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Articles

Bioethics and sociology: the place of social studies of science and technology

Bioética e sociologia: o lugar dos estudos sociais da ciência e tecnologia
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Bioética y sociología: el lugar de los estudios sociales de la ciencia y tecnología
(resumen: p. 16)

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The social sciences have integrated the analytical and normative practices of bioethics. However, with some exceptions, the proposals have been epistemically limited to the methodological scope and strictly directed to biomedical care practices. Taking some data on the strategies of production of new drugs by the pharmaceutical industry, this essay intends to demonstrate the possible contributions of the social studies of science and technology to a theoretical-methodological foundation of bioethical analyzes around global health issues, such as the production and distribution of technologies. We conclude that at least three types of analyzes would benefit from this proximity: analyzes of the epistemological integrity of the health sciences; ethical-political analyzes around the access and security of new and old health technologies; and ethical-philosophical analyzes of harmful attitudes of the scientific community and health professionals in relation to health care.

Keywords: Bioethics. Social sciences. Technology. Global health. Pharmaceutical industries.

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Introduction

The first approaches of the social sciences towards Bioethics, in the 1980s and 1990s of the last century, were in the sense of presenting strong criticisms to the deliberative theoretical models that were being presented by the new discipline, such as: inability to respond to the moral plurality of modern societies and to the cultural diversity of distinct people and countries, and, the insufficiency of the theoretical conception of "applied ethics," whose legitimacy of the normative propositions is guaranteed by an internal rationality to the models, which minimizes the effects of socioeconomic and political contexts.

However, since the beginning of this century, new associations between the social sciences and bioethics have become increasingly frequent, and, before the end of the first decade of this century, sociology was already considered as part of bioethical enterprise. In general, they propose the use of social science research methods as support to bioethical reflections.

These proposals are most referred to as "empirical bioethics" involving a wide range of methodologies and different theoretical perspectives on the best way to articulate the normative analysis of bioethics with data on the lived moral experience in the conflict in question[1]. Wangmo *et al*.[2] studying the frequency of publication of empirical studies in 9 important international journals of Bioethics, showed the proportion of empirical papers increasing from 14.9% in 2004 to 17.8% in 2015.

Several authors, however, especially those who work with the concept of Critical Bioethics, have been defending, since the beginning of the present century to the present day, an alternative to bioethics through a sociology of bio-knowledge, which benefits from theoretical content from several critical fields, including feminism, critical theory, anticolonialism, and science and technology studies[3-10].

The most of these propositions persist around the questions involving biomedical practices at the inter-subjective level of care. Therefore, a greater gap is identified around the discussion on how sociology could contribute to a theoretical foundation of bioethics, aimed at global themes, such as transnational scientific practices and production and access to health technologies.

In this sense, taking some data about the production of new drugs by the pharmaceutical industry, this article was to demonstrate how categories and concepts of some of the main contemporary streams of social studies of science and technology can constitute a to theoretical-methodological foundation for analyses and investigations of the Bioethics involving broader themes on global health.

Brief overview of the Sociology of Science

The sociology of science originates from the sociology of knowledge, an area that was solidified in the middle of the 20th century from the work of Karl Mannheim[11]. This perspective maintained that the production of any type of knowledge could only occur within a historical and contextual reality, negating the positivist aspirations that proposed the production of knowledge through exclusively cognitive processes and guided by an a-historical and universal reason. It fell to Robert Merton[12] to advance the sociology of science within this broader spectrum of the sociology of knowledge. Although he recognized the importance of Mannheim's original contributions, he criticized the concept of knowledge adopted by him, considering it so broad that it was impossible to distinguish scientific statements from popular sayings.

