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Violence and Complexity

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Abstract: Like all the phenomena that the human mind is knowledgeable about, the phenomenon of violence should be regarded as a complex macrosystem, where systems of networks and agents are linked and interact at different interconnected levels. This means that complexity refers to the phenomenon *per se*, to the various cognitive and emotional processes through which the human mind should examine and evaluate it and to the development of solutions to eradicate violence itself. It is clear that the complexity of these processes of examination and evaluation should be a requisite both of scientists and of laypeople. This does not mean that the scientist or the layperson should be knowledgeable about all the components and aspects of the macrosystem in their complex interconnections but that they should think and act on the grounds of their awareness of this complexity. One of the main issues relating to the study of violence is the definition of violence itself. In this respect, it is here suggested that thoughts and emotions, and not only behaviors, should be included in the definition of violence. As an exemplar of the difficulty regarding this specific issue, some considerations will draw on data obtained in a previous study on children and adolescents' animal abuse experiences. It is also important to point out that complexity does not only refer to the explorations of the connections between systems taken from different research fields (e.g., neurology, biology, psychology, sociology, etc.). It can also refer, for example, to the theoretical premises of the research and of the questions at stake, to the scope and aims of the research and of these questions, and to the methods used in the investigation. In the same way, it is also important to bear in mind that, rooted in the theoretical premises and in the aims, are also specific views of society and life in general and that these views deeply and unavoidably affect the whole investigation process. It is clear that focusing on complexity also means opposing the fragmentation which usually characterizes the scientific study of violence and the interventions aiming to countervail it. Finally, as complexity theory indicates, through this "holistic" approach, a new conceptualization and understanding of violence could emerge so as to lead to more innovative and effective solutions to the problem of violence.

INTRODUCTION

In this paper the following points will be especially focused on:

a. like other significant phenomena that the human mind is knowledgeable about, violence should be regarded as a complex macrosystem; in it, systems of networks and of agents are linked and interact at different interconnected levels;

b. complexity refers both to the phenomenon per se and to the various cognitive and emotional processes through which the human mind should examine and evaluate it;

c. the complexity of these processes of examination and evaluation should be a requisite both of scientists and of laypeople;

d. this does not mean that the scientist or the layperson should be knowledgeable about all the components and aspects of the macrosystem in their complex intercom-nections but that they should think and act on the grounds of their awareness of this complexity;

e. complexity also refers to the development of strategies aiming to eradicate violence itself;

f. one of the main issues in the study of violence is the definition of violence itself;

g. some of the considerations presented here will draw on data obtained in a previous study we conducted on children and adolescents' animal abuse experiences [1];

h. the development of interventions and solutions to the problem of violence is deeply and unavoidably affected by the researcher's views on society and life in general.

VIOLENCE AS A COMPLEX SYSTEM

These theoretical premises indicate that a holistic approach to the study of violence is here being proposed.

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There are three main aspects relating to the study of violence that need to be above all clarified. When we refer to complexity we mean that complexity inherently and unavoidably characterizes: a) the phenomenon of violence *per se*; b) the phenomenon of violence as it is perceived and analyzed by a human mind; c) the various cognitive and emotional processes through which the human mind should examine and evaluate the phenomenon itself. It is clear that propositions a) and b) are especially interrelated; they are like two sides of the same coin as "The way we observe constructs our reality […]" [2] (p. 1078). Evidently, this fact further underlines the complexity of the task.

If we consider the phenomenon of violence as a complex system (or macrosystem, depending on the level of analysis), this means that:

1) violence, as an object of study and of experience in general, is constituted by a potentially countless number of components;

2) in this system causation is complex; there is not one single cause and the result of the various causes is something beyond the sum of these causes;

3) the result is constituted by a new "emergent" reality, characterized as it is by all the dynamic interconnections of these different causes and components; here, "emergent" means, among other things, "unexpected", in that the result cannot be predicted on the basis of the knowledge of the single causes and components, given their non-linear characteristics [3, 4];

4) violence is inherently related to context (e.g., temporal, physical, cultural, etc.);

5) any effective attempt at understanding violence as a complex system both on the part of the researcher and of the layperson implies the adoption of various perspectives;

6) especially in the case of researchers, these different perspectives are also constituted by the interconnections of different theories and data taken from different disciplines (e.g., biology, neuroscience, psychology – especially cognitive, social, developmental, and dynamic psychology- , psychiatry, sociology, anthropology, computer science, history, economics, political science, and philosophy) [3];

7) as said above, this does not mean that the scientist or the layperson should be knowledgeable about all the components and aspects, including theories and data from different disciplines, of the macrosystem but that they should think and act on the grounds of their awareness of this complexity; this point is of great importance;

8) each single episode of violence, as an emotional/ cognitive process and/or a specific behavior, is a complex phenomenon; accordingly, the analysis of and the response to each episode of violence should take the complexity of the episode into consideration; in other words, this means that the analysis, interpretation, and response should always be complex;

9) it goes without saying that personal views on and experiences of violence in various ways affect our perceptions and evaluations of this phenomenon;

10) consequently, the idea that we can never attain a complete view of the issue should always accompany both the researcher and the layperson. As Chapman [2] clearly puts it, "[…] it is fundamental that we understand the bases, and limitations, of our ways of seeing" (p. 1076).

