

Relationships Between Journalism and Scientific Dissemination: An

Example from PrEP

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Abstract: Scientific dissemination is a way of popularizing Science, using scientific and technological information resources and processes to instruct the general public. In contemporary society, the media has taken on a vital role in the production of meanings, adding essential elements to everyday discursive practices. The media has become a powerful means of creating and disseminating repertoires, in addition to providing spaces for interaction and exchange of ideas, including in the area of Health. One of the ways to publish journalistic texts focused on Science is to use blogs, which many researchers and health professionals have turned. This article addresses this issue, with a view to discussing news that deals specifically with PrEP Exposure Prophylaxis to HIV Infection, PrEP.

Key words: journalism, scientific divulgation, health, PrEP

1. Journalism and Science

Scientific dissemination is a way of popularizing Science, using scientific and technological information resources and processes to instruct the general public. Given the significant development of the scientific and technological fields in the last decades, and the importance acquired by these fields of knowledge in people's lives, Science and Technology have gained enormous public visibility. According to Vogt et al. (2006), public communication of science has gained notoriety in contemporary societies not only for its importance in the education of citizens, but also because of a need for Science itself, which needs to make itself known.

The need felt by Science itself to present itself to the public resulted in the media's interest in scientific topics. According to Silveira and Sandrini (2014), the media started to dedicate more space and time to news about the scientific enterprise. The consequence of this was the emergence of a specific field of Journalism: Scientific Journalism. Thus, in the newspapers, specific Science sections were created, specialized magazines were created and professionals were hired to work especially with the Science, Technology and Innovation sector.

In Brazil, from the 1920s onwards, there was a significant increase in scientific dissemination initiatives. According to Massarani (1998), there was involvement of scientists and academics, engaged in the creation of scientific institutions and in the valorization of Science. Another important moment for the area was 1977, when a group of journalists got together and created the Brazilian Association of Scientific Journalism (ABJC).

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However, Scientific Journalism reached its peak in the country in the 1980s and 1990s, with the appearance of specialized magazines such as Globo Ciência and Superinteressante. In addition to magazines, television programs, such as Globo Ciência, appeared.

This period of heyday gave rise to a moment of great difficulty for Scientific Journalism, which began in the 2000s, as highlighted by Silveira and Sandrini:

In the past decade, however, science journalism has suffered great casualties around the world and especially in the United States. According to an article published in March 2009 by senior reporter for the scientific journal Nature, Geoff Brumfiel, is there is an emblematic change in the way science is found in the media. Partly because of a widespread crisis, mainly in newspaper revenues. The article exposes the results of a survey carried out by Nature with 493 scientific journalists and which points out several problems that professionals have faced in recent years. According to the data, many jobs are being lost and the workloads of those who remain are increasing. As a result of this crisis, newspaper sections are being closed, staff cuts are being made, wage burdens are increasing and science coverage is being reduced. The problem, according to the companies, is the difficulty of making the science sections profitable (2014, pp. 114–115).

This crisis of Scientific Journalism hit the printed media mainly and has been accompanied by the growing amount of material related to Science made available to the public on the Internet. According to Lévy (1999), the world wide web carries a model called all-in-itself, which allows anyone to produce and publish content on the Internet. The traditional press began to share the leading role with its users, qualified to produce content for websites and blogs:

The big difference is that, in the new medium, journalists are no longer alone in bringing science information to the public. Now they share space with scientists and researchers. A new configuration of scientific dissemination on the Internet is then perceived. With the release of the emitting pole, there is a large number of websites and, above all, blogs created and maintained by scientists and their research institutions. If until then journalists had the power to determine how scientific information would reach the public, now the information sources themselves have the possibility to do so (Silveira and Sandrini, 2014, p. 116).

2. Scientific Dissemination on Websites and Blogs: The Case of Health Journalism

Journalism is an activity that constitutes one of the main instruments for building democracy and achieving citizenship rights. Among these rights is health. According to Kucinski (2000), in Brazil, by the Citizen Constitution of 1988, the patient is already guaranteed full access to information about his health, as a third generation citizenship right, and the detailed and accurate record of all medical actions.

