



CIRUGÍA y CIRUJANOS

Órgano de difusión científica de la Academia Mexicana de Cirugía
Fundada en 1933

www.amc.org.mx www.elsevier.es/circir



GENERAL INFORMATION

The dimension of the paradigm of complexity in health systems[☆]



Guillermo Fajardo-Ortiz*, Miguel Ángel Fernández-Ortega, Armando Ortiz-Montalvo and Roberto Antonio Olivares-Santos

Subdivisión de Educación Continua, División de Estudios de Posgrado, Facultad de Medicina, Área de Sociomedicina, Universidad Nacional Autónoma de México

Received 17 October 2013; accepted 5 March 2014

KEYWORDS

Paradigm;
Complexity sciences;
Health systems

Abstract

This article presents elements to better understand health systems from the complexity approach, a position that moves away from the linearity, rigidity, and directional. It is characterised by the study of the emergence of unexpected behaviours, oriented to explain and understand more completely what happens in health systems. The current systems are becoming overwhelmed.

The complexity paradigm represents a conceptualisation different to the prevalent epistemology, non-isolated, non-reductionist, or fixed. It does not solve the problems, but presents other bases to fully understand the physical, biological and social systems. It is a perspective that has its basis in the systems theory, informatics and cybernetics beyond traditional knowledge, the positive logics, Newtonian physics and symmetric mathematics, in which everything is centred and balanced. It is the link between the “soft” and “hard sciences, and takes into account the determining factors of social health and organisation culture.

Under the complexity paradigm the health systems are identified with the following concepts: entropy, negentropy, the second law of thermodynamics, attractors, chaos theory, fractals, self-management and self-organization, emerging behaviours, percolation, uncertainty, networks, and robustness. These expressions open new possibilities to improve the management and better understanding of the health systems, giving rise to consider health systems as complex adaptive systems.

© 2015 Academia Mexicana de Cirugía A.C. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

[☆]Please cite this article as: Fajardo-Ortiz G. et al. La dimensión del paradigma de la complejidad en los sistemas de salud. Cirugía y Cirujanos. 2015; 83: 81-86.

*Corresponding author: Juárez 14, Casa 11. Col.: Tlacopac, San Ángel. Deleg. Álvaro Obregón. C.P. 01040 México D.F., México. Teléfono: 5628 1008, 5623 7253.

E-mail address: gfortiz@unam.mx (G. Fajardo Ortiz).

PALABRAS CLAVE

Paradigma;
Complejidad;
Sistemas de salud

La dimensión del paradigma de la complejidad en los sistemas de salud**Resumen**

Se presenta información para entender los sistemas de salud desde el enfoque de la complejidad, posición que se aparta de la linealidad, lo rígido y lo direccional, caracterizándose por el estudio del surgimiento de conductas inesperadas, orienta a explicar y entender en forma más completa lo que ocurre en los sistemas de salud; los esquemas actuales están llegando a su agotamiento. El paradigma de la complejidad representa una epistemología diferente de la prevalente, no aísla, no es reduccionista, ni «acartonada» en cuanto a saberes, ni pretende resolver problemas; presenta otras bases para conocer en forma más completa los sistemas físicos, biológicos y sociales. Tiene como fundamentos la teoría de sistemas, la informática y la cibernética, va más allá de los conocimientos tradicionales referentes a la lógica positivista, la física newtoniana y las matemáticas simétricas, en que hay equilibrios. Trata de vincular las ciencias «duras» y «blandas», tiene presente los determinantes sociales de la salud y la cultura organizacional. Mediante este paradigma, en los sistemas de salud hay «cuantización» y «matematización», manifestándose, entre otros, a través de la entropía, la neguentropía, la segunda ley de la termodinámica, los atractores, la teoría del caos, los fractales, la autogestión y autoorganización, las conductas emergentes, la percolación, la incertidumbre, las redes y la robustez; dichas expresiones abren nuevas posibilidades para conocer y mejorar los sistemas de salud, en cuanto a su gerencia, en que hay continuos zigzags, surgimientos, desapariciones, crecimientos, afirmaciones, negaciones y contradicciones, considerando a los sistemas de salud como sistemas complejos adaptativos.

© 2015 Academia Mexicana de Cirugía A.C. Publicado por Masson Doyma México S.A. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

«What comes into the world to disturb nothing deserves neither attention or patience».

René Char (1907-1988), French poet

Tradition and innovation

It has been four decades since the complexity paradigm emerged in scientific endeavour, a stance that expresses a separation from what is mechanical and unidirectional, from traditional logic and mathematics; it is a strengthening viewpoint that unifies disciplines. It separates from the ideas of the philosopher, mathematician and physicist René Descartes (1596-1650), from the ideas of the British physicist and mathematician Isaac Newton (1642-1727), from the ideas of the French sociologist Augusto Comte (1798-1857), from the ideas of philosopher and mathematician Bertrand Russell (1872-1970) and from the ideas of the Austrian philosopher and sociologist Karl Popper (1902-1944), amongst others, but it acknowledges that their contributions have been very valuable, accepted and disseminated within many scientific fields.

Based on the complexity paradigm, it is considered that systems –physical, biological and social–, are composed of agents that are separate and different (intellectual, time, physical resources, financial resources, people, parasites, vegetables, minerals, etc.), in which unstable and non-recurring behaviour arises, in which the characteristic feature is that everything changes, new things constitute what is innovative, the same as with unexpected things, random things and qualitative things. Processes are intra and transdisciplinary; there are implausible combinations, which diverge from deterministic chains, which are reductionist points of view¹.

Science is variable, transforming; it is constantly seeking and trying to attain a greater incorporation of scientific knowledge. How can we explain the current phenomena

without trying to take into account all their components and causes, without a comprehensive view? The explanation of a series of phenomena that compile in a linear manner constitutes an initial approach; trying to understand them from a complexity perspective involves integrating, unifying, disassembling, reassembling, and analysing the phenomenon and the setting as a whole. Let us remember that the etymology of the word complexity comes from the Latin “*complectere*” which means to connect, encompass, obtain something that is beyond comprehension. It suffices to say that complexity is usually associated with the word problem and perhaps this is because, when facing certain problems and looking for a solution, we have numerous options that can be varied and heterogeneous, which makes us perceive various elements interrelated amongst each other and situated almost in the same context.

A globalised world and access to modern communication systems, which in turn favours the incorporation of new knowledge and techniques, together with an epidemiological transition, an increase in costs, and the models of interaction in healthcare, from social models or private and/or public medicine, determine that the analysis and understanding of healthcare systems should be complemented with the complexity paradigm, to improve its efficiency and quality.

An indefinable notion

There is no single notion of the complexity paradigm, but it depends on the field of study and the researcher. We must

Download English Version:

<https://daneshyari.com/en/article/4283472>

Download Persian Version:

<https://daneshyari.com/article/4283472>

[Daneshyari.com](https://daneshyari.com)