



Complexity in Health Care

Jose Luis Turabian*

Health Center Santa Maria de Benquerencia, Regional Health Service of Castilla la Mancha (SESCAM), Toledo, Spain

*Corresponding author: Jose Luis Turabian, Specialist in Family and Community Medicine, Health Center Santa Maria de Benquerencia, Toledo, Spain, Tel: 34 925230104; E-mail: jturabianf@hotmail.com

Received date: July 17, 2018; Accepted date: July 20, 2018; Published date: July 23, 2018

Copyright: © 2018 Turabian JL. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Introduction

"Making the simple complicated is commonplace; making the complicated simple, awesomely simple, that's creativity."

Charles Mingus (22nd April 1922–5th January 1979) was an American jazz bassist, composer, bandleader, and occasional pianist.

The extension of our knowledge of the world, from the local domain, of which we have direct access, to the global, where we are ignorant, is complex, and can only be done with ambiguity. There is always an indeterminate constant amount of uncertainty at the end of the extension of this process. In most medical schools, the components necessary to carry out a consultation, medical knowledge, communication, clinical reasoning and physical examination skills are trained separately. Afterwards, all the knowledge and skills acquired by the students should be integrated into full consultations. But, the true meaning of "*clinical art*" or "*clinical expertise*" is related to the ability to manage complex queries [1,2].

The general practitioner can use the scientific positivist paradigm (quantitative, "objective") and make use of quantitative evidence and evidence-based medicine as strategies to manage clinical care. But much more often you will encounter complicated and complex problems that will force you to use a different approach than traditional sciences [3-6].

How does this approach differ from that of more traditional science? In complex systems attention is focused on the relationship between its parts, rather than on the parts themselves. The human body is composed of organs, which in turn are formed of tissues, which in turn are formed of cells, which in turn are formed of organelles, which in turn are formed of molecules, which in turn are formed of atoms, which in turn are formed of elementary particles. It is impossible to deny that science has made great advances by separating some things from others. The strategy of observing the parts may prevent us from seeing the way in which the properties of a system arise from the relations between its components. This affects the way in which we face the resolution of the problem that arises when we try to solve or prevent health problems. There are a large number of fundamental questions that we can only face by carefully reflecting on the connections in a system considered as a whole [7,8].

We know that when we intervene in a complex system "here" we often cause "there" effects. This is something that is becoming increasingly obvious in our efforts to solve the large-scale health problems that our very actions have created. On the other hand, complexity cannot be registered as a quantity or quality, but it is a matter of "scale", and it is necessary to determine the complexity in each one of them.

The underlying idea is that things or health problems may seem random or simple on a certain scale (for example from the one-

dimensional view of the medical super-specialist), and turn out to be non-random or non-simple at another scale (such as that of the general practitioner) [9].

Classifying problems in family medicine as "simple", "complicated" and complex, for example, is only a conventional classification with pedagogical purposes: all problems are always very complex, and to classify them depends on where we arbitrarily stop our inquiry; of the scale to which we consider the observation of the problem [10,11].

Life constantly gives rise to novelties: new structures and new forms of order can arise spontaneously; this gives rise to development and evolution. This also helps us define the complexity of an organism. Traditionally, the complexity of an organism has been studied in terms of its different cell types. We can define the complexity according to the number of bifurcations in the development of the organism or health problem considered [12].

This same analysis leads us to estimate that the complexity shown in the attention provided in the health services of primary care, and by the health problems in family medicine, where they intersect the biological, psychological and social systems, is more complex than in cardiology or psychiatry [13].

Complex thinking, which emphasizes interconnection and unpredictability, offers ideas to inform the theories and strategies of evidence translation. Thus, in medicine we know that the human body is composed of multiple physiological systems that interact and self-regulate, including biochemical and neuroendocrine feedback circuits; that the behavior of the individual is determined in part by an internal set of rules based on past experiences and partly by unique and adaptive responses to new stimuli from the environment, and that the network of relationships in which individuals exist contains many different and determining factors of their beliefs, expectations and behavior. In addition, individuals and their immediate social relationships are more integrated into broader social, political and cultural systems that can influence outcomes in entirely new and unpredictable ways. And to all this, we must add that these interacting systems are dynamic and fluid, and that a small change in a part of this network of interactive systems can cause a much greater change elsewhere through the effects of amplification. Consequently, given that biological and social systems are intrinsically very complex, it is not surprising that it can be said that few or no human health problems have a single "cause" or "cure" [14,15].