Precisely due to the impact on people's lives, issues such as those related to Health have been increasingly disseminated by the media, occupying space in magazines, newspapers and television programs. What, in fact, is at stake in day-to-day conversations and also in the pages of printed vehicles is, according to Almeida (2006), a complex interaction between scientific knowledge, the dissemination of information, the ideological elaboration of values and the social legitimation of behaviors.

For Kucinski (2000), the journalist who currently covers health problems can no longer be limited to the categories defined by the dominant medical practice. It must be able to dialogue with this medical practice from a critical standpoint. The journalist has a holistic and, therefore, integral view of the health-disease process, putting the dominant medical practice into perspective. For that, you need to have knowledge about Science.

The journalist specialized in Science needs to be immersed in the environment of research, laboratories, universities, to get to know the scientific universe in depth. This is what Caldas et al claim:

The content-forming pragmatism limits the role of journalists to a reductionist and merely functionalist perspective. The more positivist the formation — pragmatic, objectivist, result at the expense of the process — the more positivist the production tends to be. It is considered necessary to recover the ethical and historical dimension of the production of science as a process and of the dissemination in a critical, analytical perspective, reason for which qualified training in this perspective is fundamental. To disseminate science is, first of all, to enter the world of Science, its history, its development, its contradictions, its paradigms (2005, pp. 13–14).

The journalist must prepare to report. Research on the agenda that was given to you, with the task of taking the reader, listener or viewer the information necessary to reflect on a subject. And the preparation of journalists involves the training of human resources in Scientific Journalism. How are our journalists trained? How do they get to the job market? Caldas et al. state in this regard:

This work presents the first results of a wide national research in the area of Training in Human Resources in Scientific Journalism prepared by the Brazilian Association of Scientific Journalism (ABJC). Traces a diagnosis about the disciplines of Scientific Journalism (JC) offered in Social Communication courses. It evaluates the syllabus, bibliography used and the profile of professors in the scope of the Undergraduate, Extension and Graduate Courses Lato and Strico Sensu. It moves towards JC courses taught in other areas of knowledge. It concludes that, although the interest in the area of Scientific Dissemination is growing, most of the 205 Undergraduate courses in Journalism still do not offer specific subjects for this training; in the scope of the Post, there is a concentration of courses in the State of São Paulo, few lines of research in the area and, like the Graduation, there is a great dispersion in the bibliography, with few common works, which denotes, in a way , the lack of maturity in the area (Caldas et al., 2005, p. 1).

It is observed that there is a significant drop in the quality of the material produced by the journalists, which can be attributed to the lack of knowledge of the professionals. This explains, at least in part, the inability of some journalists to bring relevant information to the public. According to Kucinski (2002), today's Journalism does not work with knowledge; journalists do not value the most important thing the profession offers: the opportunity to learn, writing about different subjects for each article. And he also ponders that many of the media's distortions, sometimes attributed to complex mechanisms, are the product of journalists' incompetence.

In times of closing newspapers and merging newsrooms, with journalists working for the online and print versions of the vehicles, professionals are increasingly required to produce material for different platforms and perform various functions (write, edit, photograph). Thus, what Kucinski (2002) stated about the incompetence of journalists is still making a difference in terms of the quality of the articles produced by them.

