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Science, Health and Individual Subjectivities: Health Publics

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Abstract

This article builds on current debates on modern science and its relationship to individuals in terms of the problematization of health as it occurs at the intersection of its public dimension (as linked to the scientific and biomedical paradigm) and an individual, subjective and lay experience. Based on reflections arising in these debates on the crises of science and '*science publics*,' we analyze some of the social transformations that have occurred in the field of health that are also framed by a moment of crisis, problematizing the relationship that laymen have with the knowledge and practices of health in contemporary Western societies. We bring the concept of '*publics*' to this debate, which suggests the exploration of '*health publics*.' This concept has the potential to be useful for the analysis of the relationship of a growing group of informed, reflexive, participatory and critical individuals to the knowledge and practices of health in this period of late modernity.

Keywords: Science, Health, Medicine, Science Publics, Health Publics

1. Introduction

Health is of central importance to individual and collective life. It is observed socially at the intersection of many references: from the still-hegemonic biomedical scientific discourse that defines it, to the growing commercialization of slogans and discourses on healthy goods and behaviors, to the knowledge and practices emerging from alternative medical rationalities, or even the individual representations and subjectivities that circulate in social life through shared oral narratives. This multiplicity of references on health is informed by a globalized world, in which the circulation of information assumes a temporal and spatial dynamic that is often decontextualized from the cultural meanings underlying the related content. In this manner, multiple discourses on health arise in the public sphere, spreading often contradictory, or even conflicting, messages, although they are frequently anchored in the same language, that of science or scientificity.

The many discourses on health that rest on the idea of science (everything is proclaimed in the name of health, the healthy and the scientifically tested or proven) seem to collide with a growing critical uncertainty on the part of laymen around this very scientificity because of the communication processes of science that fail to facilitate its comprehension and the ways that individuals subjectively learn and incorporate the perceived content. Therefore, we build on the reflection around this current debate on the crisis in science (a crisis of plurality and fragmentation of knowledge and a crisis of communication/understanding), to consider the field of health and its relationship to biomedical science and to the individuals and other dimensions and knowledge with which it intersects.

In parallel with the debates on the crises of science, various authors, in particular Souza and Luz (2009, p. 398), refer also to the double crisis currently existing in the health field. This *health crisis* results from the grave social inequalities (including sanitary problems and the resurgence of various old diseases) and the social organization of the capitalist world. Specifically, this health crisis results from the structure of work, which has revealed a new "epidemic" characterized by collective "illness" with repercussions for the physical and mental health of individuals. In addition, a *medical crisis* affecting the "physical, pedagogical, ethical, institutional [planes] of medical institutional effectiveness, medical knowledge and medical rationality" occurs in the contradictory coexistence of a three-part division in modern medicine. This division is between the science of illness and the art of healing, between diagnosis and therapy and, within the clinical setting, between the doctor and the patient.

The proposal presented here discusses *health publics* as an analytic tool for problematizing these relationships between layman and health in contemporary Western societies in light of some of the current debates on the epistemology and sociology of science. The challenge here is justified by interest in the analysis of the relationship of health in the public and private spheres and the individual, subjective experiences of health. Thus, for this article, we call upon the problematization of *health publics*, the context of the current social contexts of science and, particularly, medicine.

2. Science in current society: Can we speak of crisis?

*"A disquiet is in the air. We have the sensation of standing on the edge of time,
between a present that is about to end and a future that is yet to be born."*

(SANTOS, 2000, p. 39)

A notion that intersects the debates in the scientific community as reported in the media and as discussed among the public is the idea of the risks and fragilities associated with science, and there is a current debate on the existence of a crisis in science. Bourdieu (2001, p. 6) recognized a long-suffering regression in the world of science associated with the autonomous weakness of its religious, political and economic powers, while also affirming the possibility of science becoming dangerous because of its state of being in danger: "*...la science est en danger et, de ce fait, elle devient dangereuse.*" Santos (2000) went so far as to evoke Jean-Jacques Rousseau and the return to simple questions about scientific knowledge, proposing an "emancipatory knowledge" or a return to a new common sense.

