

The Cancer Pill on Brazilian Television: television coverage of a scientific controversy

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Abstract

In 2015, synthetic phosphoethanolamine appeared in the headlines of many national newspapers in Brazil as the “cancer pill.” Patient advocacy groups, legal experts, politicians, doctors, and scientists weighed in on the ensuing debate about the use and legality of the compound. Through the quantitative content analysis of videos shown on the three leading free-to-air TV channels – Rede Globo, Record TV and Sistema Brasileiro de Televisão (SBT) –, this article examines the way the phosphoethanolamine case was covered on Brazilian television. Sixty-four stories aired on 14 different programs were analyzed, totaling 5 hours and 12 minutes of footage. The main narrative perspectives explored by the channels were political/legal and scientific. Although they depicted more scientists than patients, this coverage included interviews with just 22 scientists versus 75 patients. While Record and SBT made patients’ first-hand accounts the focal point of the case, Globo highlighted the rational side of the debate, centered on scientific evidence and doctors’ warnings.

Keywords: Science Communication. Television. Media Studies. Scientific Controversy. Phosphoethanolamine.

Introduction

We live in a world that is increasingly affected by science and technology (S&T), in which we are forever being faced with decisions that call for some type of scientific knowledge. A case in point would be decisions involving health, such as decisions about taking medications or choosing medical treatments or therapies (RAMALHO *et al.*, 2015). Given that science is part of the dynamics of today’s society, it is important for laypersons

to have closer contact with scientific knowledge. To enable this, people must be given access to the knowledge produced by the scientific community so they can make more informed choices and engage in public debates in the exercise of citizenship, without being marginalized (BANDELLI, 2016).

Interaction and collaboration between laypersons and scientists may have an impact on the research and development of new drugs and treatments. For example, some research has been regarded as controversial in Brazil and faced considerable difficulty getting government approval, but has gained momentum thanks to the combined efforts of patients and researchers. The use of embryonic stem cells in research for the treatment of degenerative diseases and spinal cord injury (ALMEIDA; DAL'COL; MASSARANI, 2013) is one such case, as is the regulation of the use of cannabidiol – a substance present in cannabis that has anti-seizure potential – by the health regulatory agency, Anvisa. In this latter case, patients and their relatives joined forces and asked for meetings with Anvisa and contacted journalists, scientists, and senators to get support for the process. For the drug to be approved, the pressure of patients was fundamental – patients who were informed and forged alliances with scientists in order to gain credibility (OLIVEIRA, 2017).

In recent years, however, the Brazilian public and part of its scientific community have been polarized in discussions over the use of a substance produced at the University of São Paulo for cancer treatment. In 2015, the compound called synthetic phosphoethanolamine was touted in national news outlets as the “cure for cancer” or a “cancer pill”. Patient advocacy groups, relatives of patients, legal experts, politicians, doctors, and scientists promptly engaged in a debate about the use of the substance, announced by some as a new hope for cancer patients. However, at the time, the compound had not even been tested clinically and did not have Anvisa authorization. It is the television coverage of this controversy that we study here¹.

The judicialization of the distribution of phosphoethanolamine

Phosphoethanolamine capsules were first produced and distributed in the 1990s by Gilberto Orivaldo Chierice, a professor of chemistry at the University of São Paulo (São Carlos campus) who used the university’s resources and infrastructure for its production. It is estimated that at least 20,000 cancer patients received the pills until 2014 (ORSI, 2017), when the university issued an ordinance banning their distribution. In response to this move, several individuals filed lawsuits claiming the right to be treated with the substance. In October 2015, the Supreme Court Justice Edson Fachin reversed a decision by a São Paulo court that had denied a patient access to the compound, thereby opening a legal precedent for other patients to receive it (ORSI, 2015).

¹ This study received funding through a CNPq/Ministry of Science, Technology and Innovation call for projects (MCTI/CNPQ 01/2016 – Universal), and one of the authors received CAPES funding during her master’s degree studies.

Shockwaves spread across the country. The discussion of the legality of the distribution of the substance spread widely and received coverage in the main television news programs. Throughout this period, the press and media carried first-hand accounts and testimonials of patients with cancer who said their condition had been improved by the use of phosphoethanolamine. The episode culminated in the approval by the lower and upper houses of Congress of a law regulating the compassionate use² of phosphoethanolamine, even in the absence of scientific studies proving its efficacy or identifying potential risks. In April 2016, the then president, Dilma Rousseff, signed Bill 13,269³, known as the Cancer Pill Bill, by which patients with cancer were permitted to use synthetic phosphoethanolamine provided they had medical records proving their diagnosis and they and their legal representative signed a “consent and responsibility agreement” (MACEDO, 2016, n.p.). In the following month, May 2016, the plenary session of the Supreme Federal Court concluded that the authorization and sale of the compound without first undergoing the required clinical trials and without scientific proof would be unconstitutional, and thereby suspended the law passed by the president and, thus, the legal use of phosphoethanolamine (SUPREMO, 2016).

