



Media coverage of the Zika crisis in Brazil: The construction of a ‘war’ frame that masked social and gender inequalities

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ABSTRACT

Between 2015 and 2016, Zika became an epidemic of global concern and the focus of intense media coverage. Using a hybrid model of frame and social representations theory, we examine how the Zika outbreak was reported in two major newspapers in Brazil: *O Globo* and *Folha de São Paulo*. The analysis of 186 articles published between December 2015 and May 2016 reveals a dominant ‘war’ frame supported by two sub-frames: one focused on eradicating the vector (mosquito) and another on controlling microcephaly, placing the burden of prevention on women. Scientific uncertainties about the virus and its relationship to microcephaly coupled with political uncertainties in Brazil increased the power of the war frame. This frame gave prominence and legitimacy to certain representations of disease management during the crisis, masking social and gender inequalities. We show how the cartography of the disease overlaps with that of poverty and regional inequality in Brazil to argue that addressing socio-economic aspects is essential, but normally neglected, in media communications during disease outbreaks like Zika.

1. Introduction

The Zika virus (henceforth ‘Zika’) was first identified in rhesus monkeys in Uganda in 1947 (Dick et al., 1952). Zika is a flavivirus transmitted to humans by different mosquitos from the genus *Aedes* and causes a mild fever, along with skin rash, headache, conjunctivitis and myalgia (Faria et al., 2016). Zika was first reported in Brazil in April 2015 where the history of the disease is linked to that of dengue as they are both transmitted by *A. aegypti*. Dengue is a longstanding urban disease which increases in prevalence yearly around the rainy season and Zika has the potential to follow the same epidemiological patterns (Vogel, 2016). To complete the virus ‘triad’ in Brazil, there is an emerging concern about Chikungunya fever (Donalisio and Freitas, 2015). One of the distinguishing features of Zika vis-à-vis the other two diseases is that the virus supposedly causes a serious birth defect in new-borns known as microcephaly (Petersen et al., 2016).

Brazil was the first Western country to experience a large-scale spread of Zika and by November 2015, 18 of Brazil’s 27 states had reported cases of Zika infection (Ventura et al., 2016). In January 2016, Brazil declared ‘war’ on Zika (Portal Brasil, 2016) and after it spread to neighbouring countries, in February 2016, the World Health

Organization (WHO) declared Zika a ‘public health emergency of international concern’ (World Health Organization, 2016). Like outbreaks of Ebola between 1976 and 2014, Zika can be seen as what Sheldon Ungar (1998) calls a ‘hot crisis’ which provokes panic and a strong language of control and containment (Kott and Limaye, 2016; Joffe and Haarhoff, 2002), but also anxieties about loss of control – framed as winning or losing a war (Curson, 2016).

At the end of November 2016, after the WHO declared that it would no longer be treated as an international medical emergency, responses to Zika were still being described within a war context (Vogel, 2016). In May 2017, the government ended the national public health emergency on Zika. One year after the outbreak, experts in Brazil voiced important concerns that there are still more doubts than assurances for dealing with longstanding consequences of Zika and uncertainty of the causes underlying its higher occurrence in North-eastern Brazil (Ribeiro et al., 2017).

This study investigates the social construction of Zika in the Brazilian print media and argues that this construction contributes to shaping the understanding of the nature and causes of the disease and how it should be managed. The media and other actors select and highlight certain aspects of an issue and exclude others (Entman, 1993;

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Gamson and Modigliani, 1989). However, except for a few recent articles examining Twitter debates on Zika (e.g. Dredze et al., 2016; Fu et al., 2016; Glowacki et al., 2016) and one blog post dealing with metaphorical framing of Zika in English-language media (Nerlich et al., 2016), there has been no empirical investigation of the print media's portrayal of Zika and how this portrayal may intersect with the spread of Zika and disease control and policy implementation, especially in Brazil.

Building on previous work investigating the importance of the social construction of health and illness (see Wallis and Nerlich, 2005; Idoiaga-Mondragon et al., 2017), the study draws on theoretical and methodological tenets from frame and social representations theory (with a focus on Entman, 1993; Moscovici, 1988; respectively) in order to examine how the Brazilian print media covered this outbreak. The analysis covers 186 articles published between December 2015 and May 2016 in two main newspapers of national circulation to examine the way in which the epidemic is framed in the media and how social representations are used to make sense of it during the outset of a public health response. As a key source of information, the print media constitutes an important space of public and expert debate on health and disease management, highlighting issues that are reproduced in other contexts such as the online press and social media platforms. Future analyses will have to focus on how social media and traditional media interacted during the Zika outbreak. However, research on Twitter use during the 2009 swine flu pandemic found that Twitter was used to both “disseminate information from credible sources” and to exchange opinions and experiences (Chew and Eysenbach, 2010, p.12). Analysing the framing of outbreaks, epidemics and pandemics in ‘credible sources’, such as the traditional print media therefore provides the groundwork for future studies.