Therefore, Merton[13] sought to build a theoretical-conceptual framework capable of distinguishing science from other forms of knowledge and understanding the social function of science through its commitment to relevant and socially responsible scientific practices, which he defined as scientific ethos. Thus, in examining the possible linkages between science and democratic social structure, he identified four institutional imperatives for scientific practices: 1) universalism – the technical and ethical evaluation of scientific works must meet universal criteria; 2) skepticism – when analyzing the data, the researcher must be free of prejudice not to reach wrong conclusions about their results; 3) disinterestedness – the scientist should not be moved by any interest, beyond the expansion of human knowledge; and 4) communism – the knowledge generated by scientific research is a common heritage of humanity and not the private property of individuals or groups.

It is exactly around the 1970s that a new theoretical current in sociology emerged proposing an approach quite different from Merton's understanding of scientific production. These are the social studies of science and technology, supported by social constructivism, deeply influenced by authors, such as Ludwik Fleck, Ludwig Wittgenstein, and Thomas Kuhn.

Khun's[14] analyses sought to derive epistemological conclusions from the history of science, investigating how the very organization of scientists in communities, their practices, sharing of methods and results, and the group's own identity became the foundation of legitimate knowledge. According to Kukla[15], the strength of this work produced a slow shift in the focus of sociological analysis on science, which gradually ceased to focus on the organizational analysis of the means of interaction and production of norms within the scientific community, to dwell on the very contents of science, the socially constructed results of practice and discourse.

Several constructivist strands in the sociology of science emerged from that moment on. Obviously, as it is particular to the field of social sciences and humanities, there are countless discussions in the literature about its foundations and methods, but it can be considered common to all of them that the understanding that scientific statements are representative and performative social constructions of reality, whose legitimacy depends on several factors. Among these factors are the 1. practical applicability of results; 2. quantity and relevance of the technologies developed; and 3. negotiations carried out within a complex network permeated by political, economic, and social interests, where the implications of the research results are evaluated[15].

To present the possible contributions of the connection between the social studies of science and technology and bioethics, we chose four among the most discussed and cited constructivist theoretical propositions: The Strong Program of Sociology; The Study of Scientific Controversies; Laboratory Anthropology; and the Sociology of Technology.

The Strong Program

The Strong Program, as developed by Barry Barnes[16] and David Bloor[17], was perhaps the proposition that put social constructivism at the heart of the sociology of science, inaugurating a tradition that influenced practically all later studies on science and scientific knowledge. Its initial action was to counter Merton's functionalist perspective that hitherto dominated the discipline, and it achieved this in two principal ways. First, by opposing the idea of science as a social institution that acts in an independent, pure, disinterested, and almost isolated way, far from the way contemporary scientific groups truly act. Second, refuting that the task of the sociology of science was limited to investigating the functioning of scientific institutions, leaving questions related to the cognitive content of scientific knowledge, its scope and limits, as the exclusive object of the philosophy of science; this generated a controversy with philosophers that persist to the present day.

Bloor[17] claims that sociology has advantages over philosophy in the study of the nature of scientific knowledge, as it can use empirical methods, properly scientific, which reduce the effect of ideological interests and affiliations, common to philosophical output in the field of epistemology. It is worth mentioning that the designation "strong" is based exactly on its determination to face the cognitive questions surrounding the sciences.

The Strong Program is especially interested in the process of forming scientific beliefs, said to be institutionalized with power and social authority and endorsed by a community of knowledge holders. To guide the execution of these studies, Bloor proposes four fundamental principles: 1. Causality – studies must address the identification of causes, social or not, that promote scientific beliefs, as states of knowledge; 2. Impartiality – studies must seek to investigate both true and false causes, successes and failures, rational and irrational processes in the production of scientific beliefs; 3. Symmetry – the same types of causes must be able to explain both true and false beliefs; and 4. Reflexivity – the standards used to explain the process of forming beliefs must be applicable to sociology itself.

One of the first conclusions of the impact of the Strong Program was the demonstration of how the social force reached by science, because it provides the most accurate description of the origin and functioning of nature, covers it with a "sacred aura" that gives it an ability to maintain, over time, the social respectability of its practices, the capacity to resist external attacks, the authority to define everything outside of science, and the enormous power of transcendence to influence other fields, like a religion itself.