It should be noted that although the capsules were produced by researchers from one of Brazil’s leading universities, its scientific community spoke out against their use, with the subject even receiving coverage in an editorial in the prestigious journal *Nature* (NATURE, 2015). The Brazilian Society for the Progress of Science published an open letter supporting the medical authorities’ position against the use of phosphoethanolamine by patients diagnosed with malignant tumors, reiterating its support for and confidence in the work of Anvisa (SBPC, 2016). A study carried out by the Brazilian Society of Clinical Oncology found that most Brazilian oncologists would not recommend the substance without due testing (REGO, 2017). All this goes to show just how big a controversy the topic became.

The relevance of discussing science on television

Whenever there is a major scientific controversy, the mainstream media have an important role to play in the public debate. The sheer range and impact the media has on individuals and society means it takes on something of an educational function and is instrumental in shaping how society perceives science and the people involved in it, even if this is not, strictly speaking, its purpose (ALBERGUINI, 2007; RAMALHO *et al.*, 2015).

When it comes to television, news programs are among the most influential forms of mass communication in Brazil, despite the emergence of new media (BECKER; BUSTAMANTE, 2009). According to the study Public Perception of S&T in Brazil (CGEE, 2019), television continues to be the main source of information on science and technology

² Obtainment of a drug for patients who have a chronic or seriously debilitating disease who cannot be treated satisfactorily with authorized medications. Available at: <https://www.eurordis.org/pt-pt/content/o-que-e-um-programa-de-uso-compassivo>. Accessed on: Jan. 19, 2021.

³ The bill was proposed by Jair Bolsonaro, now the President of Brazil, when he was still a federal deputy.

for Brazilians, followed by the internet. This indicates that studies into how science is portrayed on television are necessary in order to find out what topics are featured most and which are left out, what approaches are taken, what narratives are constructed, and which social actors are given voice in this space (RAMALHO *et al.*, 2015; CARVALHO, 2018).

The aim of this article is to characterize and analyze the television coverage of the case of phosphoethanolamine, the “cancer pill,” on the three leading free-to-air television channels in the country: Rede Globo, Record TV, and Sistema Brasileiro de Televisão (SBT) (BRASIL, 2016). By conducting a quantitative content analysis of their coverage on different programs, we build up an overview of the main characteristics of this coverage, such as the narrative angles explored and the social actors depicted.

Methodology

By selecting the three television channels with the biggest audience numbers in the country, we believe we can piece together a representative overview of how the topic was covered on Brazilian television. TV Globo was founded in 1965 in Rio de Janeiro by the journalist Roberto Marinho, owner of the newspaper *O Globo*. Enjoying top viewership numbers since 1970 (MATTOS, 2010; BOLAÑO, 2004), it has been referred to as a symbol of Brazilian identity (WOLTON, 2006). Today, TV Globo is the biggest network in the country, available in 5,479 municipalities, where it can be viewed by 99.52% of Brazilian households (MÍDIA DADOS, 2020).

SBT was founded in 1981 by the businessman Silvio Santos after a public competition held by the federal government for two new television networks to take over from Tupi and Excelsior, both of whose broadcasting rights were revoked. For many years, it was the second largest television channel in the country, but recently its position has been challenged and sometimes overtaken by TV Record. It can be watched in 4,900 municipalities by 96,65% of Brazilian households (MÍDIA DADOS, 2020).

Record TV dates back to 1953, when it was founded in São Paulo by the businessman Paulo Machado de Carvalho. It was the second channel to go on the air in Brazil, after the pioneering TV Tupi, owned by Assis Chateaubriand. This makes it the country’s oldest broadcaster in activity. Edir Macedo, leader of the Universal Church of the Kingdom of God in Brazil, acquired it in 1989 and transformed it into a national network (REDE RECORD, 1998; BOLAÑO, 2004; MATTOS, 2010). Today, it is headquartered in São Paulo and has studios in Rio de Janeiro and Brasília. It can be viewed by 96.77% of Brazilian households, and is available in 4,921 municipalities (MÍDIA DADOS, 2020).

For this study, we collected video coverage of the phosphoethanolamine case that was available on the internet. By so doing, we combined the two main sources from which Brazilians acquire information about S&T: television and internet (CGEE, 2019). In other words, we wanted to study stories on phosphoethanolamine that were broadcast on television and then continued to be available for the public to view online.

We chose three keywords relating to the substance: *fosfoetanolamina* (phosphoethanolamine), *fosfo*, and *pílula do câncer* (cancer pill): its scientific name, abbreviation, and popular name, respectively. We selected the Rede Globo videos by searching the Globo Play platform using these keywords. As neither Rede Record or SBT have a bespoke platform for their programs online, we found their stories by searching their respective YouTube channels using the same keywords. We collected all the videos broadcast nationwide between October 2015⁴ and April 2018, which was when the parliamentary enquiry into phosphoethanolamine was concluded and the final report was delivered to the Federal Public Prosecutions Office (DIÁRIO OFICIAL, 2018). In order to be eligible for inclusion in the corpus, the videos had to be from a program aired across the country and be explicitly related to the phosphoethanolamine case.