The different frames embedded in the media are important because they are performative, simultaneously specifying appropriate actions and ultimately reflecting policy agendas and the concerns and interests of different groups (Greer and Singer, 2017). Therefore, the prominence of certain frames has implications for public health policy and public understanding of (and responses to) epidemics (Gislason, 2013). As shown by studies focusing on the relationship between the media, disease and society, specific frames mobilised and highlighted by newspapers are instrumental in shaping public perception of both chronic conditions and epidemics (Kott and Limaye, 2016; Rossmann et al., 2017; Van Gorp and Vercruyse, 2012). The Zika outbreak coincided with political instability and the Olympics held in Brazil, for which the public debate was highly politicised as reports on the spread of the disease were conflated with a dispute on the former president's wrongdoing (Watts, 2016). Given that in public health emergencies governments and health authorities play a fundamental role in defining the terms of the debate and in organising responses (McCormick and Whitney, 2013), the media framing of Zika in Brazil must be situated within this political context.

This study reveals a dominant frame of ‘war’ in Brazilian print media, supported by two sub-frames: one focused on vector control and another on microcephaly, placing the burden of prevention on women. Scientific uncertainties about the virus and its relationship to microcephaly coupled with political uncertainties in Brazil increased the power of the war frame. These findings build on previous studies on the use of the war frame and ‘biomilitarism’ in science, media and policy (see Montgomery, 1991; Nerlich et al., 2002; Nerlich, 2004). They show how the war frame gave prominence and legitimacy to certain representations of disease management which are discussed in this article, masking a marginal frame that unveils social and gender inequalities. In the case of Brazil, the cartography of Zika overlaps with that of poverty and regional inequality. Therefore, policies that prioritise strategies such as vector eradication, instead of tackling long-standing societal challenges, may not be the most sustainable, long-term solution to the problem.

2. Theoretical framework

When faced with novel scientific issues, the media rely on metaphors and commonplace images to conceptualise and communicate about them. This study draws upon frame analysis (Entman, 1993) and social representations theory (SRT) (Moscovici, 1988) to understand the ways in which the Brazilian media framed and represented Zika. SRT provides an appropriate framework for examining the transition of Zika into the social, cultural and political domains and has been widely employed to study emerging epidemics (see Washer, 2006, 2010). For instance, a study of social representations of Ebola found that people came to categorise Ebola as inherently African but as posing a global danger, which in turn induced fear and anger (Idoiaga-Mondragon et al., 2017). SRT explores the social, cultural and linguistic mechanisms whereby knowledge is elaborated collectively, the meanings that can come to be attributed to novel phenomena and the affective responses that are associated with these cognitive and affective dimensions. A social representation consists of a framework of images, values and practices in relation to a given phenomenon, in this case, the Zika outbreak.

Social representations enable individuals to understand and communicate about the novel and unknown through two social psychological processes - anchoring and objectification.

- Anchoring refers to the process of making something unfamiliar understandable by linking it to something familiar. Some reports, for example, anchored Zika to Ebola, particularly in terms of policy responses to the outbreaks (Wenham, 2016), as Ebola was being brought under control as Zika started.
- Objectification is the process whereby unfamiliar and abstract objects are transformed into concrete and ‘objective’ common-sense realities – most notably through the use of metaphor. Metaphors allow individuals to map aspects of more familiar knowledge (the so-called source domain) onto more unfamiliar knowledge (the so-called target domain) (Lakoff and Johnson, 1980). In our case, knowledge of war (source) is mapped onto Zika (target), an epidemic that needs to be understood and managed.

As in previous SRT studies of health and medicine (e.g. Jaspal and Nerlich, 2016), the theory was used to inform the analysis of the data and develop possible hypotheses regarding the link between media representation and potential policy implications, given that SRT is concerned with the tripartite relationship between representation, awareness and action. Many of these studies were inspired by Susan Sontag's work (1979; 1989), which laid the foundations for examining the role of metaphors in framing responses to crises in public health. Metaphors “are important in communication and cognition because they express, reflect, and reinforce different ways of making sense of particular aspects of our lives. This central function of metaphor is itself often referred to metaphorically as ‘framing’” (Semino et al., 2016, p.1). Metaphors are therefore some of the most potent framing devices (Koteyko and Atanasova, 2016), as they make us think about (frame) one thing in terms of another. This has direct policy implications, as choices of metaphor can determine both choices and the framing of policies (Schön, 1979).

Framing involves selecting aspects of reality and making them salient in order to define problems and recommend solutions:

Frames, then, define problems - determine what a causal agent is doing with what costs and benefits, usually measured in terms of common cultural values, diagnose causes - identify the forces creating the problem; make moral judgments - evaluate causal agents and their effects; and suggest remedies - offer and justify treatments for the problems and predict their likely effects (Entman, 1993, p.52).

