Review Article

Medical Practice and Its Relationship to the Medicalization, Biomedicalization and Technologicalization of Society and Life

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Abstract

Medical practice, which is defined as the development of doctor-patient relationships, is a technical procedure that is carried out in a social context, which is historically determined and affects society. Elements of this relationship involve doctors, patients, and social contexts interacting in a bidirectional manner. In the last century, the field of health, through doctor-patient relationships, has permeated society and tendencies derived from medical practice such as medicalization, pharmaceuticalization, and technologicalization of health and life, have emerged. These changes have involved the development of society and the advancement of various fields of knowledge that permeate and modify medical practice. All of these changes are designed to improve the quality of healthcare services. Due to such changes in the doctor-patient relationship and in the practice of medical profession, new questions regarding economic, legal, ethical, epistemological, and ontological ordering have been raised and must be analyzed from different points of view to ensure that the objectives of medical practice are not deviated from an aim to support the welfare of individuals and society. These topics are analyzed in this paper and it is suggested to include this discussion in graduate and undergraduate medical education.

Keywords: DOCTOR-PATIENT RELATIONSHIPS, MEDICAL PRACTICE, MEDICALIZATION, PHARMACEUTICALIZATION, TECHNOLOGICALIZATION OF HEALTH CARE

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Introduction

Medical practice, despite involving intimate relationships between two subjects, is by nature a social act that is influenced by the environment where it manifests and in turn feeds its environment, because participants are not isolated entities but they form a part of a social conglomerate (e.g., a family, community, or society) in which they have developed as individuals (1). As medical practice is a social act, its effects or consequences affect not only individuals but also the environments within which these individuals develop (2). Rather, medical practice transcends the place where it is performed and the persons that it involves (3). The environment also influences the doctor-patient relationships; thus, a bidirectional influence is generated here (4). This paper presents a narrative review of these issues. For the present review, a bibliographic search of the PubMed and SciELO databases and the Google Scholar search engine was performed using a combination of the following terms: medical practice, doctor-patient relationship, medicalization, pharmaceuticalization, and the technologicalization of health care.

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Doctor-Patient Relationships

As the doctor-patient relationship involves a technical procedure that is carried out in a historically determined social context, which affects society, it is necessary to characterize its elements, which include participants,

doctors and patients, the social context itself, and the ways in which contexts determine the interpretation of a disease by a doctor, a patient, and society (5-7).

Among the participants of medical practice, the doctor is a key element on whom a large proportion of professional, ethical, economic, and social responsibility rests. Professional responsibility is related to the values, norms, and rules that regulate medicine as a profession. Ethical responsibility implies acting within one's professional framework without going against established social rules oriented towards guaranteeing the common benefit. Economic responsibility is related to an ability to regulate health spending and the use of resources for each individual and to ensure the availability of healthy individuals who are economically productive or, despite being sick, have a minimal social cost, present minimal risks to others, and act to guarantee the survival and continuity of society. The social responsibility of the doctor implies ensuring that an individual can enter society, be accepted, and contribute to collective welfare (8).

Another key element is the patient, whether healthy or sick, for whom duties and responsibilities also fall under the same ethical, economic, and social responsibilities (9). Finally, society is another key element of medical practice, as it serves as a framework in which such relationships can be formed. This framework has a series of elements of economic, religious, cultural, and political values, which are necessary for medical practice, as they establish complex norms, institutions, and health systems. However, when they become essential to the relationship or regulate it, defining this unilaterally can distort medical activity (10). In many cases, various institutions such as pharmaceutical companies, health insurance companies, political ideologies, and cultural movements, have influenced medical practice. One area through which this has had more or less an effect is regarding addictive substances, which is the prescription, use, and abuse of analgesics and the prescription and use and abuse of psychotropic substances, such as cocaine, LSD, and amphetamines (11-14).