Once the television content had been identified, the content analysis protocol was developed, which was based on the protocol developed by Ramalho *et al.* (2012) for analyzing television coverage of S&T news. Some adaptations were made to apply it to the specific topic and a diverse sample of television programs, ranging from newscasts to entertainment shows.

The following variables were analyzed: sources of information mentioned; sources of information interviewed (voices); arguments in favor of phosphoethanolamine use by patients with cancer; arguments against phosphoethanolamine use by patients with cancer; and narrative perspectives explored in the construction of the stories. In total five perspectives⁵ were identified, as shown in Table 1.

Table 1 – Narrative perspectives identified in televised stories on phosphoethanolamine

Scientific	Focus on the results of scientific research, how the substance works in the human organism, what stages a drug must go through to receive authorization, etc.
Ethical/moral	Focus on the ethics or morals of distributing a substance that has not undergone the necessary tests or of preventing patients from access to an alternative treatment.
Political/legal	Focus on political debates, strategies, or actions, pressure from advocacy groups, legal wrangles.
Patient drama	Focus on experiences of patients and their families, testimonials and first-person accounts, personification of suffering or trajectory of grief.
Commercial	Focus on economic implications, alternatives for the sale and manufacture of the substance.

Source: own data.

⁴ This was when the case started to be covered nationally in response to the decision passed down by the Supreme Court Justice Edson Fachin.

⁵ Some of the stories contained more than one perspective.

Finally, we identified the main actors involved in the case – scientists and patients/families – and counted how many times they appeared in the stories and how and where they appeared.

Diversity of programs

Thirty-seven videos were retrieved from the Globo Play platform that were aired on Rede Globo (58% of total). The eight programs on which they appeared had diverse profiles: *Bem-Estar* (health and quality of life), *Bom Dia Brasil* (newscast), *Encontro com Fátima Bernardes* (morning chat show), *Fantástico* (magazine program), *Jornal Hoje* (newscast), *Jornal da Globo* (newscast), *Jornal Nacional* (newscast), and *Hora 1* (newscast).

The research of Rede Record's YouTube channel yielded 11 valid videos (17%), shown on four of the channel's programs: *Balanço Geral* (news program), *Domingo Espetacular* (magazine program), *Fala Brasil* (newscast), and *Jornal da Record* (newscast). SBT's YouTube channel was found to contain 16 videos that fitted the study criteria (25%), which were shown on just two shows, both news programs: *SBT Brasil* and *Conexão Repórter*.

In all, 14 nationwide television shows were identified as having aired stories on phosphoethanolamine, totaling 64 videos with a combined length of 5 hours and two minutes. Table 2 shows the videos per program and their respective broadcasters⁶.

Table 2 – Number of videos per program per channel

Globo	No. of videos	Record	No. of videos	SBT	No. of videos
Bem estar	11	Balanço Geral	1	Conexão Repórter	5
Bom dia Brasil	6	Domingo Espetacular	2	SBT Brasil	11
Encontro com Fátima Bernardes	1	Fala Brasil	2		
Fantástico	5	Jornal da Record	6		
Hora 1	4				
Jornal Hoje	6				
Jornal da Globo	1				
Jornal Nacional	3				
Total	37		11		16

Source: own data.

⁶ *Bem Estar* devoted an entire program to phosphoethanolamine. However, on Globo Play the show is broken down into shorter sections.

Globo covered the phosphoethanolamine case in considerably more programs (eight) than Record (four) or SBT (two). This difference could be down to the broadcasters' specific profiles.

As Carvalho (2018) notes, Rede Globo is a stable presence in the market, having topped the country's viewership ratings for over 40 years. It has a varied lineup of programs, covering journalism, entertainment, and even education. That means that any scientific issue can be addressed in different ways, from various angles, and at different times of day. This is borne out by our study of the phosphoethanolamine coverage: the controversy appears not only on the news but also in entertainment programs, in time slots ranging from the morning through late at night, and on different days of the week.