Entman (1993) defines salience as “making a piece of information

more noticeable, meaningful, or memorable to audiences” (ibid, p.53) through “placement or repetition, or by associating them [pieces of information] with culturally familiar symbols” (ibid, p.53). Frames not only direct attention towards certain aspects of the world but they can also “direct attention away from other aspects” (ibid, p.54).

Frames, metaphors and the social representations possess an action-orientation and structure political, scientific and public responses to policy problems. They can mobilise resources, define interventions and research agendas, give legitimacy in order for actors to take decisions, and define the actors who will benefit from them. As an important source of public understanding regarding health and illness, the media should constitute a focal point in analyses of the political debate and public understanding of Zika. Yet, there has been no analysis of the media's response to Zika in Brazil. The social representations and frames used in media debates are often taken up in other contexts, which in turn feed into policy and practice. A theoretical combination of SRT and frames is therefore necessary. Accordingly, this study focuses on Brazilian media to explore the different frames and stories that speculate about the drivers of the Zika crisis, the factors that characterise its emergence and consequences, and how society should manage the disease.

3. Method

The study employs content analysis methods (Bryman, 2012) to explore the dominant and peripheral frames used in the Brazilian media in relation to the emergence and management of the Zika crisis. Our analysis is predominantly qualitative (Macnamara, 2005) with descriptive and interpretive approaches to coding (Sandelowski, 2000). While our initial coding framework was concept-driven (see categories listed in section 3.2), the themes that emerged from its application are data-driven categories identified inductively (see Table 1). Drawing on frame theory, we focused on understanding and deconstructing different frames in terms of what they diagnose as problems, how they evaluate them and what they prescribe. This approach is complemented by concepts from SRT to identify processes of anchoring and objectification.

Table 1

Coverage of themes within different categories. Notes: a) except for ‘framing production’, where the unit of analysis is the full text of the article, all other categories have sentences as the unit of analysis; except for ‘problem definition’, the same source (i.e. media article) may be coded on multiple categories; b) not applicable: articles where Zika is not sufficiently discussed (e.g. it is simply mentioned or is not the main focus of the article); c) ‘number of sources’ corresponds to number of media articles on which the content has been coded.

Category ^a	Theme ^b	Theme coverage ^c (n = sources)	Relative theme coverage (% within category)
Problem definition	Health, epidemiological and scientific	134	72.0
	Socio-economic and political	23	12.4
	Not applicable	29	15.6
Framing production	National public health authorities	59	26.0
	Scientists and scientific institutions	58	25.6
	International health authorities	51	22.5
	Brazilian government (central and regional)	39	17.2
	Brazilian citizens	20	8.8
Audience	Women	52	44.4
	Brazilian citizens	33	28.2
	International and national tourists	23	19.6
	Brazilian government and health authorities	9	7.6
Evaluation	Scientists and scientific institutions	68	36.0
	National public health authorities	47	24.9
	International health authorities	34	18.0
	Brazilian government (central and regional)	28	14.8
	Brazilian citizens	12	6.3
Prescription	Avoid and destroy mosquitoes	59	64.8
	Avoid pregnancy or abortion	18	19.8
	Vaccines and drug development	14	15.4
Anchoring	Microcephaly	81	45.5
	Dengue and Chikungunya	68	38.2
	Other (e.g. Ebola, H1N1 and HIV)	29	16.3

3.1. Data collection

Articles on Zika began to appear in December 2015 and peaked in February 2016. Analysis focused on articles published between December 2015 and May 2016 in the print versions of two national newspapers in Brazil: *O Globo* (OG) and *Folha de São Paulo* (FSP). This timeframe follows that of official declarations from the Brazilian Ministry of Health of a national public health emergency and represents the initial moments of the outbreak and public health response to Zika. OG and FSP were selected because they represent the two largest and most popular Brazilian newspapers with the ability to influence public opinion and push political agendas (Azevedo, 2006).

We focused on print versions because online versions include material and information from other sources than the newspapers themselves (e.g. from the international press or TV channels). To the best of our knowledge, the content of the printed versions will reflect that of the online ones, which is consistent with our objective of mapping out the different frames of Zika in the Brazilian media. Our data sampling strategy therefore follows that of previous studies on media framings (Markens, 2012).

We used *LexisNexis* to search for articles in OG and the newspaper's own database in the case of FSP. The search yielded a corpus of 188 articles containing the term ‘Zika’ anywhere in the text, with 2 duplicates. 186 articles were subjected to in-depth analysis (n = 127 from OG; n = 59 from FSP). Most articles (68%) included the term ‘Zika’ in their title and/or first paragraph, demonstrating the relevance of the selected sample. Fig. 1 shows the distribution of publications for each newspaper over the 6-month period.