This social context can directly or indirectly influence the development and presentation of pathology itself. This influence manifests through variables such as living conditions and habits, class conditions, economic incomes, types of work, exposure to risk factors, and multiple harmful agents, which affect not only the state of physical health but also the mental health status of individuals. Some of these aspects are clearly detected during the anamnesis at which the patient is questioned on his or her social, economic, or educational background.

On the other hand, the social context also encompasses the state of science and medical knowledge at a given time, which determines the identification of a disease by a doctor and especially by a patient. Depending on this context in which the doctor and patient perceive disease, a series of functions, attitudes, and interpretations will be defined by each participant. These will also have a positive or negative influence on the development of the doctor-patient relationship. From here, attitudes, such as trust, and conviction between the actors of medical practice are derived. In the same way, the social framework defines the development of the medical profession, its orientation (types of medical schools), and opportunities for medical defence (in a technical sense) against a disease (15-18).

The social context allows one to clarify to the patient his expectations and needs in terms of results with respect to his or her doctor, therapist, or healing practitioner. This is related to the fact that the social context determines a certain general position in relation to medicine, the doctor, and institutional medical structures. It is sufficient to describe the evolution of the attitudes of people regarding the hospitals from the late 19th to the early 20th century, during which intrahospital infections were responsible for high mortality rates. One can

contrast late 19th century views of hospitals as a «place of death» with the current notions of hospitals as a «place of health» and even as a health industry or medical factory. The evolution of these ideas has been shaped not only by people and citizens but also by the evident development of society and by the development of medical knowledge, which is reflected in changes in its own hospitals' structures. This attitude is related to a more general problem regarding the objectives of medicine in a certain social context to prevent, cure, or rehabilitate (19, 20).

New Type of Doctor-Patient Relationship?

While medical practice is an activity in which two individuals interact, technology enters as an element that can facilitate diagnostic processes, prevention, and treatment but can also limit this relationship. No one denies, for example, the utility of radiological techniques ranging from those of simple conventional radiology to such complex techniques as nuclear magnetic resonance and computerized axial tomography among others, nor can we deny the importance of multiple clinical laboratory test methods developed over the last century, including biochemical, genetic, and immunological tests, among others. However, magnifying the role of technology in the health field can cause data, paraclinical reports, and medical equipments to first address patients and their conditions (21).

Virtual Doctor-Patient Relationship and Virtual Medical Practice

With the accelerated development of telecommunications, microelectronics, and information systems used for medical activities, there is the possibility of creating alternative forms of medical practice whereby classic direct interactions between two individuals will be replaced by the use of other communication systems. Other forms of anamnesis, physical examination, and paraclinical realization will be developed, and there is the possibility of one or more of these processes being abolished (22).

As such, with the development of modern telecommunication technologies, processes such as those of teleconsultation allow one to answer health-related questions from a computer at any time and to in turn secure reliable and immediate answers without the occasionally intimidating presence of a doctor. This also highlights the possibility that medical practice can be performed not by two people but by an unlimited number of individuals. Telesurgery has also appeared, implying the realization of remote surgical interventions with advice from specialists in the field. Telepathology also involves analyzing histological and/or pathological samples and which basically involves the remote transmission of photographs of histological sections or anatomical parts, and teleimagenology and teleradiology involves the transmission of medical images (x-rays, nuclear magnetic resonance imaging (NMI), and computed tomography (CT)) for their analysis and interpretation (23, 24).

Such trends necessarily involve changes not only in what to do as a doctor but also in the training of future health professionals. Other alternatives raise questions regarding how to address knowledge in general and medical knowledge in particular. These alternatives, which differ from classical medical teaching, involve the use of computerized techniques (simulations, teleconferences, virtual surgery, robots, and mannequins) that necessarily generate other mental processes through which knowledge appropriation is realized. However, this opportunity for learning, on one hand raises questions regarding whether the real patient from whom one learns will be displaced, and on the other hand, whether the trained physician can respond adequately in real time and interpret individuals as a whole and as human beings (25).