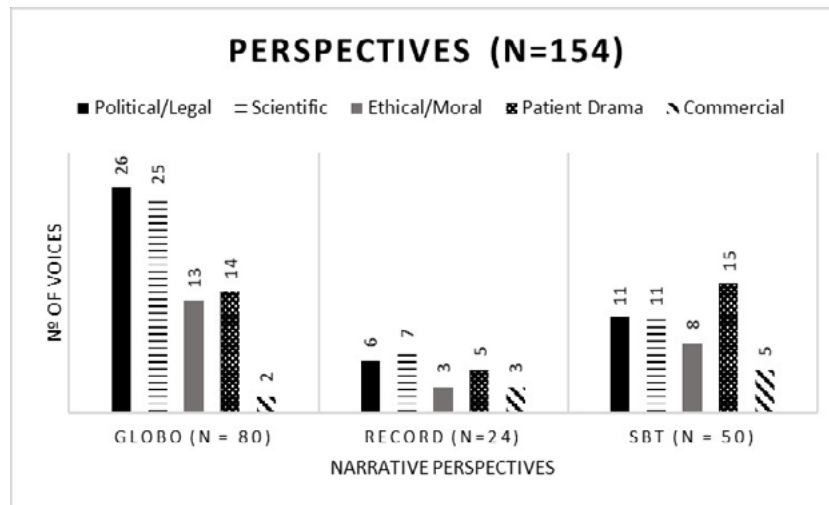
The same cannot be said of Record TV. Linked as it is to an evangelical church, it tends to have a less varied lineup, with a focus on entertainment and religious output, with limited news coverage. As such, the phosphoethanolamine debate appeared primarily on its two daily newscasts, *Fala Brasil* and *Jornal da Record*.

A similar profile can be seen on SBT, which also addressed the subject on two news programs. Like Record TV, SBT is more entertainment-oriented and is best known for its live-audience shows, including the ones presented by its founder, Silvio Santos (MARTINS, 2016).

A breakdown of the coverage by number of minutes per channel shows that Globo's and SBT's coverage had approximately the same duration: just over two hours each (40% and 44% of the five hours analyzed, respectively). Meanwhile, the coverage on Record lasted just 47 minutes (16% of the total). In other words, Globo and SBT gave the controversy considerably more air time than Record, which potentially enabled them to present it in more detail.

Narrative perspectives and arguments

The analysis of the perspectives taken in the stories enabled us to ascertain what themes gained most coverage. These were political/legal and scientific, which both featured in 28% of the videos (43 each), followed by patient drama, with 22% of the total (34), ethics/morals, with 15.6% of the total (24 videos), and commercial, with 6.5% (10 videos), as shown in Graph 1.

Graph 1 – Number of themes per video, broken down by broadcaster

Source: Own data. N.B. As more than one theme may appear in a single video, their sum (154) exceeds the total number of videos (64).

The fact that the main themes were political/legal, scientific, and patient drama is indicative of the factors that brought the case into the public gaze in the first place: the judicialization of capsules of a chemical compound, bringing into the arena the judiciary, patients, government institutions, and scientists, and prompting patients with cancer to take legal action to get access to it (CASTRO; ALMEIDA, 2017). The injunctions and counter-injunctions were portrayed in the coverage and were often used as the starting point for the presentation of the scientific considerations that justified the authorization or prohibition of the compound, and also the drama experienced by the patients who saw this pill as their only chance of surviving cancer.

The fact that Rede Globo had more reports that took a political/legal or scientific perspective, rather than telling the story from the perspective of the patients' and relatives' experiences and first-hand accounts, was consistent with its profile and the programs on which the coverage appeared. As most of the Rede Globo programs analyzed were newscasts, it is no surprise that legal and scientific narratives about the authorization of a new drug took precedence, since television news tends to prioritize factual content and exclusive coverage (RAMALHO *et al.*, 2012).

However, the profile of the videos shown on Record TV was a surprise, because we expected them to focus more on patient drama, prioritizing first-person accounts of patients and relatives and their suffering – common practice in the kind of human-interest programs aired on the channel (BOLAÑO, 2004). In fact, what we found was that although patient drama was not the theme of all the videos (it was present in 5 of the 11 retrieved), it was a feature of another category of analysis used in this study: the number of patients and relatives interviewed, as we shall see below.

It is important to note that the priority Record TV put on a scientific perspective does not mean it took a consistent stance for or against the use of the substance. While Chierice's team of researchers championed the widespread use of phosphoethanolamine, even without the clinical trials required by Anvisa, most of the scientific community warned of the risks of such practice. And as both sides employed scientific terms and explanations to sustain their arguments, both positions could be covered taking a scientific angle.

SBT's coverage was the only one that put most emphasis on patient drama (15 of 16 videos). This is in keeping with the goals of this broadcaster, which calls itself the television channel of the Brazilian family and uses a direct form of communication that eschews subtlety, using whatever it takes to get emotional responses from viewers (MARTINS, 2016).

As for the arguments, a higher proportion of the videos presented arguments both in favor of and against phosphoethanolamine use in the same story (26 videos; 40.6%). Interestingly, in the stories that presented just one side of the argument, arguments against phosphoethanolamine use by cancer patients featured more (20 videos; 31.2%). This was particularly the case on Rede Globo, where 17 of the stories only mentioned arguments against its use.