3.2. Data analysis

The first author of this paper and a trained research assistant, both native speakers of Portuguese, pilot coded 20 random articles (i.e. > 10% of the sample) using a draft coding framework developed by the research team through a series of iterations. Based on a revised version of the framework, all articles in the sample were coded independently, first by the research assistant and then by the paper's first author, with NVivo 11 from June to September 2016. Intercoder reliability was calculated in NVivo using the Kappa coefficient and indicated high level

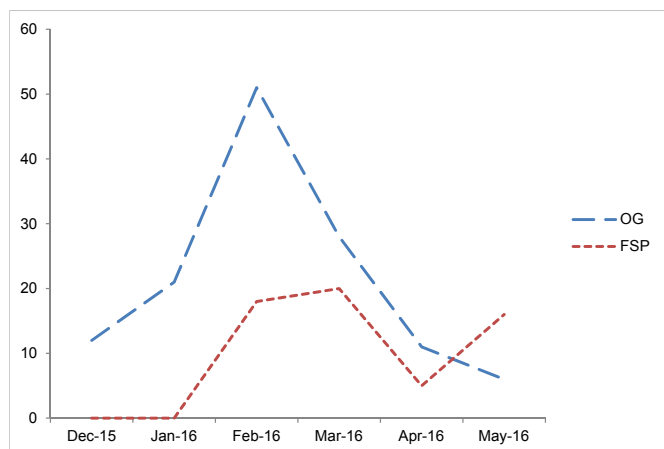


Fig. 1. Sample distribution between December 2015 and May 2016.

of agreement between coders (average $k = 0.88$). The coding process was both deductive and inductive. Informed by a hybrid analytical framework drawing on frame theory and SRT, the initial coding framework included seven first-order categories, described in the form of questions:

- Problem definition: In which terms is Zika being defined, i.e. what is the nature of the problem?
- Framing production: Who are the actors framing Zika as a problem?
- Audience: Who are the ‘interested’ or ‘affected’ actors targeted by the article (i.e. to whom the article is speaking)?
- Evaluation: Who is evaluating the Zika outbreak (i.e. prescribing solutions to the problem) or being considered as the legitimate actor to evaluate it?
- Prescription: What is being prescribed as a solution?
- Anchoring: How is the Zika outbreak being articulated alongside other epidemics and diseases?
- Objectification: How can we characterise the metaphors and images being mobilised through Zika framings?

The first five categories reflect ‘analytic constructs’ of interest to frame theory with similar concepts having informed analytical frameworks for the study of public health responses (e.g. Garvin and Eyles, 2001). As in previous SRT studies of health and medicine (e.g. Jaspal and Nerlich, 2016), the analysis was guided by tenets of SRT. More

specifically, the research team identified and discussed instances of anchoring and objectification, which are key processes underlying the construction of social representations, represented by the last two categories. In the first stage of coding, one of the coders applied the initial coding scheme to the sample of articles. A number of ‘themes’ (i.e. second-order categories) emerged from the analysis. These themes were inductively identified (Braun and Clark, 2006) and guided the second stage of the analysis where they were grouped, refined and applied to the sample by the two coders. The emerging themes mapped onto what can be categorised as social representations.

We had an interest in understanding the prominence of different themes in relation to each other (see Table 1). This was essential as, when analysing the media articles, we noticed that some frames, along with a series of associated textual elements (i.e. themes) seem to be much more prominent than others. It is worth noting that objectification constitutes an interpretive category based on the analysis of the meaning of metaphors and images. These were best understood in the media and political context in which they were embedded and there was no interest in quantifying them. Therefore, this category is not included in Table 1. Informed by a detailed summary (in English) of the results of the first two stages of content analysis, all members of the research team discussed how the themes, examined together, constituted different frames within the media discourse on Zika. This was done by a) examining the absolute (i.e. number of sources where a theme occurs) and relative coverage (i.e. percentage in relation to other themes within the same category) of the different themes by the media articles to understand their prominence; and b) by investigating how they converged to form coherent frames and sub-frames about the nature of problems, their solutions, actors involved in framing and evaluating problems, as well those targeted by the media article and the processes of anchoring deployed to communicate the Zika outbreak (see Table 2).

4. Results

A dominant frame of a ‘war on Zika’ emerged in the Brazilian media during the first six months following the declaration by the Brazilian government of a national public health emergency on Zika. We call it a ‘war frame’, which is supported by two powerful sub-frames; a second frame, more marginal in comparison to the former, is made of themes which did not fit within the dominant frame and includes alternative, socio-economic accounts of the causes of the Zika outbreak. Table 2 summarises how each of these frames and sub-frames constitute media packages embedding a series of elements and symbols that give

Table 2

Description of frames and sub-frames. *Note: ‘Prescription’, under the marginal frame, was inferred by the authors from the problem definitions coded on ‘socio-economic and political nature’; that is, differently from the three themes for prescription that are part of the war frame, socioeconomic solutions were not prescribed by the media articles, but could be inferred by the reader.

