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Complexity and Cross-Disciplinarity in Collective Health: Evaluation of Concepts and Applications

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Objectives: To briefly present the main focuses representing general paradigmatic types of change in the core of science. To discuss the following questions: How have attempts been made to construct this “*nuova scienza*” (new science) in the field of collective health in theoretical and methodological practice? To what extent has research in the disciplines that make up this area incorporated elements that deal theoretically with complexity?

Methodology: Interpretive analysis.

Results: This article is an essay which discusses some constituent elements of the paradigm of complexity, from their potential applications to population health issues. We seek to direct these questions to the specific sphere of collective health and to generate proposals by producing empirical evidence for analyzing the state of health care, its effects and its determinants on the basis of these approaches.

Essential aspects of the theory of complexity—non-linearity, dynamic systems, fuzziness, fractality, and network theory—enable the development of models that account for partial aspects of a health-illness problems, processes or phenomena. A number of epistemological and methodological elements have been proposed as alternatives to contemporary science, grouped under the label of “new paradigm” and with differing degrees of interrelationship. These elements suggest that a “*nuova scienza*” is being developed which requires its own epistemological categories (such as the category of complexity), new theoretical models (such as chaos theory) and new logical forms of analysis (such as non-linear mathematical models, fractal geometry, fuzzy logic and network theory). In the area of collective health, too, a number of authors have championed the need to promote concrete scientific production, capable of contributing to a potentially new paradigm.

Conclusions: For the author, it is necessary to radically transform the system that creates scientific subjects, whereby the development of scientific knowledge is social, politico-institutional, and expansive in order to make “normal science” into a “revolutionary” science.