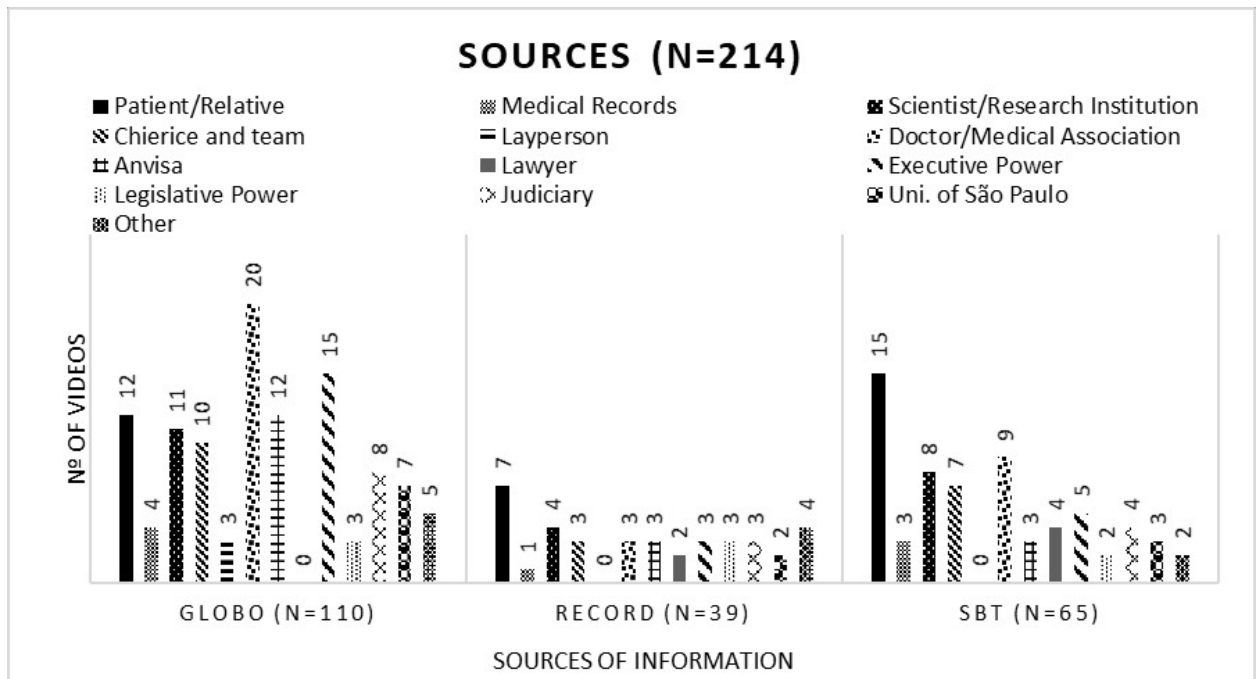
The arguments against phosphoethanolamine stressed the absence of any clinical trials, which meant there was no scientific proof of its efficacy or safety, potentially putting patients who used it at risk. These arguments were presented by doctors and representatives of medical associations, scientists, and Anvisa representatives. Meanwhile, the arguments in favor of its use generally featured individual patients' experience of using it, changes in their diagnosis, their improved quality of life, and the scientific data presented by the researchers responsible for synthesizing the substance.

Actors involved in the phosphoethanolamine debate

In our analysis, we distinguish the sources of information mentioned in the videos – the ones used and cited in constructing the story – from the “voices” heard – people or institutions who were actually interviewed on camera. Patients/relatives were the most cited actors, mentioned in 34 of the videos (53%), followed by doctors/medical associations (32 videos, 50%), scientists/research institutions and executive power (23 videos, 36%), and finally scientists from Gilberto Chierice's research team⁷ (20 videos, 31%; Graph 2). This gives us the main social groups involved in the controversy – patients, doctors, scientists, and executive power – as the sources most cited in the videos studied.

⁷ We should stress that our analysis distinguishes scientists from Gilberto Chierice's team from other scientists, given the different position they took.

Graph 2 – Number of videos per source of information, broken down by broadcaster



Source: own data. N.B. As each video may cite more than one source, their sum (214) exceeds the total number of videos (64).

These results are consistent with those of other researchers (CHAGAS *et al.*, 2014; MASSARANI *et al.*, 2013; RAMALHO *et al.*, 2015), who have found that scientists, laypersons, and doctors tend to be the main sources of information used in televised science-related news stories.

The profiles of the people interviewed in the stories – whom we refer to as “voices” in the protocol – was very similar to the profile of the sources of information cited, in that patients/relatives and doctors were interviewed in more of the news stories (32 and 26, respectively), followed by scientists/research institutions (19), scientists from Gilberto Chierice’s team (16), and executive power (13).

We also observed how often images of scientists and patients/relatives were shown, whether or not they were interviewed, as we considered these to be the key players in the phosphoethanolamine debate. We found that far more scientists appeared than patients/relatives (236 vs. 143). Only on the SBT show *Conexão Repórter* and the Record TV show *Domingo Espetacular* were there more images of patients/relatives than scientists. Nonetheless, the frequency of images of scientists was not matched by the number of interviews with scientists; indeed, as we have seen, fewer scientists were interviewed than patients/relatives, their images being shown more often to accompany voiceovers.