	War frame		Marginal frame
	War against mosquitoes and viruses	War against microcephaly	
Problem definition	Health, epidemiological and scientific	Health, epidemiological and scientific	Socio-economic and political
Main actors involved in framing production and evaluation	Brazilian government; national public health and international health authorities; scientists and scientific institutions	Brazilian government; national public health and international health authorities; scientists and scientific institutions	Brazilian citizens from affected areas;
Main audience	Brazilian citizens; international and national tourists	Women	Governments and health authorities
Prescription*	Citizens and the army should eradicate the mosquito and take preventive measures to avoid it. Vaccines and drugs should be developed	Women should avoid pregnancy and be aware of the risks of not doing so. Women should avoid mosquitoes and not travel to affected areas	Governments should address inequality and provide access to basic sanitation, infra-structure, education, and birth control
Anchoring	Zika is part of historical fight against Dengue and Chikungunya	Zika and microcephaly are diseases that ‘go together’	N/A
Objectification	Combat, control and fight characterise a war against mosquitoes and viruses and mobilise and criminalise of Brazilians	Compelling and emotional descriptions and images of newborns with microcephaly and their mothers	Zika is a disease of poverty and inequality

meaning to an issue (Gamson and Modigliani, 1989).

We first discuss and illustrate the dominant war frame constructed in the Brazilian media during a national public health emergency triggered by Zika. Such a frame includes literal and metaphoric war elements, as exemplified by excerpts from the articles analysed. The war frame is informed by two sub-frames which embed parallel forms of collective and individual action against Zika: 1) a collective war focused on eradicating the mosquito; and 2) a gendered war against microcephaly, in which the burden of responsibility is put on women, who are expected to adopt preventive measures and avoid pregnancy. Finally, we discuss an alternative frame that has been marginalised by the mainstream accounts of the Zika crisis in the Brazilian media. This ‘marginal frame’ is a separate, potentially competing frame to that of the ‘war’ against mosquitoes, viruses and microcephaly.

4.1. War against mosquitoes and viruses

The first sub-frame of the ‘war frame’ focuses on a war against mosquitoes and viruses as a health, epidemiological and scientific problem. Governments, public health authorities, and the scientific community are responsible for framing and evaluating the problem and developing strategies to control mosquitoes and scientific solutions, including vaccines and drugs. Although both mosquitoes and viruses are positioned as enemies in the war against Zika, it is the mosquito, rather than the virus, that takes centre stage in the blame-game within the war frame. The principal action orientation of the emerging social representation of Zika is around the necessary actions to be taken against the mosquito as a personified enemy:

“Parodying the French naturalist Saint-Hilaire (1779–1853), either Brazil puts an end to *Aedes aegypti*, or *Aedes aegypti* will put an end to Brazil” (OG, 31 January 2016).

This framing posits the insect as the problem and prescribes its elimination as a solution. Importantly, the solution is framed very strongly as the only possible one, as not adopting it would spell disaster for Brazil as a country – the target of the mosquito as its opponent. This war-like action oriented against the mosquito as the number-one enemy is reinforced in the articles through references to a speech by Brazil’s former president:

“Brazilians are asked to put together a big army of peace and health to fight against the mosquito. (...) If the mosquito isn’t born, then the Zika virus can’t survive, said the president” (OG, 4 February 2016).

In this quote, the President conflates metaphoric (i.e. an army of peace and health) and literal elements, as real soldiers also came to participate in the “fight against the Zika virus and other diseases caused by the *Aedes aegypti*, with the army receiving 29 million reais [approximately 7 million pounds] to take part in this action” (OG, 18 December 2015).

Within the war frame, crime is also evoked, both literally and as a metaphor, to talk about reactions to Zika within our media sample. For example, an article documents the imprisonment of a mother and a daughter under the accusation of “committing an epidemics crime” by maintaining potential mosquito’s breeding sites in their home and therefore “not fighting the mosquito”, but instead helping to keep it alive (FSP, 3 March 2016). Indeed, this crime can be seen as harbouring the enemy.

Thus, the Zika crisis is attributed principally to the mosquito, the enemy, criminal or culprit, whose actions must be curtailed and defeated. References to military action and calls for cooperation and concerted action by the population are prominent and terms such as ‘combat’ and ‘control’ abound, both literally and metaphorically. This frame constitutes clear evidence of an objectification of Zika prevention around the language of war and conflict. According to this objectification strategy, war and crime become pervasive metaphors that

structure the management of the epidemic. Given the history and experience of dengue in Brazil, and in the absence of vaccines, strategies adopted to avoid the mosquito tend to rely on controlling its population. Indeed, the heavy use of insecticides and pesticides has been the preferred choice for addressing Dengue (Da Silva Augusto et al., 2016).