In this context, the audacity of this proposition was to follow a tendency contrary to the dominant trend and investigate the entire scientific field, not from specific parameters but from the analytical parameters of the sociology of knowledge itself, considering it as one among various fields of knowledge.

The Study of Scientific Controversies

One research program proved to be very relevant to the issues forwarded by the Strong Program, the Empirical Programme of Relativism (EPOR), developed in the 1970s and 1980s, by Harry Collins[18,19]. EPOR proposed an empirical and micro-sociological program, which is why it came to be known as the empirical face of the Strong Program. It promoted, according to Hess[20], indisputable methodological and theoretical advances for the sociology of scientific knowledge. Again, what mattered here was the science under construction.

The investigations had scientific controversies as their object, when scientists and other actors try to produce important changes in what is assumed to be correct without reforming the entire structure[20]. In controversies, there are a set of more engaged actors, forming opposite sides in the dispute, "allies and enemies" called the "Core-set"[19]. These groups of scientists directly involved in the practices of experimentation and observation, with contributions to theories about the studied phenomena themselves or about the experiments, produce effects on the result of the controversy, either by change or by reinforcing the belief of other scientists, considering that the beliefs of some scientists are affected and others are not[18].

The core-set should not be understood as a separate group from society, nor analogous to a set of people who adhere to common paradigms, because what interests EPOR is to show the relationship between social factors, dynamics of scientific controversies and conflicts that occur even among members who share the same paradigm. Collins[18] maintains that the core-set is better understood as a non-cognitive uniform set, since, as stated, there is competition between members who share the same paradigm.

According to Hess[20], EPOR produces a methodological bifurcation for the study of knowledge production and its stabilization. On the one hand, it is necessary to consider the constitutive forum (where it is theorized, experimented, and published) and, on the other hand, the contingent forum (where "gossip" is disseminated to the general public, new members are recruited and support from organizations is sought). Collins[19] considers that crossing these limits is the foundation for the acceptance of knowledge, because it aggregates and reaches other institutional spheres besides the scientific one.

Furthermore, EPOR considers the temporal and spatial dimensions beyond the areas where controversies take place. According to Neves[21], one must consider the time-spatial shift in relation to the place and period in which the controversy occurred. If the controversies, experiments, and social devices used to overcome it are not observed, it will not be known how the "boat was placed in the bottle".

Laboratory Anthropology

The anthropological tendency of social studies in science and technology also conceives scientific knowledge as methodological conventions and socially constructed, reproduced, and validated discourses. Following the same path as the Strong Program, it considers that science does not have a distinct nature from other social practices, as classical epistemology would have us believe, by attributing it a higher cognitive power, achieved by its own and exclusive rationality.

The work that underlies this perspective is Laboratory Life: The Construction of Scientific Facts by Latour and Woogar[22]. The authors take from anthropology the notions of material and immaterial culture with which they seek to approach, through the daily observation of laboratory work, the theories, technical instruments, and products generated by techno-science. The micro-sociological nature of this proposal, while supported by field research, is quite different from theories based strictly on historiographical research and text sources, such as those undertaken by the Strong Program.

Similarly, by involving an entire network around scientific practice formed by human and non-human constituents, both the closest and the most distant, the proposal breaks with the tradition of social studies in science that investigated only the relationships between scientists within a purely institutional dimension of science.

In the book Science in Action: How to Follow Scientists and Engineers Through Society, Latour[23] delves into the notion of the network as a complex system formed by human elements (scientists, laboratory technicians, engineers, managers, sponsors, research subjects, and members of evaluation committees) and non-humans (the physical structures of the laboratory, scientific literature, measuring instruments, and even laboratory animals), whose interactions must also be observed in a continuous process. This means that the ethnographer must proceed with a disciplined observation that addresses both the internal and external context of the laboratory and favors the identification of the number and nature of the actors participating directly or indirectly in scientific practice.