In addition to technical training, it reflects on another aspect that involves the role of the journalist specialized in Health: the relationships between journalists and professionals in the health field. Such relationships are considered to be conflicting, complicated, characteristics that concern, among other things, to the roles that doctors and journalists assign themselves. About this, Kucinski states:

This text deals not with general problems, but with some specific problems of health journalistic coverage, based on studies sponsored by the MacArthur Foundation, with the objective of creating an area, in the teaching of Journalism, focused on collective health. One of the events supported by this program was a full-day seminar, organized by the journalism course at the Federal University of Espírito Santo, with the participation of medical journalists, and other health workers, and in which we map the relationships that exist between health workers and

journalists. The conclusions of that seminar were that the relationship between journalists and health workers is basically conflicted. These are non-harmonious relationships, for three main reasons. First there is the question of the roles that are self-assigned; journalists in general seek doctors or health authorities to legitimize an idea, a conception, a speech that is already pre-elaborated, seek scientific legitimation or the legitimation of authority: the head of the hospital, the Secretary of Health. one of the reasons why they do not listen to the Popular Health Movements, they do not listen to other health workers; they do not listen to nurses, they do not listen to para-doctors, they only seek the renowned doctor or the authority and only to legitimize something that they have already decided to say. And health professionals also use journalists for self-promotion. In some cases, especially the most famous doctors, or use journalism, communication as a pedagogical function, to inform the public, to clarify, to carry out prevention campaigns, health campaigns. It is an interesting journalistic function, but it is not the central function of journalism is critical-informative. It aims to, through information of public interest, develop critical citizen awareness. The pedagogical function is accessory, it is not central to journalistic activity (2002, p. 2).

Based on the critical-informative function of Journalism, it can be noted that the perception of the lay public encompasses some misconceptions, such as believing that Science progresses only at the expense of privileged minds, omitting the importance of a complex system that involves financial resources, technological and methodological and supports researchers:

Evidently, formal science education favors this perception by highlighting, in its history, absolutely privileged individuals (the brilliant scientists) and not the particular production process that often annihilates individuals. The coverage of CT&I by the mass media (MCM) reinforces this perspective, because it contemplates the advancement of S&T in singular moments, announcing, often sensationally, research results and discoveries of great impact (Bueno, 2010, p. 3).

Precisely because it lacks scientific literacy, the lay public requires that information undergo a kind of decoding of specialized discourse, with the use of resources such as metaphors, infographics and illustrations, which can impair the accuracy and quality of the information:

The journalist or the promoter, with rare exceptions, is not qualified for the process of decoding or recoding the specialized discourse and the journalistic production process can (what happens on a recurring basis) privilege the spectacularization of the news, seeking more to expand the audience than the accuracy or completeness of the information. In addition, except in specific situations, such as in the case of portals or blogs dedicated to scientific dissemination, the interaction between information producers and the audience does not occur, reducing the process to a mere transmission of information (Bueno, 2010, p. 4).

The decoding of specialized discourse can give rise to discord between sources and disseminators/journalists because they are part of professional cultures that face science differently. It is one of the parts of the conflicting relationship between journalists and scientists that we referred to earlier. Researchers or scientists make reservations about the effort to popularize Science that is based on sensationalism and are averse to textual changes that compromise their statements to the press. To illustrate what we have now mentioned, we resort to a case involving AIDS: the coordinator of the PrEP Brasil study, infectious disease physician Rico Vasconcelos, said he regretted giving an interview to Época magazine, which published the article "The other blue pill", On April 2, 2018:

The coordinator of the PrEP Brasil Study, the infectious disease physician Rico Vasconcelos, published a text on his Facebook where he says he is sorry to have given an interview to Época Magazine. The cover story of this week's edition is about PrEP (Pre-Exposure Prophylaxis), a strategy that consists of the daily use, by uninfected people, of a light blue pill like Viagra, called Truvada. According to the report, "since 2014, the drug was sold in some Brazilian pharmacies and, in December, last year it was distributed by SUS". According to the article, "PrEP is changing the sexual behavior of at-risk groups, especially gays. They are abandoning condoms, contributing to the increase in sexually transmitted diseases". However, for Vasconcelos, the text is "full of misunderstandings that reinforce stigmas on themes that are already buried with prejudices, such as the fact analyzed with moral judgment that gays are promiscuous, or that only gays need to worry about HIV" (Revista Fórum, 2018, p. 1).

Recalling what has been exposed so far, from the rise of Scientific Journalism to its crisis, going through conflicts between journalists and researchers, it is easier to see that the Internet has become an environment conducive to the emergence of scientific dissemination initiatives.