Despite emerging differences between traditional mosquito-borne diseases and Zika, the response against Zika is framed along the lines of the historical and familiar battle against Dengue and, more recently, against Chikungunya. Thus, Zika is anchored to these existing epidemics and aspects of these epidemics are generalised to Zika. Importantly, besides some of their symptoms, the three diseases share the same mosquito as vector, which facilitates the anchoring process.

Although the mosquito-borne triplet is noticeably dominant in terms of anchoring Zika to other diseases, there were also invocations of other viruses, including Ebola. Some articles compared early warning alerts for Zika as the ones applied to “extreme cases, such as the one of the virus Ebola” (OG, 9 February 2016). In explicating Zika, the press anchored the virus to existing pandemics, which served to transfer some aspects and characteristics, especially fear, from these viruses and the way they were managed to Zika and emerging social representations.

4.2. War against microcephaly

The second sub-frame of the ‘war frame’ is centred on the war against microcephaly. The problems and solutions related to this sub-frame are constructed by the same actors as the preceding one and Zika remains a health, epidemiology and scientific problem. A large number of the articles linked microcephaly with Zika, despite scientific uncertainty at the time of analysis. By April 2016, newspapers began to provide emerging scientific evidence of the relationship, as illustrated by some articles’ headlines: “Zika virus causes microcephaly, concludes US Health Agency” (FSP, 13 April 2016); “Scientists explain neurological effects of Zika” (FSP, 17 April 2016). In the context of this scientific uncertainty, the press invoked emotional social representations that Zika causes this condition, thereby anchoring it to images of children affected by microcephaly.

This framing made Zika a specific female-type preoccupation; women (and, in particular, pregnant women) became the main target audience. Women were the ones “who should receive orientation about how to have safe sex” (OG, 9 March 2016), if they were to avoid having babies with microcephaly. Fertile women were framed as both ‘victims’ of the disease (along with their potentially future babies) and as the responsible agents for taking decisions on pregnancy:

“In the battle against Zika, five governments in the Americas, Colombia, Jamaica, Dominican Republic, Ecuador and El Salvador, have recommended in official communications that women in reproductive age should avoid pregnancy (...)” (OG, 27 January 2016).

These calls were criticised by organisations that highlighted the need to discuss the issue of sexual health and women’s reproductive rights in the context of Zika (Almeida, 2016). Moreover, the debate around abortion was even more controversial given that abortion remains illegal in Brazil. In the debate around Zika and abortion, religion plays an important role, with both citizens and the church openly taking conservative positions on the matter:

“In a message transmitted on Thursday, the National Conference of Brazilian Bishops (CNBB) declared that the occurrence of microcephaly does not justify abortion” (OG, 5 February 2016).

The issue of women’s right to abortion was brought to the Supreme Court in 2016 by a group of activists and academics, generating a wave of controversy around “the legalisation of abortion in Brazil”, with divergent opinion on the “legal viability of the proposal to allow women infected by the virus to have an abortion in a moment when the country experiences an outbreak in microcephaly cases” (OG, 15 February 2016).

Zika became tangible in a particular manner, as microcephaly became a global symbol of the epidemic. Through the use of appealing and shocking images, this neurological condition was instrumental in much of the framing of the immediate victims of Zika. The objectification of the disease in terms of the image of the infant with microcephaly served to humanise the condition but also to foreground this possible consequence of Zika over other diseases. Zika and its consequences were framed as a “tragedy for mother and baby” (OG, 28 February 2016). The objectification of Zika in terms of microcephaly presented a dilemmatic action orientation, namely how a pregnant woman acts following knowledge of Zika infection in the absence of legislation in Brazil that permits abortion.

4.3. Marginal frame

A second frame, much more marginal when compared to the prominence of the ‘war frame’ in the coverage by the media articles, includes alternative accounts of the Zika crisis by less authoritative actors who define the problem as socio-economic and political inequalities. These accounts can be found within the mainstream frame but, because they are given less visibility in the media, they become peripheral in the management and communication of Zika. Although marginal, this frame constitutes a form of counter-narrative when compared to the views of main ‘expert’ players such as governments, health authorities and scientists. This frame highlights civil society’s perceptions of the shared responsibility for the emergence of mosquito-borne diseases and its critique of inequality and expert authority:

“Abigail Arruda, 57, lives in Brasília and acknowledges that in the last year everyone had Dengue in the area where she lives. ‘We look after plant pots [to avoid standing water], but this year the Council has not visited us yet” (FSP, 22 February 2016).