Regarding point 6), suffice it here to mention just one example. We are well aware of how for many years a large number of social and psychological problems, including violence, were analyzed within a psychological perspective as if they took form in culturally uncharacterized contexts, although these studies were carried out in specific, mainly western, cultural contexts [5]. Clearly, in these cases, the link between psychology and other relevant disciplines (e.g., sociology and anthropology) was totally missing.

AN ENLARGED AND MORE COMPLEX CONCEPTUALIZATION OF VIOLENCE

It is important to mention here an important article by Kadzin [6], where he aims to analyze interpersonal violence "more generally" (p. 166). He criticizes the compartmentalization which characterizes both the study of violence in the academia and the development of interventions aiming to countervail it. He especially mentions domestic violence, child maltreatment, elder abuse, gang activity, and sexual assault. Though in his paper he never refers to violence as a complex system, and even less does he refer to complexity theory, his considerations constitute an important step towards a more comprehensive and complex view on the phenomenon of violence [7]. This is particularly clear in his idea that it is necessary to focus "on commonalities that the different types of violence share" (p. 167). This idea is further strengthened when he states that "Different types of violence are embedded in each other and in many other social problems" (p. 181).

Another contribution in this field is provided by Ball-Rokeach [8], who underlines the importance of developing new general theories of violence. In this context, she argues that the analysis of violence should be embedded in the concept of conflict (p. 48) and should point to "the common roots of all forms of social violence" (p. 58), thus leading towards the development of an "integrative theory of violence" (p. 49). This means that this theory also presupposes that strong interconnections exist between the structural relations at the various levels (interpersonal, intergroup, and societal), a view which is unequivocally in line with a complex and holistic conceptualization of the phenomenon of violence.

Focusing on the relationship between institutional (prison) culture and community culture, Byrne and Stowell [9] underline the reciprocal relationships between the two, the non-linear causation characterizing these relationships and, consequently, the complexity of the system constituted by the culture of violence itself. Interestingly, these authors also mention the role of the "individual agency" (p. 556), that is the role of the contribution of an individual or a group

of individuals to the cultivation or termination of a culture of violence. This last point certainly further underlines the idea of complexity in relation with violence.

Also DeWall, Anderson, and Bushman [10] focus on the necessity to "provide an overarching framework for understanding human aggression and violence" (p. 246) and argue that the General Aggression Model (GAM), which is a biological-social-cognitive model and which emphasizes the role of knowledge structures, can provide this framework. They also point out that the drawback of domain-specific aggression theories is that "they cannot capture the complexity of human aggression and violence. Human behavior, including aggressive and violent behavior, is complex and is multiply determined" (p. 255). Unfortunately, their definition of aggression (and of violence as well) is generally limited to the behavioral aspects of the phenomenon.

Hence, it appears that also in the traditional psychology arena the need is felt for a more holistic approach to the study of violence. However, though a number of authors are now aware that violence is multiply determined, they often appear to still consider the various determinants separately without sufficiently focusing on the interconnections between the determinants themselves.

It is also important to point out that complexity does not only refer to the explorations of the connections between systems taken from different research fields (e.g., neurology, biology, psychology, sociology, etc.). As a corollary of these explorations, complexity can also refer, for example, to the theoretical premises of the research and of the questions at stake, to the scope and aims of the research and of these questions, and to the methods used in the investigation.

In the same way, as said above, it is also important to bear in mind that, rooted in the theoretical premises and in the aims, are also researchers' specific views of society and life in general and that these views deeply and unavoidably affect the whole investigation process. And, even more importantly, researchers themselves should be aware of this fact.

DEFINING VIOLENCE

Although there are a countless number of scientific publications on the phenomenon of violence, very often authors do not clearly specify what they mean by "violence". In other words, in these works an unambiguous definition of "violence" is often missing. For the sake of brevity, I will provide only one example. In an interesting paper on early risk factors for violence [11], there is no clear distinction among terms like *violence, delinquency, criminal behavior, externalizing behaviors, aggression*, *antisocial behavior*, and *negative behavioral outcomes*, which seem to be used by the author as synonyms.

There is not a shadow of a doubt that the more complex a system is –and violence is certainly a particularly complex system– the more we have to be precise as regards the definition of the system and of those components of the system with which we are dealing. This is a *sine qua non condition* in order to effectively address the issue.