Although sharing some points of consensus in terms of recognizing certain weaknesses in the current state of science, or in science itself as it has been constructed or related, science

sociologists, epistemologists and other scientists interested in knowledge about knowledge differ overall in their interpretation of these weaknesses and in their reflection on the possible consequences of the current state of unease. We should know of what crisis we are speaking when we speak of the crisis of modern science. We could say that some scientists take on the *crisis* as a debate internal to the discipline, recognizing the social conditioning and its function or even the fragmentation or plurality of knowledge that it is necessary to overcome (good examples within sociology include BOURDIEU, 2001; CARAÇA, 2001; and BERTHELOT, 2000). Some scientists attack critics of other scientific fields, establishing hierarchies among paradigms and entering into so-called science wars (for which the Sokal, 1998, episode is a good illustration). Other scientists, who are more critical or radical, speak of the crisis to affirm the general relativity of the construction of scientific knowledge, affirming the impossibility of a continuity resting on the same methodological and epistemological principles (SANTOS, 2000). Finally, some scientists reveal a growing preoccupation with the relationship of science and citizens and with the opening and sharing of scientific knowledge in the public sphere with those who are interested or involved (GONÇALVES, 1996, 2000; COSTA et al., 2002; NUNES; GONÇALVES, 2001; PELLIZZONI, 2003).

We believe that this state of *crisis* is not necessarily a negative sign in terms of the paths of science but merely a condition of intense debate that recognizes alerts, errors and fragilities that are most likely possible only because of the development of science itself.

If we remember the words of Merton, who proposed that the sociology of science develops only when it is located in "*the public agenda as a social problem*," it is easy to recognize that we are likely to witness the power of science, given the current importance attributed to the science debate on varied levels.

With the progress of modern science, associated with strong technological development, "*the social influence of science is propagated through ways of thinking, cognitive tendencies and the orientation of action*" (COSTA et al., 2002). Thus, thinking, structuring and planning a life in the absence of the idea of science becomes practically impossible. Since the industrial revolution and the liberal revolution, science has constituted the primary basis of political discourse, which is presented as the "ideology of competence" and considered to be capable of making reality objective but, in this manner, reducing public debate (GONÇALVES, 2000). However, although for many years this approach represented a solution (whether concrete or emerging) to our problems, it also came to be understood as a part of our problems (SANTOS, 2000).

A belief in science as a legitimate source of dominant knowledge in the western world has come to be eroded under the combined effects of the multiplication of highly mediated public controversy ... and of generalized perception, in which the experts differ among themselves as access to objective and rigorous methodologies does not give them the gift of infallibility.... This conviction is accentuated by the challenge of the fact that, when there is risk evaluation in question, scientific knowledge cannot, by itself, provide the answers that society needs. (GONÇALVES, 2000, p. 155)

Perhaps it is not going too far to affirm that it was Merton – as the founder of the sociology of science – who was initially responsible for the proliferation of today's debates around science. With Merton, the analytic tendency of science gave way to a historical tendency, based on the four principles of "universalism," "communism," "disinterest" and "organized skepticism,"

which he uses to describe the manner in which the scientific community functions. Although how Merton imagined this operation to function is widely criticized today, it is certain that by analyzing scientific knowledge and communities as social constructions and organizations, Merton explored new areas of reflection and questioning of science. As Maria Eduarda Gonçalves states:

The studies on science and technology – a new field of social science that has especially developed since the 60s – has ... proved the subjection of scientists to external influences, contributing to putting into question the myth of their neutrality and objectivity, especially when confronted with the social implications of their work. (GONÇALVES, 1996, p. 14)

Therefore, we no longer view scientific authority as being exempt from criticism, that is, we separate it from theories based on beliefs of a religious or mythological nature. This process of questioning science was further emphasized with the growing democratization of social statutes and the massification of access and goods (COSTA et al., 2002) related to post-materialism. These conditions brought to science (and the medical field is an excellent example of this) the debate between high expectations and growing suspicions regarding the risks/effect associated with science, as well as between the capacity of science to act and the prediction of the consequences of such acts (SANTOS, 2000; ANTUNES, 2002).