Laboratory anthropology studies science as it is happening, and therefore, according to its authors, it is more effective for investigating scientific activity as a social practice. It is also more capable of generating data on operationalization of scientific rationality in practice and on the construction of arguments that seek to persuade the community as to the validity of theories and practices. These procedures brought about empirical elements that reinforce the foundation for the construction of sociological theories on scientific knowledge.

The new Sociology of Technology

This branch is a welcome extension to the studies of technological systems, derived from constructivist positions in technology. John Law[24] sought to give equivalent treatment to areas such as the social, economic, political, natural, and technical. For the author, controversies regarding technology are resolved based on the establishment of these spheres in an arrangement that stabilizes divergent characteristics and interests: the form that these elements take in the network can be, and often is, a function of the technological and natural characteristics of the system[24]

In this web of stabilization and conflicts between different spheres of action, the relationship between them is contingent, and rearrangements and reframing always occur. Therefore, the closing of a scientific and technological controversy will depend on the network arrangement that is established between the disputing heterogeneous elements in the construction of the technological system[21].

The process by which people, skills, and artifacts are associated with a certain natural phenomenon is called "heterogeneous engineering". It is considered successful when the heterogeneous network manages to maintain stability in the face of attempts by other entities to dissociate the network into its components, undoing the established associations[24].

Thomas Hughes[25] is another author who has advanced the sociology of technology, using the category "technological system" widely. Here, one must also consider a diversity of components: organizational, legislative, economic, scientific, political, and physical artifacts. Hughes points out that the juxtaposition of these heterogeneous elements is due to the function of the system, within which an artifact, whether physical or not, interacts with other artifacts, contributing together to the common objective of the system. According to him, we always tend to undervalue an entire system of electric light because what interests us is the light bulb.

The construction of broad technological systems, such as the world wide web or the gas distribution and garbage collection system in large cities, among others, demands strategies from the entrepreneurs, who invent and develop the systems. Enterprises that, as Law suggested above, are the result of heterogeneous engineering. The elements take on characteristics and positions depending on the system they are connected to and the network to which they are integrated, positions that change with the modifications of a certain scope; for example, when a technical tool is updated.

For Hughes, the system cannot be autonomous; on the contrary, it is the result of the decisions of the builders (entrepreneurs) of the system. Therefore, he suggests the concept of *momentum*, meaning that the consolidated system presents an "inertia of movement," with its trajectory defined by objectives, interests, fixed assets, and all sorts of characteristics. Therefore, technological systems are the fruit of decisions taken in various contexts. The relationship between decisions and contexts endows systems with specific styles, related to countries, climates, geography, politics, and other contextual characteristics[25].

The system will present its style when the stages are consolidated — invention, development, innovation, transfer, growth, competition, and consolidation — and this involves the way the process was conducted (decisions), the components that were part of the process, and the economic, political, and social characteristics present in the context[21]. Therefore, according to Constant[26], each phase will have a particular "technology culture", composed of different values, ideas, and institutions.

It is interesting to note that from the early 1970s, there was greater development in the sociology of science that coincided with the rise of bioethics. Some contextual situations can be considered as motivations for both events: the new social, ethical, and political challenges imposed by scientific and technological advances; growing influence of the capitalist market on scientific interests; emergence of public and government spaces for ethical regulation and the fostering of research, which conferred on other social actors not belonging to the scientific community the power to influence decisions about scientific practices; and the constitution of technological systems with global reach, which faced all kinds of resistance, from political to cultural. To demonstrate the possible contributions of this strains in the social studies of science and technology to a theoretical-methodological foundation of analyses and normative propositions of Bioethics, we will take as a situation of concern the production of new drugs, scientific beliefs around this process, and ethical problems that have been pointed out in the literature.