Articles also included comments related to poverty, suggesting socio-economically deprived Brazilians are the most affected by the epidemic and highlighting the role of social factors, such as basic sanitation, domestic refuse collection services and water distribution, in the outbreak of Zika:

“There are many water pods [within an abandoned construction site]. We suffer with so many mosquitoes. I have had dengue already Zika as well. My body was full of red spots. People complain by calling the council, but nobody has ever come to help us” (OG, 18 December 2015).

“The population is vulnerable and there’s nothing they can do in their own homes when sewers are open and there’s abandoned land elsewhere. It’s not by chance that the poorest are the most affected” (OG, 12 March 2016).

Here, action is demanded not only from individuals, but also from the Brazilian government and health authorities. Within these less authoritative voices, pregnant women from lower-income families and regions also revealed their concerns by criticising public health institutions for not offering medical support and information. The focus of blame changes and responsibility is attributed to other actors rather than mosquitoes and viruses. These other accounts have been side-lined by the broader war frame as they have less political salience. They address fundamental issues related to the spread of Zika, such as poverty, women’s vulnerability and citizens’ reactions to the disease. Marcondes and Ximenes (2015) highlight the role of infrastructural issues to explain the original outbreak of Dengue as an event closely linked to a water-supply crisis in Sao Paulo, “which caused the general population to store water using improvised methods” (p. 4). The authors also note that “garbage dispersed in urban areas is the most important breeding site for this mosquito” (p. 5).

Social representations differ in their level of credibility and, thus, pervasiveness. The social representation of the bad handling of the Zika

crisis, voiced largely by citizens of Brazil and foreigners as opposed to government and health authorities, can be considered an emerging ‘polemic’ social representation in competition with the ‘hegemonic’ or dominant representation of the virus and its vector as the main problems.

5. Discussion

The media works as a space in which political actors “launch their frames”; in this sense, it is “a carrier for the frames of others” (Scheufele, 2004, p.403). In this case, the prevalent frames in the Brazilian print media are produced by a combination of hegemonic voices from national public health and government authorities, the scientific community, and the WHO. They prioritise a social representation of a war against an enemy, the mosquito and, consequently, against microcephaly, and thus indirectly against women. Outside Brazil, besides the WHO, another prominent actor in the construction of disease frames is the Centers for Disease Control and Prevention (CDC), a federal agency linked to the U.S. Health Department. Within Brazil, it is the Brazilian Department of Health, along with local, regional and national government authorities that are the protagonists in the framing production of Zika. These actors are deemed responsible for evaluating the situation and for prescribing solutions for the epidemic.

Some actors will have greater power, particularly higher levels of credibility and authority, than others to shape and disseminate social representations. They will be more likely to develop and disseminate ‘hegemonic’ social representations, which are coercive and resistant to change (Breakwell, 2014). Accredited experts, such as scientists and health authorities, are framed in the Brazilian media as the legitimate sources of knowledge, as the authorised actors responsible for explaining the causes of the problem and setting out strategies and guiding action. Thus, the representations they espouse are more likely to be coercive and consensually accepted. The eradication of the mosquito is a top-down measure that fits well with the war frame. While the immediate public health response to the Zika outbreak could not have avoided targeting the mosquito and the virus, prioritising a war frame over others has important implications.

5.1. Political and scientific uncertainties and the power of the frame

Scientific uncertainties about the virus and its relationship to microcephaly, coupled with political uncertainties in Brazil, contributed greatly to emerging social representations of Zika in the Brazilian print media. Zika emerged in the context of one of the major political crises in Brazil’s recent history and this contributed to foregrounding Zika in the media. Amid allegations of corruption scandals by the opposition party and fierce disputes within the government, Dilma Rousseff, Brazil’s former president, was impeached in August 2016. Our analysis of the coverage of the Zika crisis in the Brazilian media overlaps with this political instability. Therefore, the emerging social representations of Zika must be viewed against this socio-political backdrop. A more in-depth analysis of the complex relationship between media frames and political developments during this specific period is however outside the scope of this paper. In any case, it is worth noting that media discourse is intrinsically politicised, especially during epidemic outbreaks (Greer and Singer, 2017).

Earlier scientific uncertainties around transmission mechanisms and links to other disorders such as microcephaly complicated the understanding of Zika and the framing of policy options (see Garcia Serpa Osorio-de-Castro et al., 2017). These fueled a type of off-the-shelf framing of disease management as war that is used whenever a new disease threat emerges. Amid uncertainty and instability, competing social representations were introduced into the socio-political sphere – some hegemonic and others polemic. While some of the representations emphasised a specific cause/culprit of Zika (e.g. the mosquito), others

focused on the physical manifestation of Zika (e.g. microcephaly in infants). These representations, which emerged early in the debate and in the absence of firm scientific consensus, served to create a plethora of different perspectives and possible policy responses in the socio-political area. The unreflective use of the war frame, which shaped social representations of Zika may be the result of uncertainty both in science and politics.