Additionally, aspects mentioned above are modified and re-evaluated, among which epistemological elements include what area

of reality is known and how reliable knowledge is. Ethical aspects involve a broad range of conflicts, which are permanently evaluated in light of bioethics. Hermeneutical aspects involve the analysis of new texts where the body, the organic, and the concrete are relieved by virtual reality (26, 27).

Doctor-Patient Relationship and the Medicalization of Society

A tendency to approach life from a medical perspective has permeated other areas of society, creating a tendency to medicalize life (28) through many of its natural physiological processes and even through all of its stages (29-31). An example of this can be found in medical approaches to natural physiological phenomena, such as sleep, rest, childhood, adolescence, menstruation, sexual activity, pregnancy, childbirth, and aging, among others, which are increasingly addressed from the medical point of view (28, 32, 33). From here, modern diagnoses are derived (e.g., premenstrual tension syndrome, sexual dysfunction, pregnancies of diverse risk, chronic fatigue syndrome, post-holiday stress syndrome, menopause, and andropause). Also evident is the increasingly important presence of medicine in fields such as sports, wherein high performance athletes and amateurs are permeated with concepts related to hydration, nutrition, analgesia, and anabolics among others. This medicalization determines patterns of behaviour in the social sphere where a human conglomerate (e.g., a family, particular human groups or society overall) can consider an individual who does not conform to the behaviours of the masses abnormal, as supported several times by concepts of medical knowledge that are distorted by the dissemination of such information through the mass media via the use of false or distorted news. Such controversies and conflicts on what is considered normal and pathological can be related to various aspects of the human being, but perhaps one of the most frequently used, which has generated the most discussion, is the one that is related to brain-mind issues and to the diagnosis of psycho-social diseases, such as mental illnesses, whereby concepts related to normality and abnormality are frequently questioned and debated. It is in this field where the incorporation of new diagnoses and the proposal of new therapies generate more tension, giving rise to ruptures, new trends and new schools of thought (5, 26, 33). All of these elements render medical practice a controversial activity subjected to constant debate and criticism. When medical practice is governed by economic, religious, or cultural patterns, its quality and purpose can be compromised (34, 35). However, it can also be questioned when exercised with medical authoritarianism (paternalistic medicine) without considering the patient or when it predominates the patient's word in which a client must be satisfied (mercantilist medicine) (36, 37).

Some Types of Medicalization: Pharmaceuticalization and Health Technification

The diagnosis of new clinical entities has been achieved due to opportunities to study the human body and its processes in ever greater detail. Regarding this, the contributions of disciplines such as molecular biology, biochemistry, genetics, biophysics, and engineering have been key elements to the development of various diagnostic tests and sophisticated equipments that have allowed one to broaden the view of the doctor to beyond visual, auditory, or tactile fields. This has led to a tendency for clinicians to depend to a greater or lesser extent on new technologies designed for the diagnosis, monitoring, treatment and/or rehabilitation of individuals, regardless of whether or not they are ill. From this, health technology has invaded every human activity, extending beyond medical practice and the hospital environment (38). We see how every day, the clinical doctor relies more and more on a series of clinical, laboratory, and automatic aids (paraclinical examinations, radiological images, computerized systems of surveillance, and patient control), in many cases limiting