Creation of new drugs as an ethically questionable model of technological production

Since the famous 10/90 gap, presented by a World Health Organization (WHO) report in 2002[27], showing that 90% of drug research investments worldwide were directed to only 10% of the total burden of morbidity on the planet, it became more evident how much drug production is motivated by the profit of large pharmaceutical companies and not by real needs of health. The classic study by Chirac and Torrelle[28] showed that of the 1566 new drugs produced between 1974 and 2004, only 21 were directed at diseases exclusively prevalent in developing countries. Other studies have shown the same trend, where innovations in the production of new drugs do not exceed 15% of production and denounced the appropriation by large industry of research results derived from public funding[29,30]. Meanwhile, the small portion of innovations produced seems to be directed at high-cost drugs, targeting a small niche in the world market. Among the ten best-selling drugs in 2017, six of them were monoclonal antibodies and were responsible for 69% of the $75.3 billion revenue[31].

It has been pointed out that the drop in the production of innovations has worsened in the last three decades, after the signing of the Trade-Related Aspects of Intellectual Property (TRIPS) agreement in 1994 by the member countries of the World Trade Organization (WTO), which extended the notion of intellectual property to medicines, giving companies the exclusive marketing rights during the first 20 years of patent registration. This fact made it cheaper and, consequently, more profitable for companies to produce imitation drugs, also called “me-too,” aimed at the most prevalent group of chronic diseases, with a captive market, with basically two objectives: replacing a previous product with an expired patent or competing with a successful drug produced by another company[30,32].

Even more serious are the researches that suggests the existence of a systematic practice of data manipulation by the big pharmaceutical companies. Since the beginning of this century, several studies have shown that clinical trials funded by the industry result in favorable outcomes for the test drug at a frequency of 4 to 20 times higher than in independent trials for the same drugs[33]. A more recent meta-analysis involving all this research confirmed a four times higher frequency of favorable results in studies promoted by the industry as well as a lower record of adverse effects[34].

Two other problems of important ethical dimensions have been frequently reported in the literature: the first, the massive financial support of the pharmaceutical industry to medical congresses and other scientific activities, which for some, disguises marketing activities as education[35], and the second, institutionally promiscuous relations involving pharmaceutical industries and the health regulatory agencies of countries[36], such as the exchange of high-level executives and managers between these two sectors.

Despite everything this picture briefly described and solidly demonstrated in the literature, there is evidence that, in general, doctors continue to maintain trusting relationships with the big industry. The belief persists that innovation is the main activity in the industry and that the latest drug is, in general, better than the previous one. Apparently, doctors do not show any major concerns that the raw data on which the calculations of clinical trials that demonstrate the superiority of a new drug are rarely made available to the scientific community for independent verification.

Possible contributions from the sociology of science to the ethical examination of the issue

This picture, briefly described, demonstrates the complexity of the network involved in the production, promotion, distribution, and access of a new medicine. It is evident that an analysis of the ethical issues involved in such a scenario must involve an examination of the context of this production that considers the interests involved, the political, economic, and social influences, as well as the formation of the beliefs of researchers and prescribing doctors in the current system of technological production of new drugs.

In contrast, knowledge about the hegemonic Anglo-Saxon theoretical models of bioethics, based on the conception of "applied ethics," demonstrates how insufficiently grounded they are to address this and other ethical problems of global dimensions in the field of health. It is in this sense that we seek to demonstrate how theoretical connections between bioethics and social studies of science and technology in a stricter manner, represented here by the tendencies above, can contribute to a sounder foundation of ethical analyses on production, distribution, and access to new technologies in the health field. Thus, we are facing two references that could combine the normative logic of bioethics with the substantive dynamics of the social studies of science and technology.

A first practically consensual assumption among all the prevailing views, despite having been announced more forcefully by the Strong Program, is the opposition to a conception of science as an independent social institution, whose practices are carried out in a pure way with the main interest of furthering scientific knowledge. This assumption is clearly demonstrated by data on the concentration of drug production in the most prevalent chronic disease niches and in those of high-cost. Making use of the dynamics of the interests involved, whether instrumental or cognitive, in the production of these drugs, may show hierarchical dynamics that govern such an industrial niche.