5.2. Frame blindness and the masking of social and gender inequality

Metaphors are cultural and social phenomena that naturalise social representations and shape social policy (Nerlich et al., 2002). Building on the analysis of frames and social representations, we have shown that the Brazilian media amplified a hegemonic discourse shaped by specific actors while offsetting counter-hegemonic perspectives (Cammaerts, 2012). This exercise of selecting and making some elements salient in the war against Zika can be referred to as the ‘politics of Zika’. Social representations implicitly guide policy responses by backgrounding and foregrounding particular aspects of the epidemic. Frames and representations are performative and limit the terms of the debate. They also shape the mobilisation of resources, securing them for certain priorities and limiting financial and human resources for others (Gislason, 2013). We have shown that microcephaly became an important way to frame and objectify Zika. The fall-out from this framing is interesting. For example, while explaining the extremely high numbers of microcephaly cases in North-eastern Brazil, an epidemiologist who leads research on Zika found no scientific explanation available. “We suspect the villain has an accomplice, but we don’t know who it is”, said the researcher, using a crime metaphor (Philips and Miroff, 2016).

There is no doubt that the link between Zika and microcephaly deserved to be further investigated (see Teixeira et al., 2016), but it is noteworthy that congenital microcephaly is frequently produced by drugs and alcohol exposure or other infections such as syphilis, rubella and toxoplasmosis (Ghouzzi et al., 2016). The instrumentalisation of microcephaly within the main frames of the Zika crisis put this contextualisation completely aside with important consequences for women and the poor. Microcephaly becomes the dominant objectification of Zika, potentially obscuring all other possible causes for this condition, including preventable causes such as lack of immunisation and alcohol misuse during pregnancy. In fact, official data from the Brazilian government showed that the great majority of cases of congenital malformations in babies – potentially linked to Zika, but also connected to other infections – were concentrated in economically deprived north-eastern states of the country, particularly in the States of Pernambuco, Rio Grande do Norte, Bahia and Paraíba, where access to water and sanitation is limited (Ministério da Saúde, 2016). The prevailing framings of Zika fail to highlight the importance of these social and gender factors.

6. Conclusion

Frames have performative power that guides social action and shapes health policy and health behaviour. This in turn poses dangers for policy, which were spelled out many years ago by Donald Schön, a pioneer in frame and policy analysis, when he wrote that “the essential difficulties in social policy have more to do with problem setting than with problem solving, more to do with ways in which we frame the purposes to be achieved than with the selection of optimal means for achieving them” (Schön, 1979, p.138). Mainstream media framings of Zika reveal much about who is blamed and who is seen as responsible and, ultimately, shape public opinion on the matter. Unfortunately, the ‘war’ frame discussed above focuses on the mosquito as the personification of an enemy that needs to be defeated rather than on people, poverty and politics as factors shaping the spread of Zika.

Through a combination of framing theory and SRT, used here as a new hybrid model for conducting a media analysis of emerging

infectious diseases, we have shown how the Brazilian media framed both the epidemic and its possible solutions in ways that failed to capture the politics of Zika at the outset of the public health crisis. This failure had implications for the way the epidemic was understood, how immediate strategies were designed and, importantly, how resources were distributed. The cartography of Zika overlaps with that of poverty and regional inequality in Brazil. Brazilians struggle with high levels of income inequality and poverty in one of the most socio-economically unequal countries in the world (Salata, 2016). Besides social inequalities within the regions, there is a significant socioeconomic divide between Brazilians living in the south and the north (Marques de Oliveira and Rocha Dallabrida, 2013). Indeed, Da Silva Augusto et al. (2016) attribute continued incidence of dengue cases in Brazil to poor urban infrastructure and environmental sanitation. However, the media debate masked these inequalities, which are inherent to the emergence and rapid spread of the disease, by prioritising a war frame against Zika. These conditions should have been acknowledged precisely during the initial phase of the crisis (some issues, such as reproductive and human rights, are now beginning to be discussed in academic circles, see Valente, 2017, Rasanathan et al., 2017). Historically, those vulnerable groups who suffer the burdens of mosquito-borne diseases such as dengue and Zika are excluded from fair wages, living conditions and decisions about their own sexual health, including access to good quality public education, freedom from violence, and health services. The eradication of mosquitos and taking prevention measures are therefore only a few of the possible strategies to consider when coping with this and other disease outbreaks. One of the most important lessons taken from the case of Zika is that the absence of socio-economic equality is also an underlying factor of disease emergence and it may have the potential to influence its eradication, as has been the case in other mosquito-borne diseases.

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