Above all, along with the social studies of constructivist-relativistic science that occurred in the 1980s and 1990s, some authors announced a necessary movement in the paradigm of science and emphasized uncertainty, risk, insecurity, error, dissolution and disbelief as characteristics that individuals represent. Some authors even accused science of being sexist, capitalist and ethnocentric (SANTOS, 2000). Nevertheless, this more extreme approach was losing acceptability in the analyses of various authors who criticized this anti-science discourse, both for its conceptual and analytic incongruencies and for the conditions through which it emerged (COSTA 1996; BERTHELOT, 2000; BOURDIEU, 2001). In this defense of science, Jorge Dias de Deus argued that the recognition of the fragilities of science is the obvious recognition of the fragility of the human being (the scientist) and that science cannot be understood as a sacred answer to our existential doubts or as a miraculous solution to all of our fears or needs, as stated by Deus:

It should be clear that science is not the automatic evident solution to our problems. But also ... that science does not give (cannot give, does not have to give) sense to things, whether on the individual level or the collective. Science does not create happiness, it does not create equality of opportunity, it does not create social justice, it does not create peace... (DEUS, 2003, p. 68)

Certainly, in spite of the multiple forms in which the crisis of science has been debated, never before has science been so close to individuals, in scientific and technological progress and in advances that are already incorporated into the daily life of Western societies. Moreover, this new wave of reflexivity intersects our socio-cultural existence to an extent that until some time ago was held by the common citizen and was scarcely offered as a monopoly of completed, unquestionable knowledge and presented as indispensable to life. With this change, a large number of dualities on which modern science is based - objective/subjective, exact science/social science – have become new and pertinent questions.

More important than the multiple epistemological discussions in the scientific community is the opening of the epistemological discussion of science within the framework of the socio-cultural

paradigms in which it is located and from which it drifts outside the scientific field. The existence of this wide movement of debate around science is in itself already a guarantee of the demystification of scientific knowledge. On one hand, this controversy dismantles the monopoly of knowledge. On the other hand, it locates scientific knowledge in a situation of greater exposure and openness to new modes of construction and communication of knowledge, using the logic of multiple understandings that can make possible a "*civic scientific literacy*," therefore allowing the social context of science to align the scientific process with the real interests and necessities of the population (LEWENSTEIN, 1996, p. 326).

It appears, therefore, that the debates around science, revealing crises that stimulate reflection and forces for its improvement, do not threaten the idea of science, which the most radical seem to defend, and rather constitute a challenge of understanding to politicians and the general public of the complexities, uncertainties and ambiguities of the scientific process.

In this context, we propose continuing with this reflection, resting on two axes of analysis that pertain to our objective to problematize health publics:

- The plurality of *scientific knowledge*, that is, the coexistence of a diversity of lines of knowledge within science and within the various scientific fields (the fragmentation or "knowledge archipelago"), even coexisting with other sources of knowledge (not recognized as scientific) that share some of the same terrain.
- The *communication/understanding* of science, that is, the recognition of the need for and of the difficulties associated with making the scientific discourse understandable to the public, pointing to the growing concern with the democratization of science and drawing closer to citizens, creating spaces for possible communication and assuming that science must be aligned with the real interests of individuals and life.

3. The plurality and understanding/communication of scientific knowledge: The science publics

If the idea of modernity marked the distance between the worlds of science and non-science (GONÇALVES, 2000, p. 1), so-called post-modernist thought on science appears to recognize the necessity of constructing shared routes between the two worlds.

