



# Clinical Practice in the Techno-Science Age: Living in Crisis

Alireza Monajemi<sup>1</sup>

<sup>1</sup> Assistant Professor, Department of Philosophy of Science and Technology, Institute for Humanities and Cultural Studies, Tehran, Iran

## Theoretical Study

### Abstract

Both doctors and patients are confronted with phenomena that, despite repeated attempts, have not met the expectations of medicine, and are gradually becoming anomalies, which, if enlarged, can be spoken of as a medical crisis. Some of these anomalies are the increased popularity of complementary and alternative medicine, medicalization, medical errors, and commercialization of health, technological development, the placebo effect, care of chronic illness, inadequate medical interventions in mental illnesses, increasing ethical issues, and finally, engagement in philosophical discussions in the medical community. The crisis of modern medicine is highly connected to more fundamental questions about the essence of medicine and its goals. The main thesis of this essay is that reflection on the relationship between practice, theory, and technology is essential to the determination of how the manipulation of science and technology leads to a crisis in clinical medicine. The crisis of modern medicine is due to both the scientification and technification of medicine. In this essay, scientification refers to a project that has attempted to extremely scientize medical practice. In this sense, clinical practice is merely an application of scientific laws and theories in order to diagnose and treat disease. Medicine is basically a practice; it is neither science nor technology. This essay is divided into two parts; part 1 is on the etiology of this crisis and part 2 on the fundamental role of philosophical reflection in the crisis of medicine. Finally, I defend the idea that philosophical reflection in medicine helps physicians to understand the medical crisis, and constraints of medicine to the extent possible and the ways to resolve them. Therefore, every theory and concept in the philosophy of science and medicine that helps the understanding of the crisis of medicine should be taken into consideration.

**Keywords:** Clinical practice, Technology, Crisis

**Citation:** Monajemi A. **Clinical Practice in the Techno-Science Age: Living in Crisis.** *Int J Body Mind Culture* 2018; 5(2): 84-8.

Received: 1 Feb. 2018

Accepted: 25 Mar. 2018

### Introduction

Both doctors and patients are confronted with phenomena that, despite repeated attempts, have not met the expectations of medicine, and are gradually becoming

anomalies, which can be spoken of as a medical crisis. This crisis threatens the practice of medicine and prompts the medical profession to change its roles. Some of these anomalies are increased popularity of complementary and alternative medicine, medicalization, medical errors, and commercialization of health, technological development, placebo effect, care of chronic

### Corresponding Author:

Alireza Monajemi

Email: monajemi.alireza@gmail.com

illness, inadequate medical interventions in mental illnesses, increasing ethical issues, and finally, engagement in philosophical discussions in the medical community (Monajemi, 2018; Marcum, 2012).

Crisis is defined as an unstable and dangerous situation in which it is not possible to remain, and it is necessary to decide how to resolve it. The critical condition of medicine is due to the fact that it does not meet our expectations or, in other words, has lost some of its functions, and therefore, patients, physicians, and society are not satisfied with its current condition.

The current paper will present the argument that the crisis of modern medicine is highly connected to more fundamental questions about the essence of medicine and its goals. Furthermore, understanding the relationship between practice, theory, and technology is essential to the determination of how manipulation of science and technology leads to a crisis in clinical medicine (Gadamer, 1996). The crisis of modern medicine is due to both the scientification and technification of medicine. Scientification, in this essay, refers to a project that has attempted to extremely scientize medical practice. In this sense, clinical practice is merely an application of scientific laws and theories in order to diagnose and treat disease. Medicine is basically a practice; it is neither science nor technology

### **Crisis of medical etiology**

The scientification of medicine project has aimed to show how the practice of medicine through the application of scientific knowledge - here the natural sciences, especially physics, chemistry, and biology - can explain, diagnose, and cure diseases. Historical evidence suggests that medicine started to become scientific much later than the seventeenth-century scientific revolution and more specifically in the nineteenth century.

The scientification of medicine has had many consequences. The first consequence

has been the reduction of the patient to disease and the disease to a disturbance at the cellular and molecular level (Marcum, 2008a). For this reason, the practice of medicine does not entail attention to the patient, but should focus on searching for disease in the patient's body in order to discover a dysfunction at the cellular-molecular level. Therefore, the discovery of such dysfunctions is sufficient to understand the problem of the patient, and how to diagnose and manage him/her. This has dehumanized medicine and will ultimately lead to the crisis in medicine.