One of the components of the system that we call violence is constituted by the meanings people attach to the term "violence".

In this regard, I will here touch on an issue previously addressed in our research studies on human-animal relations, namely the definition of animal abuse[1] [1]. For many years in the academia the debate on the meaning of animal abuse was practically restricted to a very general distinction between "socially acceptable" and "socially unacceptable" forms of animal abuse [12, 13][2]. Our contribution to the debate was triggered by what might be called, "with no derogatory intent, a by-product of research itself" [1] (p. 262). Indeed, the aim of our study was to field-test and validate the Italian version we had elaborated of The Children and Animals Inventory [14], a questionnaire on children's animal abuse experiences. We administered the Italian version of the questionnaire to 137 pupils (70 F and 67 M), aged 9-16, from eight classes, in three schools. In each class the goals of the research were presented to the pupils and the instructions of the questionnaire were read. Pupils' questions and comments - numerous ones, indeed- were mainly focused on the meaning of animal abuse. Most of them were particularly significant, as they shed light on the complexity of the task of elaborating a definition of animal abuse. Indeed, we realized how deeply aware of the complexity of the concept of violence our young participants were and how often they elaborated and adopted a broad, complex, and refined definition of animal abuse which considered both "socially acceptable" and "socially unacceptable" forms of violence. Some of the questions were triggered by participants' sense of guilt and the feeling that they might have done better in the care of their pets. Other questions indicate that fear can sometimes prompt animal cruelty. Other questions are more "philosophical" as they focus on basic human issues, such as social beliefs, suffering, and the meaning of death. In order to better clarify my point, some of these questions are here quoted:

"If someone hurts an animal when he was a small child and was not aware of his acts, is it animal cruelty?" (boy of 13)

"If you cause the death of your fish because you overfed it?" (boy of 10)

"If your hamster dies because you were not able to keep it properly?" (boy of 10)

"Is giving a light slap also animal cruelty?" (boy of 14)

"Do we have to consider only physical abuse?" (girl of 12)

"Is it animal cruelty if someone spanks a dog to discipline it?" (boy of 16)

"Should we consider ants?" (boy of 11)

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[1] In this paper "animal abuse", "animal cruelty", and "violence against animals" are used as synonyms.
[2] As a matter of fact, this distinction, which was elaborated by Ascione [12], was in any case particularly significant if we consider that at that time research on human-animal relations was still at an early stage compared with the enormous development it has attained in the last twenty years, also thanks to the 1993 Ascione's paper, a real milestone in this area of study.

"Is it animal cruelty if I kill a spider because I am afraid of it?" (girl of 13)

"I did not torture fishes, but I went fishing. Should I consider it as animal cruelty?" (boy of 15)

"Is using worms for fishing animal abuse?" (boy of 10)

"Is it animal abuse if I keep two birds in a cage?" (girl of 12)

"Is it animal abuse if I maltreat a dead animal?" (boy of 12)

"If you do not rescue a fish lying almost dead on the shore, is it hurting it ?" (boy of 10)

The last two questions especially indicate a particularly deep emotional and cognitive complexity [15], on the part of the two pupils.

We might probably argue that in this study participants' explicit and implicit conceptualizations of "violence against animals" seem to be more complex and refined than most researchers'. As said above, for a long time researchers simply distinguished between "socially acceptable" and "socially unacceptable" violence and rarely focused on the ambiguities and contradictions often relating to the complex system of societal norms in the various cultures whereby a form of violence is considered either "acceptable" or "unacceptable"[3].

FURTHER CONSIDERATIONS AND CONCLUSIONS

At this point, it should be clear that the use of a broad, comprehensive, and complex definition of violence is strongly supported. As a theoretical issue, the definition of violence should be regarded as a complex system in itself.

It is here proposed that this definition should comprise both physical and psychological violence and include behaviors, thoughts, and emotions. Also, it should imply that it is always possible or, in some cases, even necessary to re-examine the criteria through which the individual and society at large define something as violent or not, as these criteria may strongly rely on personality and cultural factors. Indeed, like all complex systems, the issue relating to the task of defining violence constitutes an open and dynamic system, which is characterized by a certain degree of uncertainty. In fact, as also Morin [18] points out, we have to envisage the possibility of a knowledge that is both less certain and more rich.