To better analyze the virtual environment, it is worth making a distinction between Scientific Journalism and other theories and practices that, according to Bueno (2009), deal with the same object and are identified by the terms diffusion, dissemination and scientific dissemination. The first term addressed by the author is scientific dissemination, which refers to any and all processes designed to convey scientific and technological information. According to Bueno (2009), diffusion can be classified at two levels, according to the language and the profile of the audience: diffusion for specialists and diffusion for laypeople. In the first case, there is the scientific dissemination that concerns the transfer of scientific and technological information elaborated from a specialized discourse and addressed to a public formed by specialists.

In the second case, the scientific dissemination that concerns the circulation of information to the laity characterizes the so-called scientific dissemination. For Massarani (1998), the term can be defined as any activity transforming the scientific language into a language accessible to a non-specialized public. According to Bertolli Filho (2006), examples of scientific dissemination didactic books, journalistic articles, articles by scientists aimed at the lay public, works of literature, films, radio and television programs and exhibitions in museums. Thus, scientific dissemination also covers the work of scientists and scientific journalists. In this sense, scientific journalism would be a subcategory of science communication. Still according to Bueno (2009), the objectives of the scientific journalist and the scientific disseminator are similar, as both seek to transfer specialized information to the uninitiated. For the author, what differentiates the two activities are the characteristics of the discourse used and the production system. Bertoli Filho (2006), states that a text written by a scientist, even if published in a popular penetration magazine or newspaper, is not a product of Scientific Journalism, but it should be considered a scientific dissemination initiative.

Blogs are an example of a space that initiatives by journalists and researchers / scientists can occupy. Initially taken as a personal diary, the blog has become a publishing tool. There are several classifications for blogs; according to Quadros, Rosa and Vieira (2005), blogs can be personal diaries (personal administration), collective (more than one person can access the content, making posts), instructive (can be individual or collective and aim to share information), informative (individual or collective and can address general or specific subjects) and mixed (personal and informative posts that have characteristics of the other diaries presented).

For Kouper (2010), who analyzed eleven Science blogs, among them, there is heterogeneity in terms of information sources (personal experience, news published by other media, including other blogs and research works), topics (the themes are varied), modes of communication (news, announcement, explanation, criticism, opinions) and modes of participation of readers. According to the author, most Science blog readers also have some relationship with the scientific world, that is, they are not laymen. Many are professors, undergraduate students, researchers. Perhaps, such blogs should use resources to attract audiences not connected to Science.

3. PrEP: Pre-Exposure Prophylaxis of Risk to HIV Infection

It is known that successful prevention of the Human Immunodeficiency Virus (HIV) involves a set of methods. A statement that is corroborated by Piot and Seck: "Success requires a combination of prevention methods, aiming at patterns of behavior embedded in their social contexts. This applies both to groups especially at risk and to the general population". (2001, p. 3). Regarding new ways of coping with HIV infection and AIDS, the Pre-Exposure Prophylaxis (PrEP) of risk to HIV infection deserves to be discussed and reflected, which is characterized by the use of antiretrovirals — ARV — to reduce the risk contracting the disease, something that has been shown to be effective in people most likely to acquire the infection. PrEP is part of the biomedicalization of the response to HIV/AIDS, from which knowledge and interventions in the field of Biomedicine and Epidemiology end up assuming a central role. In Brazil, the HIV/AIDS epidemic is concentrated in certain population groups, among which are gays, other men who have sex with men — MSM, sex workers and trans people. Parker approaches PrEP as a biomedical intervention, which, however, encompasses components that go beyond health care:

PrEP is a biomedical methodology, but a methodology that depends on several political, economic and social issues to be used, to be made available or not, even before it is put into people's sexual practice. And all of this is part of a political process that is ongoing and necessarily part of our agenda as a social movement to think about this political process (2016, p. 8).