When we investigated where the scientists were portrayed most in the videos, we found that on all three channels, they appeared most in laboratories (84% of the images). In other words, scientists appeared primarily in their workplace, manipulating equipment, doing analyses, observing reactions. These images served above all to illustrate the scientific process per se, in this case the analysis and testing of a drug candidate. This is consistent with the findings of a more general study of the way S&T is covered on Globo and Record television programs, in which Carvalho (2018) found that researchers tended to be portrayed in laboratory settings, lending them an air of authority and credibility. As for the images of the patients/relatives in our corpus, they appeared most often in their homes (33% of images) and in hospitals, receiving treatment (29.6%).

Overall, just 22 scientists were interviewed, which means just 9.3% of the images of scientists in the videos (236) were from interviews. This is also consistent with Carvalho and Massarani's (2016) analysis of 672 hours of health-related scientific coverage on TV Globo and TV Record, where scientists did not appear often in the programs, merely being cited as sources of information.

The actors who appeared most in interviews in the videos were patients/relatives, accounting for 75 of the voices heard. Indeed, scientists even lagged behind doctors and medical associations, who appeared in 39 interviews. On Globo, doctors and medical associations constituted the largest group of interviewees, gaining pride of place in the coverage of the case. As for Gilberto Chierice and his team, they were heard in 20 interviews overall – a similar number of times as scientists (discounting his group). On SBT, for example, his group were interviewed eight times, while other scientists voiced their opinions in seven interviews.

An even bigger difference comes to light if we compare the numbers found in the Record TV coverage, where scientists were interviewed just twice, while Chierice's team took part in five interviews. In other words, these broadcasters (SBT and Record TV) gave more air time to Chierice's perspective and that of his team (pro-phosphoethanolamine) than they did to the majority opinion in the scientific community, which was largely against phosphoethanolamine use.

It has been shown elsewhere that television program makers look to develop narratives that make a connection with the public, strike a chord with viewers (MASSARANI *et al.*, 2013; MEDEIROS *et al.*, 2013; MEDEIROS; MASSARANI, 2011). Carvalho and Massarani (2016) show that in science coverage on Brazilian television, laypersons generally appear talking about their life stories, the way they overcame a disease, or else showing their medical treatment. This is consistent with our findings, where patients were often portrayed at home or in hospital and they and their relatives were encouraged to recount their personal experiences of phosphoethanolamine. In shows like *Conexão Repórter*, biographical narratives were a real feature of the coverage, in line with a prominent characteristic of our culture: the value given to public testimonials by victims – whether of disease, tragedy, or neglect by the authorities (SACRAMENTO, 2016).

In the specific case of phosphoethanolamine, the first-hand accounts of patients and their relatives had a bigger role than simply that of offering emotion-charged content to engage viewers: it also served as evidence of its putative efficacy, casting doubt on the prevailing scientific discourse against its use. A case in point was the father of a boy with brain cancer shown on the first story on *Domingo Espetacular*. The father appears showing medical records that indicate a reduction in the size of the tumor and demonstrating how his son's mobility has progressed since taking the pill. In other words, patients' and relatives' voices are often enlisted to contest the position taken by the scientific community (against Chierice) and challenge the actions of regulatory agencies such as Anvisa.

Concluding remarks

Some differences and similarities were observed among the three broadcasters' coverage. While Record and SBT put the spotlight on patients' own accounts and experience, Globo prepared stories that focused on rational aspects of the case, presenting scientific evidence and the warnings of doctors and medical associations. The analysis of its coverage shows that its narrative was designed to influence viewers not to use phosphoethanolamine, rallying arguments to this end.

The narrative identified in the coverage of both the São Paulo-based broadcasters was designed to engage viewers emotionally, especially *Conexão Repórter* and *Domingo Espetacular*, which featured specific patients' stories of hardship and recovery. *Conexão Repórter* went so far as to show the grave of a patient who had been interviewed for the show in 2015 when she was advocating for the right to use phosphoethanolamine.

Nonetheless, there was one thing that all the broadcasters had in common, and that was the frequent depiction of scientists in supporting roles for this narrative, often occupying the screen during voiceovers. These images served to lend the coverage credibility and authority, as the scientists were often filmed inside a laboratory – a workplace out of bounds to most people. This finding is consistent with what Carvalho (2018) discovered in her analysis of S&T in Globo's and Record's television programs, where researchers were repeatedly portrayed inside laboratories.

The pivotal role of patients was also clear, especially in Record TV's and SBT's coverage of the issue. Both channels played reason against emotion, the former represented by scientists, doctors, and regulatory agencies warning of the danger of administering a compound that was still being tested; the latter represented by patients and their families on a crusade against time, eager to do whatever it would take to fight the disease, and appealing to the courts in a last-ditch effort⁸. This approach chimes with what Lerner (2013) identified: a large number of personal accounts in media coverage of health issues, strengthening the

⁸ Scientists working with Gilberto Orivaldo Chierice took the same line as patients who called for the use of phosphoethanolamine, but without abandoning the logical reasoning associated with science.

individualization of the experience and constituting biographical narratives that evoke suffering and other emotions.