One reason for this recognition is related to the plurality of internal and external approaches to science that have developed. On one hand, this plurality allowed each one of the scientific disciplines to recognize the necessity of rethinking its own culture (WALLERSTEIN, 1999) and to invest effort in homogenizing language and concepts – a particularly relevant situation in the domain of social sciences, given the characteristics of its object of study. On the other hand, this plurality made possible some bridges of communication that allowed for the crossing and sharing of different scientific approaches, such that science could draw closer to the needs and expectations of individuals.

In the knowledge archipelago that we face today, science barely represents one of many of the forms of knowledge that constitute a cognitive field that examines the production of meaning in current society. In this context, today more than ever, science is faced with the importance of the communication process, which cannot be understood as an "exchange" but must be construed as a logic of "sharing."

In the present situation in Western societies, in which there is growing access to schooling and information, the increasing expectations regarding science are associated with even stronger suspicions. Confronted with the emergence of a public more critical of instituted knowledge, science currently faces a difficulty that arises, in large part, from the relationships among what scientists do, what they say about what they do and even what is divulged by the media and how it is divulged. In this way, current science is faced with a double challenge: one that always was part of it – ‘how it is performed’ – and another that is now recognized as new – ‘how it is spoken of.’ Science is faced therefore with a new debate around the complexity that “*encloses science speech outside of science or from outside of science*” (RUIVO, 2003).

While recognizing the importance of the communication of science, it is nevertheless clear that there are difficulties in the languages associated with it:

With language, fields are defined, boundaries are drawn, boundaries are crossed. One of the greatest obstacles to mutual understanding is frequently the lack of knowledge of another’s language.... But the truth is that in each domain there are concepts and modes of doing that are so specific that they become difficult to communicate outside of a certain limit. (RUIVO, 2003, p. 556).

There are concrete difficulties, whether at the level of communication between sciences or, in an even more extreme form, at the level of communication with laymen. Perhaps ever since Galileo decided to write his works in Italian so that common men could read and debate them, the idea existed that science could contribute to the creation of a new common sense, clearer and more informed. Nevertheless, many years ago, the question of public understanding of science or even the relationship between science and the science publics continued to be debated. Above all, since the end of the 20th century, a new area of research has been developed called the *public understanding of science*, with a study performed by the National Science Foundation in the 1950s to measure the population’s scientific literacy (MILER, 1992) and later with the Eurobarometer, which performed a large inquiry of the population in this area (ÁVILA et al., 2000, p. 19). The justification for the emergence of these studies was the recognition of the importance of the education of individuals and of educating them in science, with the intent to create a critical and participatory public fundamental for democratic societies.

The first studies in this area were based on the idea of a positive correlation between the degree of scientific knowledge and the attitudes or confidence around science. Nevertheless, by analyzing the Eurobarometer results, it was recognized that it was necessary to revise the analytical model used. Based on the theories of Inglehart (1990) and Beck (1992), “Durant proposed a new model of analysis that splits from the opposition of industrialized or modern societies and post-modern or post-industrial societies” (ÁVILA et al., 2000, p. 21), stating that the former have a weak penetration of scientific realms and a strong belief in science. The latter, however, reveal greater knowledge but also a clear consciousness of the new risks and effects associated with science, maintaining a critical attitude while enjoying its benefits. It can be concluded, therefore, that the better informed science publics, the more critical they are. This criticism arises enveloped in a new feeling of insecurity that, according to Santos, has at its roots a growing asymmetry between the capacity to act and the capacity to predict, which is created by the development of science and technology. This author stated that, “While previously the social acts shared the same spatial-temporal dimension of its consequences,

today technological intervention can prolong the consequences, in time and in space, much further than the dimension of the act itself through the nexus of causality increasing opaque and complex" (SANTOS, 2000, p. 55).