According to the Protocol and Therapeutic Guidelines for Pre-Exposure Prophylaxis of Risk to HIV Infection (2018), in Brazil, the prevalence of HIV infection in the general population is 0.4%; among female sex workers, 4.9%; among drug users (except alcohol and marijuana), 5.9%; 10.5% among gays and men who have sex with men; 31.2% among trans people. People with serodiscordant partners for the Human Immunodeficiency Virus are also considered a priority for the use of PrEP.

However, being part of one of these groups is not enough to characterize the individual with frequent exposure to HIV. Such characterization depends on the socioeconomic and cultural context in which people are inserted. The following aspects should be taken into account: number and diversity of sexual partnerships; frequency of sexual relations with casual partners; repetition of anal and/or vaginal sexual practices with penetration and without the use of condoms; history of sexually transmitted infections — STI; frequent search for post-exposure prophylaxis (PEP); and exchanging sex for money, housing, drugs and valuables, such as jewelry and watches.

For these cases, PrEP appears as a new prophylaxis option, which integrates combined prevention strategies, namely: HIV testing, PEP, condom use, diagnosis and treatment of sexually transmitted infections, harm reduction, identification of vulnerabilities, immunizations and suppression of viral replication through antiretroviral treatment.

The efficacy and safety of PrEP has been demonstrated in several clinical studies, as evidenced by the Protocol and Therapeutic Guidelines for Pre-Exposure Prophylaxis for Risk of HIV Infection:

[...] The effectiveness of prophylaxis was strongly associated with adherence: in participants with detectable blood levels of the medication, the reduction in HIV incidence was 95%. Among heterosexual individuals, the overall effectiveness of PrEP was 62% in the TDF2 study, 49% among women and 80% among men included in the study. In heterosexual serodiscordant couples, PrEP was also effective, with an overall 75% reduction in the risk of HIV infection in the Partners PrEP study. Again, effectiveness was higher among men (84%) than among women (66%) (2018, p. 12).

In addition to drug prophylaxis, guidance and reception are important, since individuals most likely to contract HIV infection are subject to situations of prejudice and discrimination. They can affect stigmas and stereotypes,

sometimes produced and reproduced by the media, which make them even more vulnerable to HIV/AIDS.

4. Rico Vasconcelos's Blog

Ricardo de Paula Vasconcelos, an infectious disease physician, works in the area of treatment and prevention of HIV and other sexually transmitted infections, and participates in clinical research with PrEP. The professional maintains a blog in the blogosphere of Universo Online (UOL), a space where he deals with topics related to the binomial HIV / AIDS.

The Blog do Rico Vasconcelos will be used as an example of a virtual space for the dissemination of texts focused on Science, more specifically on Health; and we will focus on publications that deal with PrEP. Thus, we will be fulfilling the objectives to which this article serves.

Starting with the text "After all, does the use of PrEP cause an increase in other STIs?", Dated 10.25.19, the doctor tries to resolve a question that accompanies several people. There is no interview, no sources are heard. Without intermediaries, without using a journalist to write a story that contains his opinions, Vasconcelos talks about the subject, and instructs the reader, drawing on his knowledge and experience as a health professional. He disseminates information using the language he deems most appropriate to translate to the public what Science has to say. To answer the question that gives title to the text, Rico Vasconcelos uses scientific information: 'Only now in 2019 was the first scientific article published that analyzed in detail the incidence of STIs among PrEP users, taking into account the change in frequency testing. The PrEPX Demo Project, developed in Australia, has followed almost 3,000 gay and bisexual men since before the start of PrEP and after that for about 1 year, and found very interesting results. Comparing the pre and post PrEP periods, the study's conclusion is that the only increase found in STIs was that of only 1.1 times in cases of chlamydia. The incidence of syphilis and gonorrhea remained the same during the follow-up'.