Thus, the "sacred aura" that science has achieved according to the Strong Program can help in the ethical examination of the consequences for patients of the frequent uncritical posture of researchers and doctors regarding the industrial production of drugs or the engagement of these professionals in multinational clinical trials, in which the exploratory character of the communities involved was confirmed, sometimes through judicial condemnation.

Similarly, we can speak of an attitude of belief of doctors in clinical trials, often very similar to that of religious belief, when they accept without convincing evidence — since access to raw data is not available and, consequently, independent reproducible tests of analyses and calculations are impossible — the superiority of the new drug over the old.

Furthermore, we emphasize that the four principles of the Strong Program should be considered when we seek to study medical beliefs in a new medication. In other words, a causal analysis must be performed, seeking the possible social causes for the scientific beliefs. We should be impartial in the analysis, directing studies to both true and false beliefs, and be guided by the principle of symmetry; in that we should take seriously that the same set of causes can define both true and false beliefs. This theoretical framework serves to investigate the process by which the beliefs of researchers and doctors have been established in clinical trials and new drugs produced by the industry, as well as the techno-scientific controversies that constantly emerge in contexts of such strong economic interests.

The Study of Scientific Controversies (EPOR) can help, for example, support descriptive ethical investigations on the existence or not of a crisis of innovation and the legitimacy of clinical trials financed by the industry, by identifying the groups of “allies” and “enemies” of the current scientific and political processes of producing new drugs. From these studies, it is possible to assess a certain interpretative flexibility based on the different interests, not only economic, of the groups involved in the controversy.

The model also offers us a way to investigate the nature of the phenomenon that can alter the beliefs of the scientists who stand on both sides of the controversy and study the social dynamics involving the institutional engagements and networks of action of these groups. In this sense, the categories of constitutive forums and contingent forums can help us understand the role of researchers both in the social space — properly academic and scientific — of the universities and research centers, as well as in public spaces where they seek to publicize their perspectives, seek funding or engage with members new to the group.

In the same sense, an approach to this universe of problems from an ethnographic perspective could follow researchers and their research, from the pharmaceutical laboratory, where the molecules are separated, chosen, classified and the pre-clinical tests performed, all the way to the health facilities where clinical trial executing groups comply with research protocols. Thus, such studies could generate interesting perspectives to understand the beliefs of the researchers in their results, as well as the ethical and ideological positions of the groups.

It is worth noting that this approach proposes forms of investigation that are well differentiated from the two previous trends because it focuses on prospective field investigations, instead of transversal or retrospective investigations of a documentary and historiographic character. In addition, its conception of networks consisting of human and non-human elements allows the production of studies on the influence of access to raw material and equipment, in addition to the ways of dealing with research animals, involving another field of action in bioethics, that of animal protection.

Finally, the current approach to the Sociology of Technology, insofar as it analyzes the stabilization of technological production by establishing solid arrangements between divergent interests, whereby the natural and technical areas of scientific practices are compared to those social, economic, and political, can make a substantial contribution to the global understanding of ethical conflicts around drug production.

It is widely known that the pharmaceutical industry is an economic power that for the past 20 years has always been among the top four in the profitability rankings of industrial activity on the planet. In this sense, industry arrangements with the governments, legislative chambers, and regulatory agencies of countries; the possible manipulation of clinical trial results; massive funding for medical congresses; financial contributions to medical associations, patient associations, and scientific journals, all of these actions already well reported in the literature, can be considered as part of the "heterogeneous engineering," which in the sense given by Law, socially stabilizes the current production strategy of the pharmaceutical industry.

Thus, the ethical questions that have been asked need to understand this strategy as part of a technological system, as defined by Hughes[25], involving private organizations, such as biotechnology companies, and non-governmental organizations, such as the WHO and the WTO, in addition to legislative artifacts, such as the TRIPS agreement and national laws, that allow the direct transfer of results of basic research financed with public money to the industry.