4. Health publics: Between biomedical science and lay subjectivity

For us, the earlier discussion around science is particularly pertinent in the area of health, now that in Western societies biomedical scientific discourse is still dominant and is based in strategies and political discourses that divulge and regulate and are revealed in the subjectivities of individuals who represent and (re)construct it daily in their life trajectories. Health is, certainly, one of the goals of science that today sparks the most social and media interest. The idea of health as a common, social and communal objective that is simultaneously the quasi-intimate personal task of each individual is one of the characteristics of post-modernity, linking two extremes of extensivity and intensivity. Giddens (1991) called these extremes globalizing influences, on one hand, and personal tendencies, on the other hand, or as Herzlich (2004) would say, crossing the public sphere with private experience.

If it is evident that biomedical science holds a dominant, privileged position in modern history in terms of its mediation between these two tendencies in Western society, it appears it cannot find the comfortable position of past eras today. There is a subjective distance of individuals facing biomedical concepts and the dominant medical discourse today (SILVA; ALVES, 2011; ROSA et al., 2011). Medicine, as well as science in general, lives more and more with exposure to risk and uncertainty, thus losing much of its normative and regulatory power. The development of medicine created in individuals a growing expectation for the prolongation of their existence with promises to cure and control disease, which it has not been able to fulfill, at the same time that it makes illness an "abnormality" or a "disability" that becomes increasingly present in the lives of individuals, weakening many of the boundaries between health and illness or between the healthy and sick (WEBSTER, 2002, p. 445).

Also contributing to this social transformation has been the development of technological and informational tools. These tools allowed access to images in diagnostic tools, making it possible for laymen to share with the "specialist" a visual of the interior of the body and the illness. Beck (2001) defended the idea that the process of individualization and individual responsibility associated with this expansion of medical technology allowed us to anticipate illness and monitor health risks and created new social norms and controls as well as new opportunities for action and new dilemmas and conflicting choices for social actors.

Accordingly, an understanding of the necessity to replace the initial function of medicine – of "cure" or "treatment" – with another – that of "prevention" and "care" – is starting to be acknowledged (based on the widely disseminated discussions of the World Health Organization on the promotion of health and healthy lifestyles). The clinical understanding of illness and health has been for some time substituted by a bio-psycho-social understanding of medicine centered around illness and above all at the level of disease prevention and management. This movement was made possible only by the progressive diffusion of biomedical knowledge, which was capable of disciplining and persuading individuals to act and think according to its orientations, making them responsible for their own health. As Foucault suggested, medicine came to exert a disciplinary power over individuals, not in a direct, repressive manner but persuasively; that is, medicine convinced people that our shared knowledge of health and

suggested practices underscore the best actions for the health of individuals. However, this conjunction of systems that regulate the body, nutrition, behaviors and health, which Foucault called bio power (power that arises from medical knowledge), has a double action: on one hand, it creates "docile" bodies—that is, bodies that are moldable and responsive; on the other hand, this knowledge recognized as power is equally productive, in the sense that it constitutes a tool that social actors can possibly use in the determination of their health and life choices or even in the search for another type of rationality. As an example of these other rationalities, we can observe the growing expansion in the Western world of many medical, spiritual and stress-reduction practices rooted in Eastern tradition (SAKS, 2001; CARVALHO; LUZ, 2009), which some authors call the "*orientalization of the West*" and through which "alternative therapies" have won over a public that had once been exclusively in the domain of conventional medicine.

Therefore, it is clear that to speak of *health publics* is not to speak of *medical publics*, although these areas can intersect. To speak of health publics sends us to the forms of lay knowledge, that is, to methods in which subjects construct meaning through experience, referring to the social and cultural order as explanations that provide meaning to events (SILVA; ALVES, 2011). Health increasingly becomes a characteristic task or even a personal project in late modernity, even becoming constituted as the principle value of life. People gain a greater perception of the risks associated with health and well-being and become more responsible for their health and the form of their bodies. Individuals are understood as being reflexive agents, that is, as people endowed with thought about themselves and their lives (in the sense in that they are capable of interpreting, examining and reformulating social action), and their own rationality guides them to action, "agency."