One point that attracted our attention was the fact that medical associations like the Brazilian Society of Cancerology were given so much air time. The doctors who appeared in their name were not there to give their own personal views, but to reinforce the position of the medical profession against the use of phosphoethanolamine.

It should be noted that the case concerning the use of phosphoethanolamine for treating cancer took on an unprecedented dimension in Brazil, not only because it concerned the production and distribution of a new substance for the treatment of a disease, but also because of the legal corollaries. However, the scientific focus was pivotal throughout the debate, along with the whole emotional appeal around the substance, given that cancer affects such a high proportion of the world's population and mortality rates are high: it is estimated that by 2030 there will be 21.4 million cases of the disease and 13.2 million deaths (SARRAF, 2016).

The fact that phosphoethanolamine was synthesized and distributed by a researcher and professor from the country's leading public university for 24 years (from 1990 to 2014) before becoming a national furor only went to strengthen the belief that it did in fact cure cancer, because it was apparently backed up by science. Future studies of phosphoethanolamine may investigate the question of scientific credibility and authority in greater detail, because in this episode patients and others would sometime refute or question scientific authority (i.e., when scientists spoke out against the use of phosphoethanolamine), but at other times would take advantage of scientific discourse – namely, to affirm the efficacy of the compound, highlighting that it had been produced by a university professor and researcher.

Finally, we should stress that our objective here was to identify the main characteristics of the television coverage of a scientific controversy – the use of phosphoethanolamine by cancer patients – with a view to contributing to media studies on the subject and the field of science communication in Brazil. We believe this study could help shed light on other scientific controversies and help guide future analyses of television coverage of scientific issues.

References

- ALBERGUINI, A. C. **A Ciência nos Telejornais Brasileiros (O papel educativo e a compreensão pública das matérias de CT&I)**. 2007. 300p. Thesis (Doctorate in Social Communication) – Methodist University of São Paulo, Graduate Program in Social Communication - São Bernardo do Campo, 2007.
- ALMEIDA, C.; DAL'COL, F. L.; MASSARANI, L. Controvérsia científica no telejornalismo brasileiro: um estudo sobre a cobertura das células tronco no Jornal Nacional. **História, Ciências, Saúde – Manguinhos**, Rio de Janeiro, v. 20, supl., p. 1203-1223, nov. 2013.
- BANDELLI, A. Where citizens go to become scientific citizens. **Spokes**, 19, May 2016.
- BECKER, B.; BUSTAMANTE, C. The past and future of Brazilian television news. **Journalism**, v. 10, n. 1, p. 45-67, 2009.