his or her interaction with patients and/or families. This has been facilitated by the development of new technologies, such as biomaterials, artificial organs, and smart prosthetics. A kind of barrier that separates the doctor from the patient is then formed, limiting opportunities for human contact (39). In the same way, medical practice has become so technologically focused that even the patient feels dissatisfied when, during his consultation, he does not receive one or several multiple exams within his reach or if one or several sophisticated forms of medical equipment is not available (40, 41). In many cases the professional capacity of the doctor is questioned when he avoids the use of paraclinics or technological aids. Similarly, societies now view hospitals and clinics as health factories (42-44). Bodies enter these factories to be repaired or reconstructed or to wait for a spare part (organ donations, transplants, prostheses, and implants). Great advances in bioengineering have contributed to this notion, allowing one to assume that symbiosis between man and machine will become more common every day. All of this occurs while forgetting or without considering that each piece of the human organism is an element exposed to irreversible changes based on time and its functions. From this tendency, the influence of Cartesian rationalist thought is evidenced where the human organism is considered a machine composed of multiple pieces amenable to repair (45). This mentality permeates society at all levels. It is not uncommon then to meet patients who require liposculpture, skin colour changes, implant prostheses, and heart valve operations, and in many cases, they consider the possibility of receiving a transplant before the doctor does. It is also common when there is a fatal outcome (the patient´s death) to hear phrases such as "You let him die" and "He did not operate in time", revealing a view of the body as a consumable machine whose life can be prolonged with a change of parts or with scheduled repairs (26, 29, 33, 38).

On the other hand, over the last century, the development of drugs has experienced exponential growth and has spurred the emergence of pharmaceutical industries that invest large sums of money in the research and development of medicines. This has led to the creation of a market for medicines that has often influenced prescriptions by directly or indirectly inducing doctors' and patients' decision-making and a need to prescribe or consume drugs that often have no therapeutic indication and that in many cases pose risks to one's health. Numerous terms (e.g., polypharmacy, self-medication, overdose, intoxication, drug iatrogenic, orphan drugs, and essential drugs) describing various situations in which the use of drugs is involved and questioned have been created. However, these terms, such as self-medication, overdose, etc., basically reflect a tendency to use drugs in each and every stage of life is part of the medicamentalization or pharmaceuticalization of society (33, 46-48).

Doctor-Patient Relationship, Technology, and Its Impacts on Health Care

The rise of technology in the medical field and its use specifically, affords the doctor a tension factor, given that it is driven from two fronts regarding to use a service or not. Pressures for them to be widely used, sometimes without sufficient evidence or adequate scientific criteria, come from society through the patient and/or his or her relatives, in turn demanding that adequate and sufficient clinical and paraclinical technologies be used to clarify diagnoses as quickly as possible and to support therapeutic effectiveness. Furthermore, through different mechanisms (mass-media communications, medical visits, and gifts) the industry (pharmaceuticals, biotechnologies, and medical equipments) pressures the health professional to recommend the use or acquisition of new products to benefit the patient. On the other hand, pressures to limit or eliminate the use of medical technologies come from different health insurers and institutions "recommending"

rationalization (read restriction) in the use of technological resources to limit costs and waste. Society, families, and religions sometimes put pressure on the doctor to limit his intervention and to reject the patient's instrumentation and invasion from which the doctor observes limited professional capacity. These tendencies increasingly limit possibilities of carrying out an adequate preventive medicine, improving the health outcomes of a given population (24, 49). Although technology appears to guarantee success in medical intervention, it can become an object that exacerbates the divisions and inequalities characteristic of today's society (50, 51). This inequality results from the impossibility of less favoured classes (mostly salaried, unemployed, and homeless) of acquiring such services, creating a gap between the rich and poor. Health and disease in turn broaden due to the presence of a class minority whereby the wealthy people can easily purchase medical services while a disadvantaged class is largely unable to access basic health care services. It is thus evident that there is inequality between developed countries and third world countries or between countries that generate knowledge and countries that adopt and adapt knowledge (52).

Finally, and without pretending to deny the benefit that medical technologies afford in patients care, it is worth determining whether technology helps improve patients' healthcare or simply guarantees the existence of dependent individuals (clients) and permanent consumers of technology for the benefit of a few (who are not necessarily patients). Increasing the life expectancy of a specific population of chronically ill individuals could hardly be realized without such resources or when little is done to improve or eliminate their basic pathologies, guaranteeing a relatively stable and robust market (53).