According to Giddens (1991), modernity is a culture of risk in which the *self*, as well as the vastest institutional contexts in which the self exists, must be constructed reflexively. This task must be performed amid a confusing diversity of options and possibilities. The spaces of consumption that are amplified by the incorporation of health and health products are associated with a multiplication of information spaces and knowledge about health. If the exchanges of information characteristic of the biomedical model are limited to the doctor-illness relationship, almost always conditioned by the physical space of the consultant room or the hospital in a unequal dialog in time and knowledge, today health and the healthy arise in a mass form, in magazines, journals, television and radio programs and, above all, in the virtual space made possible by access to the internet. Regarding this change, Gomberg (2011) refers to the importance of electronic magazines, sites and databanks specializing in health (giving as an example MEDLINE or PubMed) as instruments that not only widen the physical spaces and the schedules for the search and exchange of information among laymen, users and consumers but that also make the debate between various health agents (conventional medicine, MAC, consumers, families) possible.

However, if this diffusion of the virtual spaces of health access can be understood as a democratization of participation and access to health, it equally constitutes a dimension of inequality (in the possibility of access and in the cultural resources of individuals), appealing to the necessity for individual instruments for filtering, selecting and reflecting the linked content. The large number of sources and types of information on health currently available, globalized and unregulated requires from individuals an increased capacity for the selection and

contextualization of information, as well as the definition of selection criteria when they intend to remove themselves from the offer of normalized care in the national healthcare system.

Certain individuals are more informed and educated. Heirs to scientific culture, they increasingly question the various forms of medical knowledge available, both conventional and alternative. They create links between the different spheres of life that contribute to their conception of health and life. They are constituted as health publics, that is, citizens who are informed, reflexive, critical and potentially participatory in the construction of individual and collective health.

It is in this movement toward agency regarding the plural subjective constructions of health that grants new power to individuals concerning health and in the knowledge that is its goal that we propose to take on these "new laymen" as the *health publics*.

Regarding science, we establish the dimensions of the *plurality of scientific knowledge* and *understanding/communication* of science (extending to the analysis of the current relationship of medicine to individuals) as a key point of discussion, focused here on health. Thus, it appears pertinent to finalize this problematization by bringing in the dilemmas of the self outlined by Giddens (1991). Through these dilemmas, we propose some possible axes for future theoretical and empirical explorations regarding health publics:

Unification vs. Fragmentation: Given the multiplicity of knowledge and discourses on health, how do individuals look for, select and integrate information on health structures?

Incapacity vs. Appropriation: Does the public diffusion of health as a right, as well as a duty, promote or limit the subjectivity of individuals in terms of their health choices?

Authority vs. Uncertainty: In what form does the diversification of expert sources that mark health discourses and practices condition feelings of security and risk perception in relation to available systems of care and health practices?

Market experience vs. Personalized experience: How do individuals select from among the growing and diverse offers of consumer/therapeutic goods and products associated with health and related medical stressors?

We return to Giddens (1991) and his affirmation that "'living in the world,' when one is part of late modernity, involves various tensions and distinct difficulties on the level of the self. We can analyze them more easily if we understand them as dilemmas that, that in one way or another, must be resolved to preserve a coherent narrative of self-identity." Therefore, the challenge that we propose for the exploration of these axes of analysis in the health field (and because we understand that it is not easy to provoke discussion about health) is affirmed. It is necessary to reflect on and reinvent methodological proposals that can surpass the instrumental classical focus on textual analysis (written or oral) for a deeper understanding of the individual embodiment and meaning of health content linked to and understood within a public space, whether in its coherent narratives or in its (possible) incoherencies that equally shape personal choices and trajectories.

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