- BOLAÑO, C. **Mercado brasileiro de televisão**. 2a. edição. São Cristóvão (SE): Universidade Federal de Sergipe; São Paulo: EDUC, 2004.
- BRASIL. Presidência da República. Secretaria Especial de Comunicação Social. **Pesquisa Brasileira de Mídia 2016**: hábitos de consumo de mídia pela população brasileira. – Brasília: Secom, 2016. 120 p.
- CARVALHO, V. B. **A ciência e os cientistas na TV aberta brasileira**: uma análise de conteúdo da programação diária da TV Globo e TV Record. 2018. 180 f. Thesis (Doctorate in Biological Chemistry) – Federal University of Rio de Janeiro, Leopoldo de Meis Medical Biochemistry Institute, Graduate Program in Biological Chemistry – Rio de Janeiro, 2018.
- CARVALHO, V. B.; MASSARANI, L. Ciências da saúde na TV brasileira. **RECIIS. Revista Eletrônica de Comunicação, Informação & Inovação em Saúde** (Edição em Português. Online), v. 10, p. 1, 2016.
- CASTRO, R.; ALMEIDA, R. A. Testemunho, evidência e risco: reflexões sobre o caso da fosfoetanolamina sintética, **Anuário Antropológico** [Online], I | 2017, posto online no dia 08 junho 2018. Available at: <http://journals.openedition.org/aa/1637>. Accessed on: Apr. 30, 2019. DOI: 10.4000/aa.1637.
- CENTRO DE GESTÃO E ESTUDOS ESTRATÉGICOS - CGEE. **Percepção pública da C&T no Brasil – 2019**. Resumo executivo. Brasília, DF: 2019. 24p.
- CHAGAS, C. *et al.* Investigação em medicina e saúde no horário nobre: análise de dois programas televisivos brasileiros. **Razón y Palabra**, v. 82, p. 1, 2013.
- DIÁRIO OFICIAL, Poder Legislativo. Comissão parlamentar de inquérito constituída com a finalidade de apurar as razões que motivam o estado a não realizar pesquisas para a liberação da substância fosfoetanolamina, produzida por cientistas no campus da USP de São Carlos, **Relatório Final dos Trabalhos**. Assembleia Legislativa do Estado de São Paulo, São Paulo, v. 128, n. 72, 25 de abril de 2018. Available at: <http://www.al.sp.gov.br/repositorio/arquivoWeb/com/com5512.pdf>. Accessed on: May 18, 2018.
- LERNER, K. Doença, Mídia e Subjetividade: Algumas Aproximações Teóricas. In: XXXVI CONGRESSO BRASILEIRO DE CIÊNCIAS DA COMUNICAÇÃO. Manaus, AM – 4 a 7 set. 2013. **Proceedings...**
- MACEDO, A. R., RESENDE, A. Sancionada lei que autoriza o uso de substância contra o câncer. **Agência Câmara Notícias**, abr.14, 2016. Available at: <https://www2.camara.leg.br/camaranoticias/noticias/SAUDE/507016-SANCIONADA-LEI-QUE-AUTORIZA-O-USO-DE-SUBSTANCIA-CONTRA-O-CANCER.html>. Accessed on: Mar. 15, 2019.
- MARTINS, R. **“A TV MAIS FELIZ DO BRASIL”**: a proposta de interação do SBT com a audiência. 2016. 173f. Dissertation (Master’s Degree in Social Communication) - Faculty of Philosophy and Human Sciences, Federal University of Minas Gerais, Belo Horizonte, 2016.
- MASSARANI, L. *et al.* Saúde aos domingos - uma análise da cobertura da pesquisa em medicina e saúde no Fantástico. **RECIIS. Revista Eletrônica de Comunicação, Informação & Inovação em Saúde** (Edição em Português. Online), v. 7, p. 6, 2013.
- MATTOS, S. **História da televisão brasileira**: uma visão econômica, social e política. Petrópolis: Editora Vozes. 5. ed. 2010.
- MEDEIROS, F.; MASSARANI, L. A cobertura da gripe A(H1N1) 2009 pelo Fantástico. **Intercom – Revista Brasileira de Ciências da Comunicação**, São Paulo, v. 34, n. 1, p. 41-59, jan./jun. 2011.
- MÍDIA DADOS. **Mídia Dados Brasil Para Todos**. Grupo de Mídia. 2020. Available at: <https://midadados2020.com.br/midia-dados-2020.pdf>. Accessed on: Jan. 20, 2021.
- NATURE. Editorial: Drugs on demand - Controversy in Brazil over access to a purported cancer cure could set a harmful precedent. **Nature**. v. 527, p. 410, 2015.

OLIVEIRA, M. A regulamentação do canabidiol no Brasil: como nasce a expertise leiga. **Liinc em Revista**, Rio de Janeiro, v. 13, n. 1, p. 190-204, may 2017.

ORSI, C. Fosfoetanolamina, o “caso que envergonhou a ciência brasileira”. **Gazeta do Povo**, 01 de junho de 2017. Available at: <https://www.gazetadopovo.com.br/ideias/fosfoetanolamina-ocaso-que-envergonhou-ciencia-brasileirad5wnxh6h28oop2z9b3xsg6v3w?comp=whatsapp>. Accessed on: Jan. 26, 2021.

ORSI, C. E a tal ‘cura do câncer’? **Jornal da UNICAMP**, Campinas, Oct. 26 to Nov. 8, 2015.

RAMALHO, M. *et al.* A cobertura de ciência em telejornais do Brasil e da Colômbia: um estudo comparativo das construções midiáticas. **História, Ciências, Saúde – Manguinhos**, Rio de Janeiro, 2015.

RAMALHO, M.; POLINO, C.; MASSARANI, L. From the laboratory to prime time: science coverage in the main Brazilian TV newscast. **JCOM - Journal of Science Communication**, v. 11, p. 1-11, 2012.

REDE RECORD. **Rede Record: 45 anos de história**. São Paulo: Antonio Bellini Editora e Design, 1998.

REGO, J. F. M. *et al.* A “miracle” cancer drug in the era of social media: A survey of Brazilian oncologists’ opinions and experience with phosphoethanolamine. **Revista da Associação Médica Brasileira**. v. 63, n. 1, p. 70-77, 2017.

SACRAMENTO, I. O espetáculo do trauma: narrativas testemunhais de celebridades sobre o bullying num programa de TV. **Contracampo**, v. 35, n. 2, 2016.

SARRAF, J. S. *et al.* Uso Inadvertido da Fosfoetanolamina Sintética no Brasil: por que se preocupar? **Revista Brasileira de Cancerologia**, v. 62, n. 1, p. 47-50, 2016.

SUPREMO Tribunal Federal. STF suspende eficácia da lei que autoriza uso da fosfoeta-nolamina. **Supremo Tribunal Federal, Brasília**, May 16, 2016. Available at: <http://portal.stf.jus.br/noticias/verNoticiaDetalhe.asp?idConteudo=317011>. Accessed on: May 18, 2018.

WOLTON, D. **Elogio do grande público: uma teoria crítica da televisão**. São Paulo: Editora Ática, 2006.

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