Considering the disease as a positive object is one of the most important achievements of medical science. In the pre-modern era, the disease is an imbalance. From this point of view, the disease is a type of negation to which nothing can be attributed, and inevitably, health is considered to be positive (Foucault, 1973). However, this relationship has been overturned in the modern world and anatomical pathology has been developed by describing bodies in a way that diseases could be considered positive, which, according to the scientific method, can be regarded as a scientific phenomenon (Foucault, 1973). This paved the way for a positive interpretation of disease in medical science. In this way, health that may turn into something negative (disease) has become synonymous with the lack of illness. When medical science talks at the level of theory, explanation of disease is very crucial. Therefore, the diagnosis becomes the highest priority because it provides a scientific explanation of the patient's problem. In scientific explanation, we face a phenomenon that needs explanation so that it can be explained based on a set of universal rules and specific conditions for this issue. As such, the doctor's work is like a scientist who must be able to provide a scientific explanation for the problem that is equivalent to medical diagnosis.

When the disease becomes an object of positive knowledge that can be discovered scientifically, the medicalization process begins

as there is no realm outside the field of medical science and anything can become a disease. Positive disease may nest anywhere, and thus, all of the moments of human life can be considered as a potential disease even without any subjective complaint. Medicalization gives medicine the power to manipulate all aspects of human life, and therefore, shifts the medical crisis into a new phase.

As the result of extensive scientification of medicine, the propositional nature of medical knowledge (versus its practical implicit knowledge) becomes more and more prominent and this produces a false popular impression that searching and reading medical texts can be helpful in understanding what doctors think about our problems and why they ask us to consume specific drugs. This lay knowledge about medicine leads to a misunderstanding of patients and disrupts the real and efficient dialogue between the doctor and the patient. Patients are under the impression that doctors merely listen to them when they use medical terms, despite the fact that this way of talking with doctors, although helpful, has many negative consequences in the doctor-patient relationship.

One of the crises in modern medicine is chronic illness (Marcum, 2012). Modern medicine has, since its inception, defined its goal as the reduction of the mortality rate of acute illnesses and, in most cases, it has succeeded. However, today, chronic disease has become a new problem; diseases that neither kill, nor can be cured. Chronic diseases have no cure, but they require care and we have to learn to live with them. These conditions are completely new to modern medicine. Under these conditions, modern medicine does not have effective treatment, and it can even be said that chronic diseases are basically a modern medical failure. For this reason, many alternative or complementary therapies highlight the limitations of modern medicine. For example, osteoarthritis is characterized by inflammatory changes in the joints, especially the knees; thus, repeated visits cannot help patients and only

frustrate doctors. In other words, it seems that the physician has lost his/her function and has not fulfilled expectations.

The scientification of medicine can be traced to both medical education and clinical practice. In other words, medical students have to learn how to apply scientific knowledge in their practice. In the early 20<sup>th</sup> century, in the United States, Abraham Flexner, an American educator, was visiting North American medical schools to report on their curriculum. His work resulted in a report known as the "Flexner Report," (Flexner, 1910) and heavily influenced the medical education and curriculum of medical schools around the universe. His advice was that doctors should think as scientists and, in order to do so, they need to learn basic sciences, i.e., biomedical sciences. Since then, medical school curriculum was reformed in a way that medical students, upon entering medical school, first begin to study for two to three years in medical sciences such as anatomy, physiology, immunology, and biochemistry, then, the knowledge of scientific explanation of disease, i.e., pathophysiology. Subsequently, they enter the hospital to learn scientific-based clinical practice. The disease has become a positive object that is objectively detectable and proven, and thus, attention to the patient's remarks, which are subjective and unconvincing, has become faint. Since then, the medical community has sought to discover diseases in the patient's body based on objective findings and paved the way for the technification of medicine.