This reflection leads us to a redefinition of the success of the implementation, which is not the achievement of predetermined results, but the emerging results of the project, the lessons learned, as identified by all the interested parties, the change of scenarios, the reconnection in the relationship matrix. Likewise, flexibility in evaluation methods is required, fostering the reflexive use of mixed

methods to capture and adapt to the changing research context [16-18].

Understanding consultation in general medicine as a complex and adaptable system provides a coherent theoretical basis to understand it and achieve a deeper conceptualization of the present factors, and this is something that has been missing until now. Understanding the consultation as a complex and adaptable system offers a view of the consultation that may be of practical use to physicians [19].

In summary, In general medicine, the prevention of disease and the promotion of health, from a methodological and theoretical point of view, complexity assumes a holistic, ecological, contextual and transdisciplinary approach [20-24].

References

1. Turabian JL, Franco PB (2005) A way to make clinical pragmatism operative: sistematization of the actuation of competent physicians. *Med Clin (Barc)* 124: 476.
2. Aper L, Reniers J, Derese A, Veldhuijzen W (2014) Managing the complexity of doing it all: an exploratory study on students' experiences when trained stepwise in conducting consultations. *BMC Med Edu* 14: 206.
3. Turabian JL, Franco PB (2010) An easy or difficult case? Shapes drawn from life. *Uncertainty based family medicine. Semergen* 36: 485-490.
4. Turabian JL, Franco PB (2006) The specific framework of clinical practice in family medicine: Implications for practice and training. *Aten Primaria* 38: 349-352.
5. Turabian JL, Perez Franco B (2006) The Process by which family doctors manage uncertainty: Not everything is Zebras or Horses. *Aten Primaria* 38: 165-167.
6. Gannik DE (1995) Situational disease. *Family Practice* 12: 202-206.
7. Turabian JL (2018) Approach based on holistic model in general medicine and public health: The ice cream cone effect. *SF J Pub Health* 2: 3.
8. Turabian JL (2018) Some basic concepts of family medicine explained by means of fables (Part 1 of 2): Uncertainty, complexity, community, and variability. *Archives of Community and Family Medicine* 1: 1-7.
9. Bonn D (2001) Biocomplexity: Look at the whole, not the parts. *Lancet* 357: 288.
10. Turabian JL (2018) The general physician who only attends "Interesting Cases". *Am J Family Med* 1: 1002.
11. Suárez JL, Bar-Yam Y (2008) The complexity of its time. *Complejidad y escala en las organizaciones sociales. Revista de Occidente* 323.
12. Capra F (2002) *The hidden connections. A science for sustainable living.* London: F Harper Collins.
13. Katerndahl DA, Wood R, Jaén CR (2010) A method for estimating relative complexity of ambulatory care. *Ann Fam Med* 8: 341-347.
14. Turabian Fernández JL, Pérez Franco B (2003) Notes on resolutivity and cure in family medicine. *Aten Primaria* 32: 296-299.
15. Wilson T (2001) Complexity and clinical care. *BMJ* 323: 685.
16. Long KM, McDermott F, Meadows GN (2018) Being pragmatic about healthcare complexity: our experiences applying complexity theory and pragmatism to health services research. *BMC Med* 16: 94.
17. Reed JE, Howe C, Doyle C, Bell D (2018) Simple rules for evidence translation in complex systems: A qualitative study. *BMC Med* 16: 92.
18. Thompson DS, Fazio X, Kustra E, Patrick L, Stanley D (2016) Scoping review of complexity theory in health services research. *BMC Health Serv Res* 16: 87.
19. Innes AD, Campion PD, Griffiths FE (2005) Complex consultations and the 'Edge of Chaos'. *Br J Gen Pract* 55: 47-52.
20. Tremblay MC, Richard L (2014) Complexity: a potential paradigm for a health promotion discipline. *Health Promot Int* 29: 378-388.
21. Turabian JL (2018) The academic discipline of general medicine is among the interstices of medical science. *Trends Gen Pract* 1.
22. Turabian JL (2018) A conceptual framework about interstitial space between the bio-psycho-social structures in medicine general. *Res Med Eng Sci* 5.
23. Turabian JL (2018) Ecological analysis in general medicine. *Fam Med Care* 1: 1-2.
24. Turabian JL (2018) The concept of co-treatment or ecological treatment in general medicine. *Int J Glob Health* 1: 1.