The idea of including thoughts and emotions in the definition of violence may certainly raise some criticism on the part of many researchers, whose analyses have traditionally focused on the behavioral aspects of the phenomenon. It is here suggested that interpersonal and intergroup communication might occur not only through behavior but also through other subtle and deep channels. These channels are not only constituted by nonverbal or involuntary, according to cases, messages, but also by other forms of communication, awareness, and understanding, an area of study still at its infancy in western cultures. The

existence of such forms of communication, awareness, and understanding are especially hypothesized on the basis of the supposed existence of an expanded consciousness [19] and, in particular, on the basis of some researchers' [20] beliefs in a unitary view of living beings and of the universe, and of the existence of the so-called "living matrix" [20], where everything is interconnected and where the subconscious might live. Within this perspective, people broadcast to other people and to the rest of the universe "a vast amount of information […] in the form of various kinds of energy […]" [20] (p.28). According to Oschman [20], most of this information is sub-threshold and becomes part of the subconscious. The direct consequence of this hypothesized reality is that our knowledge and awareness are limitless and that nothing that is produced gets lost. Consequentially, even a single thought or emotion characterized by violent connotations, even if they are not accompanied by a specific violent behavior, affect reality in a way or another. It is clear that these reflections and elaborations may strongly contribute to enhancing the complexity of the analysis of the phenomenon of violence. It is also clear that all these hypotheses and theoretical elaborations, which constitute a really cutting-edge area of study, will undoubtedly require a great amount of painstaking research work.

Moreover, there is no doubt that focusing on complexity also means opposing not only the fragmentation which usually characterizes the scientific study of violence but also the fragmentation of the interventions aiming to countervail it. In fact, the view of the phenomenon as a complex system may help adopt a more comprehensive approach in the elaboration of educational interventions. Interventions in fact should be designed in such a way that their effects should not be limited to a specific context but should expand to all aspects of an individual's life.

Finally, as complexity theory indicates, through this "holistic" approach, a new conceptualization and understanding of violence could also emerge so as to lead to more innovative and effective solutions to countervail the problem of violence itself.

CONFLICT OF INTEREST

The author confirms that this article content has no conflict of interest.

REFERENCES

[1]   Pagani C, Robustelli F, Ascione FR. Investigating animal abuse: Some theoretical and methodological issues. Anthrozoös 2010; 23: 259-78.
[2]   Chapman G. Evolutionary psychology, complexity theory, and quantitative social epistemology. Futures 2007; 39: 1067-83.
[3]   Johnson NF. Simply complexity: A clear guide to complexity theory. London: Oneworld Publications 2009.
[4]   Byrne D. Complexity theory and the social sciences: An introduction. London and New York: Routledge 1998.
[5]   Robustelli F, Pagani, C. Le variabili della violenza umana. Psicologia contemporanea 2005; 187: 60-3.
[6]   Kazdin AE. Conceptualizing the challenge of reducing interpersonal violence. Psychol Violence 2011; 1: 166-87.

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[3] In the last few years the situation has changed. See, for example, Podberscek [16] and Serpell [17].

[7]   Pagani C. Violence in a comprehensive perspective. Kultura i Edukacja. [Forthcoming].

[8]   Ball-Rokeach SJ. Normative and deviant violence from a conflict perspective. Soc Prob 1980; 28: 45-62.

[9]   Byrne JM, Stowell J. Examining the link between institutional and community violence: Toward a new cultural paradigm. Aggress Violent Behav 2007; 12: 552-63.

[10]   DeWall CN, Anderson CA, Bushman BJ. The general aggression model: theoretical extensions to violence. Psychol Violence 2011; 1: 245-58.

[11]   Liu J. Early health risk factors for violence: Conceptualization, evidence, and implications. Aggress Violent Behav 2011; 16: 63-73.

[12]   Ascione FR. Children who are cruel to animals: a review of research and implications for developmental psychopathology. Anthrozoös 1993; 6: 226-47.

[13]   Pagani C, Robustelli F, Ascione FR. Animal abuse experiences described by school-aged children. In: Ascione FR, Ed. The International Handbook of Animal Abuse and Cruelty: Theory, Research, and Application, West Lafayette, IN: Purdue University Press 2008; pp. 247-68.

[14]   Dadds MR, Whiting C, Bunn P, *et al.* Measurement of cruelty in children: The cruelty to animals inventory. J Abnorm Child Psychol 2004; 32: 321-34.

[15]   Lindquist KA, Barrett LF. Emotional complexity. In: Lewis M, Haviland-Jones JM, Barrett LF, Eds. Handbook of Emotions, New York: The Guildford Press 2008; pp. 513-30.

[16]   Podberscek AL. Good to pet and eat: The keeping and consuming of dogs and cats in South Korea. J Soc Issues 2009*;* 65: 615-32.

[17]   Serpell JA. Having our dogs and eating them too: Why animals are a social issue. J Soc Issues 2009; 65: 633-44.

[18]   Morin E. On Complexity. Cresskill: Hampton Press 2008.

[19]   Kent JL. Psychedelic Information Theory: Shamanism in the Age of Reason. Seattle: PIT Press 2010.

[20]   Oschman JL. The music of the heart: A personal journey. Subtle Energies Energy Med 2009; 20: 9-35.