Today, in clinical practice, technology has become an inseparable part of the physician-patient relationship. Technology is used in diagnosis, such as the use of X-rays and CT scans, or can play a therapeutic role, such as in dialysis. The introduction of technology made it possible for physicians, as scientists, to approach patients as their objects; therefore, quantitative measurement has played a crucial role in clinical practice and communication with the patient has lost its

significance, because for gathering precise and objective information, there is no need to talk to patients. Technology forms a unity with patients, and doctors are directed at the ways in which technology represents patients. In most hospitals, patients need to compete with technology to attract the attention of physicians. Doctors often obtain information they need without having to talk with the patient or paying attention to their complaints and needs by simply resorting to technology. This is one of the hallmarks of the crisis in modern medicine

### **The fundamental role of philosophical reflection in the crisis of medicine**

To understand the medical crisis, we must first understand the nature of medicine. Medicine is a hybrid of biomedical science (basic), clinical research, and practice. Practicing medicine with the aim to manage patients requires both the knowledge of how to diagnose and treat diseases, which is the result of clinical trials, and the fundamental understanding of what goes wrong, which is the subject of biomedical research.

Since the scientific revolution, and precisely, late in the nineteenth century, many attempts have been made to scientitize medicine, and to treat clinical practice as a pure science. It should be noted that not only is clinical practice not a pure science, but also it has many dimensions that are not in accordance with this type of scientification (Marcum, 2008b; Fleck, 1992; Sadegh-Zadeh, 2013). In response to the medical crisis, two approaches to the nature of medicine can be identified, "Medicine as Science" versus "Medicine as Art". These two approaches have traced two of their present-day representatives, patient-centered versus evidence-based medicine (Marcum, 2008b).

I would like to defend the idea that philosophical reflection in medicine helps physicians to understand the medical crisis, and the constraints of medicine to the extent possible and the ways to resolve them. Therefore, every theory and concept in the

philosophy of science and medicine that helps the understanding of the crisis of medicine should be taken into consideration. Thus, the question that should be addressed here is: Which theories and schools of philosophy of science are suitable for medical students and doctors? It is clear that the author believes that the theories, doctrines, and concepts of the philosophy of science are not appropriate; however, some of them could be applied in this field, so we have to choose between them.

Among the topics of the philosophy of science, scientific reasoning, the structure of scientific theories, the problem of demarcation, and the paradigm crisis and shift were related to the crisis of medicine. The "medicine as science" approach draws an analogy between clinical reasoning and scientific reasoning. In other words, doctors think about their patient in the same way that scientists approach a problem in terms of information gathering, hypothesis formation, and hypothesis testing. Clinical reasoning is not only entirely different from scientific reasoning, but also this insufficient and simplistic formulation of medicine leads to the medical crisis.

One of the major sources of the scientification of medicine is the attempt to bring medical theories closer to basic science theories like physics and chemistry. It has been shown that these two theories differ in terms of structure and the attempt to bring the structure of medical theories closer to basic science theories leads to the crisis of medicine (Fleck, 1992; Sadegh-Zadeh, 2013).

Despite the general agreement about the teaching of the philosophy of science to medical students, there is still no systematic and methodological model for the implementation and application of the concepts of the philosophy of science in medical education. Future studies should investigate the way to systematically and methodically apply the concepts, theories, and frameworks of the philosophy of science in medical education, and highlight how

philosophical reflection can be influential in dealing with patients.

### Conflict of Interests

Authors have no conflict of interests.

### Acknowledgments

None.

### References

Fleck, L. (1992). Founder of the philosophy of modern medicine. *Canc J*, 5(6), 403-503.

Flexner, A. (1910). *Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching (Bulletin No. 4)*. Stanford, CA; Bulletin Carnegie Foundation for the Advancement of Teaching.

Foucault, M. (1973). *The birth of the clinic: An*

*archaeology of medical perception* (pp. 124-148). London, UK: Routledge.

Gadamer, H. G. (1996). *The enigma of health: The art of healing in a scientific age* (pp. 1-30). Stanford, CA: Stanford University Press.

Marcum, J. A. (2008a). *An introductory philosophy of medicine* (pp. 17-31). Dordrecht, Netherlands: Springer Netherlands.

Marcum, J. A. (2008b). *An introductory philosophy of medicine: Humanizing modern medicine*. (pp. 17-31, 301-335). Dordrecht, Netherlands: Springer Netherlands.

Marcum, J. A. (2012). Medicine's crises. In J.A. Marcum (Ed.), *The Virtuous Physician: The Role of Virtue in Medicine* (pp. 1-28). Dordrecht, Netherlands: Springer Netherlands.

Monajemi, A. (2018). All-thing-considered misconception. *Int J Body Mind Culture*, 5(1), 1-2.

Sadegh-Zadeh, K. (2013). *Handbook of analytic philosophy of medicine* (pp. 789-806). Dordrecht, Netherlands: Springer Netherlands.