Current Doctor-Patient Relationship and Ethical Aspects

Ethical aspects are likely to be some of the most important issues pertaining to current doctor-patient relationships. Identifying such new alternatives within medical practice involves modifying concepts related to privacy, reservation, and patient confidentiality, as it allows other participants to intervene in medical practices while altering the traditional doctor-patient scheme (54).

In the same way the reservation of clinical history (patient confidentiality) comes into question, as other individuals can easily access information stored or transmitted through different public communication media sources and especially through the Internet network. Examining individuals from a distance involves not only contemplating the possibility of making errors in the execution of clinical and paraclinical histories associated with the interpretation of problems already analyzed but also the possibility of making errors inherent to technologies (55) and especially to the technology of telecommunications, which involve aspects related to the emission, processing, transmission, and reception of data; maximum transmission capacity, signal conditioning processes, analysis and reading of signals, processes through which errors can easily occur, eventually place the health and lives of patients at risk (56). These limitations and potential problems require that new participants be involved in health care processes that involve engineers, technicians, and assistants from different areas of the health technology sector, and this also implies extending to them the responsibilities that medical practice demand (57, 58).

Doctor-Patient Relationship and Medicalization; Balance and Perspectives

The practice of medicine is constantly enriched by the application of new knowledge and new and better technical resources. However, this has generated crises in the practice of medicine due to tensions between quality in healthcare and costs derived from healthcare. This crisis of medicine affects medical practice, triggering clashes between participants,

dissatisfaction, anguish, and aggression, and this occurs because the patient demands what in his view the state, the doctor, and ultimately science can and should offer him. In the face of such demands, the doctor as a counterpart is powerless or limited in his professional capacity before the overwhelming (and sometimes significant and contradictory) advancement of knowledge and the technification of health, although sometimes this impotence is not consciously recognized (59). Many of the established biological models presented and taught to students and health professionals are transient and temporary and frequently fail to address gaps between macrocosm and microcosm and between life and death (60).

This crisis extends beyond medical practice and to the entire health sector and even to society as a whole and reflects a crisis of the end and beginning of the century that affects all levels of society. Global overpopulation with changing age groups exposed to old and new pathogens (environmental pollution, radiation, droughts, new viruses, more aggressive bacteria, harmful habits, etc.) generates acute and chronic health problems of an epidemic nature on several occasions, increasing health care costs. Costs that imply investment in health personnel, health infrastructure, new pharmaceutical products, and new technologies are all aimed at improving the quality of life and health care services. However, this is not achieved and what often results is the development of poor quality health services (often provided under inhuman conditions). All of these factors spur the deterioration in the quality of life of individuals who contradictorily are those who ultimately bear such high costs, which are growing increasingly higher. This jeopardizes one of the fundamental human rights of society: the right to live (61).

Unfortunately, some people have always tried to profit from the misfortunes and pain of other people. Perhaps this is why wars occur, as some die in the name of an ideal and of a flag while others live comfortably with privileges obtained from such wars. Perhaps this is also why the illicit drug market exists, where the profits of a few (the traffickers) are obtained at the expense of the deterioration and degradation of a social group (the consumers). With current trends, it is to be expected that such phenomena will be transferred to the health field because unfortunately current pain, disability, old age, sickness, and death profit a few. In this respect, the doctor and patient are simply soldiers or victims who offer their lives without understanding why or for whom they have fought.

Given that there is a strong relationship between those who participate in medical practice and historical-social contexts, it is reasonable to apply an interdisciplinary approach to human sciences such as sociology, anthropology, economics, and history that allow a more open and broader debate on issues relating to economics and health, health and society, medicine and its role in history, and medical anthropology. Permanent discussion and study about medicalization in Schools of Medicine may assist in nurturing undergraduate and graduate students in becoming more insightful, reflective, and finally, to get better professionals. Such debates can enrich and contribute to a new and broader vision of the practice of medicine every day and thus support the development of better healthcare services and health conditions. The relevance of this debate on medical practice, on its individual and social impacts and on its conclusion and recommendations will impact health care services and will largely determine the future of society.

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