Furthermore, given the heterogeneity and complexity of elements involved in stabilizing belief in the effectiveness of new drugs, it is also important to pay attention to the obvious prominence surrounding the expansion of the sociotechnical product through the most varied societal spaces. In other words, how does the system act in the event of resistance or demands, changes in clinical procedures, loss of confidence, or breach of patents? All these elements cross the sociotechnical system mobilized by a new medicine and, in this heterogeneous network, it must be considered that bioethics can be both an important stabilizing or destabilizing agent.

For example, to understand the ethical conflicts around the production and access to drugs at a global level, it becomes essential to consider that the technological system of pharmacological production results from the decisions of the "system entrepreneurs," based on objectives, interests, and fixed assets. This is what allows the system to remain the same, despite the existence of much evidence about illegitimate scientific artifacts within it. This *momentum* guarantees the "inertia of movement" that prevents significant transformations in the industry's production strategies.

Final considerations

In presenting, albeit superficially, due to the limits of a brief communication, the conceptual bases of some of the main contemporary tendencies of the social studies of science and technology and some ethical problems involved in the current strategies to produce new drugs by the pharmaceutical industry, we believe we have managed to demonstrate the possible and important theoretical and practical contributions from the field to the foundation of bioethical analyses.

At least three types of analyses in the field of global problems involving health technologies would benefit from a closer proximity between Bioethics and sociology of science: analyses of the epistemological integrity of health sciences and their ethical consequences; ethical-political analyses around the access and security of new and old health technologies, understanding these elements as indispensable for the fulfillment of the fundamental human right to health; and ethical-philosophical analyses of harmful postures by the scientific community and health professionals.

In this sense, we are defending the need to overcome an epistemic construction of bioethics based solely on the articulation of moral philosophy with health sciences, such as the one that has characterized the hegemonic Anglo-Saxon theoretical models based in the “applied ethics”.

Authors' contribution

All authors actively participated in all stages of preparing the manuscript.

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Conflict of interest

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As ciências sociais têm integrado as práticas analíticas e normativas da bioética. No entanto, com algumas exceções, as propostas têm sido epistemicamente limitadas ao âmbito metodológico e estritamente direcionadas às práticas de cuidado biomédico. Tomando alguns dados sobre as estratégias de produção de novos medicamentos pela indústria farmacêutica, este ensaio pretende demonstrar as possíveis contribuições dos estudos sociais da ciência e tecnologia para uma fundamentação teórico-metodológica das análises bioéticas em torno de questões globais em saúde, tais como a produção e distribuição de tecnologias. Concluímos que pelo menos três tipos de análises se beneficiariam dessa proximidade: análises da integridade epistemológica das ciências da saúde; análises ético-políticas em torno do acesso e segurança de novas e antigas tecnologias em saúde; e análises ético-filosóficas de posturas nocivas da comunidade científica e dos profissionais de saúde em relação à assistência à saúde.

Palavras-Chave: Bioética. Ciências sociais. Tecnologia. Saúde global. Indústrias Farmacêuticas.

Las ciencias integran las prácticas analíticas y normativas de la bioética. Sin embargo, con algunas excepciones, las propuestas han sido epistémicamente limitadas al ámbito metodológico y rigurosamente dirigidas a las prácticas del cuidado biomédico. Tomando algunos datos sobre las estrategias de producción de nuevos medicamentos por la industria farmacéutica, este ensayo pretende demostrar las posibles contribuciones de los estudios sociales de la ciencia y la tecnología para una fundamentación teórico-metodológica de los análisis bioéticos sobre de cuestiones globales de salud, tales como la producción y distribución de tecnologías. Concluimos que al menos tres tipos de análisis se beneficiarían de esa proximidad: análisis de la integridad epistemológica de las ciencias de la salud, análisis ético-políticos sobre el acceso y la seguridad de nuevas y antiguas tecnologías de salud y análisis ético-filosóficos de posturas nocivas de la comunidad científica y de los profesionales de salud con relación a la asistencia de la salud.

Palabras clave: Bioética. Ciencias sociales. Tecnología. Salud global. Industrias farmacéuticas.