The infectologist uses several hypertexts to allow the public to use other publications produced by him, having the opportunity to consult them when he deems necessary. When clicking, for example, on "negative reactions in the population and among health professionals", the reader is taken to another text, dated 11.11.18, which has the title "What makes a person to be against PrEP?". In it, the author discusses the reasons that lead certain people to react negatively to the use of pre-exposure prophylaxis, being against it. In the first paragraph, Vasconcelos states: "In my work, with the prevention and treatment of HIV and Sexually Transmitted Infections (STIs), I clearly perceive that part of the population reacts very negatively when they know about HIV Pre-Exposure Prophylaxis (PrEP)". The doctor uses personal experience as a source of information to start the text. Further on, in the third paragraph, the author writes: "Contrary to what people who worry about PrEP say, this is the most potent HIV prevention strategy ever invented to date. It does not overload the organs, has no side effects and does not harm the vast majority of its users. It does not cause an explosion of other STIs, nor does it make HIV stronger and more resistant. This has all been demonstrated scientifically." This time, the doctor effectively uses science to support what he says; just look at the last sentence: "This has all been demonstrated scientifically." It is as if the professional said: there is no way to refute scientific evidence, they are above personal assumptions.

And Vasconcelos does not only address biomedical and technical elements in his text. The blog's author talks about prejudice, stigma and social representations: "This automatic rejection of PrEP is very similar to another negative reaction, already older, associated with everything that is related in some way to HIV, known as serophobia. [...] In other words, I realize that a large part of the stigma that already existed with HIV is reproduced on PrEP, always attributing a negative charge to sex." In the following excerpt, the infectologist mentions moral aspects surrounding sex and HIV prevention: "Likewise, STIs have been around since the beginning of humanity, but only more recently have they become the subject of guilt and judgment. Let us not forget that an STI does not happen to a person as a punishment for something wrong he did. And that the only way to not be vulnerable to any STI throughout life is not to have sex."

The hypertext 'It doesn't promote an explosion of other STIs' takes readers of the blog to an older text, dated 06.15.2018, entitled "Study shows that with PrEP people have sex more without a condom. And?". In this publication, Vasconcelos has already dealt with the controversial issue about the increased incidence of other sexually transmitted infections, attributed by some to PrEP. Even without having the Australian study, published only in 2019, the infectologist seeks scientific substrate to elaborate his arguments. Already in the title, he tries to face the result of the study in a thoughtful way, without extremism. He recognizes that PrEP leads to a certain degree of disinhibition of sex without a condom, with an increase in antico-rectal STIs, especially those caused by chlamydia, but analyzes the scientific information as a whole, taking into account all its developments.

The author removes from the information what it can offer, without sectarianism, which allows him to explain, for example, that according to a study by the same scientific journal, in 2017, if PrEP users are screened for chlamydia and gonorrhea every 3 months, and treated when positive — even when they have no symptoms — in 10 years the incidence of these diseases should drop by about 40%. And so, he concludes: 'Therefore, even for other STIs, PrEP brings benefits, with its routine of screening and treatment. Even if there is risk compensation between some'

5. Final Considerations

Journalism has assumed its role on issues involving Medicine, Science, Health and society. There is a growing participation of communication vehicles in the dissemination of information related to Science, especially its impacts on people's daily lives. Thus, it is relevant to rethink the relationships between the most diverse areas of knowledge and the press, and the role of information dissemination for the construction of citizenship.

Therefore, this text asks: in the elaboration of journalistic texts, is the medical and scientific discourse hegemonic or does it take into account the view of professionals from other areas of knowledge?

The journalistic rhetoric must go beyond medical statements, since Health is a theme with multiple facets, covering social and political elements. Sociologists, political scientists, historians, economists and many other professionals can contribute to discussions about health, depending on the disease that is being talked about. It is necessary to evaluate, in depth, the journalistic language used in scientific dissemination, since the language is not only suitable for social intelligibility, but it is an instrument for updating the power relations in society.

One of the ways to disseminate scientific information is to use the space offered by the Internet. Blogs and websites can be occupied by journalists and other professionals interested in taking Science to laypeople, to the public that is interested in research, discoveries and inventions, without, however, belonging to the universe of scientists.

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