm the other in their being, that does not seek to take advantage of them. We are faced with a gratuitous, unconditional love, a gift or present to the other […] Moreover, receiving the gift demands reciprocity from us, so that in the end we aspire to communion and to transcend our being into a higher "us." In this way, human beings, who are constitutively incomplete and not self-sufficient, achieve their greatest fulfillment through interpersonal relationships, which generate an intersubjective communion and refer our "I" to a "you." A love that leads us to resemble the other, that leads us to think and desire in common, that creates a history from the reciprocal gift of self, a task that grows with the passage of time and wants to last forever... Is this possible in technological organisms? Will they be capable of making a sincere gift of themselves to each other? Will they be able to perform acts that entail fidelity to love? Or, will they be capable of generating a free and unconditional love for others? Will they seek happiness in their lives? Pastor LM Considerations on the human being. His uniqueness in the face of current anthropological conceptions of a techno-scientific nature. Naturaleza y Libertad. Revista De Estudios Interdisciplinares, 13(1), 104-117. 2020.