


## DISINFORMATION TRANSGRESSION AND THE ANTI-VACINE GROUPS ON FACEBOOK

TRANSGRESSÃO DESINFORMATIVA E OS GRUPOS ANTI-VACINA NO FACEBOOK  
TRANSGRESIÓN DESINFORMADORA Y LOS GRUPOS ANTIVACUNA EM FACEBOOK


### Tiago Mainieri

PhD in Communication Sciences (USP). Professor of the Postgraduate Program in Communication at the Federal University of Goiás (UFG).  
[tiagomainieri@gmail.com](mailto:tiagomainieri@gmail.com).

 0000-0001-5186-7526

### Rafael Borges Marques

Bachelor in Public Relations (UFG). Master's student of the Postgraduate Program in Communication at the Federal University of Goiás (UFG).  
[borgesrm@hotmail.com](mailto:borgesrm@hotmail.com).

 0000-0002-6278-9364

Mailing address: Universidade Federal de Goiás, Faculdade de Informação e Comunicação – Campus Samambaia. Itatiaia, 74001970 - Caixa-postal: 131. Goiânia, GO – Brasil.

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### ABSTRACT:

The article proposal is to discuss the role of social media spreading fake news in the health context analysing misinformation content that circulate in one of the main anti-vaccine groups on Facebook. The proliferation of fake news is supported by a misinformation network whose nature exposes the fragility of the public health prevention system and the risk of the return of some diseases in Brazil. As a result of the misinformation, there is a decrease in vaccination coverage rates and there is an increased exposure of people to diseases.

**KEYWORDS:** Disinformation; Health communication; Anti-vaccination movement; Internet; Social media.

### Introduction

Disinformation, even though it is not a recent phenomenon, has been an issue currently due to the ease in the spread of fake news on social networks. Understanding the dynamics that operate in these spaces seems to be one of the ways to think about strategies to combat disinformation.

Since 2016, studies that address the repercussion of false news in the American elections and, more recently, from the 2018 presidential elections in Brazil, have intensified. The interest aroused by the avalanche of false news during election campaigns reveals only one dimension of fake news. It is important to highlight that studies in the field of communication, conducted by researchers, are not limited to the effects of disinformation in the context of politics, but also in the field of health. As they consider the importance of the theme, several authors have analyzed the phenomenon of misinformation and false news disseminated in the main social media such as Facebook, Twitter, Youtube and a messaging app like WhatsApp.

It is extremely important to carry out research that aims to understand disinformation. From these studies, it is possible to reveal elements to accompany the evolution, to map the types of content, to categorize the misinformation and, mainly, to identify patterns that allow to fight the false news.

Understanding the role of social network users in the dissemination of (dis)informational content on health is one of the aspects that has been contemplated in studies in the area of communication. There is also an increase in actions aimed at expanding the dissemination of scientific information in the health area. Another aspect equally emphasized are initiatives to combat fake news, such as agencies specialized in fact checking, channels created by government agencies, such as "Saúde sem Fake News"<sup>1</sup> from the Ministry of Health (MH) and the performance of the platforms themselves, social media by reviewing its usage policy and removing false information.

In this way, the article proposes to discuss the spread of false news and the repercussions in the context of health promotion based on the analysis of uninformative content circulating in one of the main anti-vaccine groups on Facebook – The Dark Side of Vaccines<sup>2</sup>. It is worth mentioning that the study analyzes only one group among the dozens existing; second, the work is configured as a qualitative research, which is why the publications were selected by the relevance criterion.

The ease with which anti-vaccine groups attract sympathizers and followers in sharing uninformative content justifies the concern with the topic and the relevance of this discussion. In addition, the apprehension of entities in the health area with the drastic reduction in vaccination coverage and the return of diseases already eradicated in Brazil as a result of misinformation is a reason to be analyze the proliferation of these groups on social networks. Noticing that, according to data from the Brazilian Ministry of Health<sup>3</sup> (MH) and the World Health Organization (WHO)<sup>4</sup>, since 2016, there

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<sup>1</sup> "Saúde sem fake news" was created by the Ministry of Health in 2019 in order to avoid sharing false information. According to information available in the regulation "The channel SAÚDE SEM FAKE NEWS is a channel of the Ministry of Health, for receiving and sending instant messages, via WhatsApp, to combat the so-called" Fake News "about health." The information received by the social networks, from the users, is verified by the technical team of the BMH. Available at <https://www.saude.gov.br/images/pdf/2018/agosto/24/saude-sem-fakenews-terminos-de-uso.pdf>. Accessed on 04/23/2020.

<sup>2</sup> O Lado Obscuro das Vacinas

<sup>3</sup> Available at: <https://www.saude.gov.br/boletins-epidemiologicos>. Accessed on 02/09/2019.

<sup>4</sup> Available at: [https://www.who.int/gho/publications/world\\_health\\_statistics/2018/en/](https://www.who.int/gho/publications/world_health_statistics/2018/en/). Accessed on 01/09/2019.

has been a worldwide propensity of epidemics of diseases already eradicated, such as Measles, for example.

The article begins with a brief reflection on the effects of disinformation from social medias on contemporary society marked by information and communication technologies (ICTs). Then, the text introduces a discussion about the spread of misinformation in the health context, in the sense of understanding the possible relationship between disinformation and the drop in the population's immunization rates. Finally, the results of the qualitative study of the analyzed anti-vaccine group are presented.

### **Disinformation and vaccines – The epidemic of Disinformation**

The internet has a close relationship with the escalating effects of disinformation on contemporary society. Contemporary society is marked by ICT's and their social consequences.

The impact of the internet on society is evident, and digital medias is the contemporary core of this impact. They, and their social role, are at the center of the debate about the epidemic of psychiatric illnesses<sup>5</sup>, politics<sup>6</sup>, economics<sup>7</sup> and, of course, misinformation. Communication and information networks that have a potential for citizen mobilization that aims at public interest share space with groups interested in spreading false content.

Given this context, the lack of information on social networks takes on a worrying dimension that has led researchers to discuss and deepen this issue. In addition to the researchers, the platforms themselves, such as Facebook for example, have been looking for mechanisms to contain the spread of fake news on the network.

Although there are other reasons for the decrease in the number of immunizations and an increase / return in the number of cases of infectious diseases, misinformation influences this phenomenon. The role of these new media and, especially, digital social media in the phenomenon of disinformation and the growing influence of ICTs in contemporary society justify the focus of this work.

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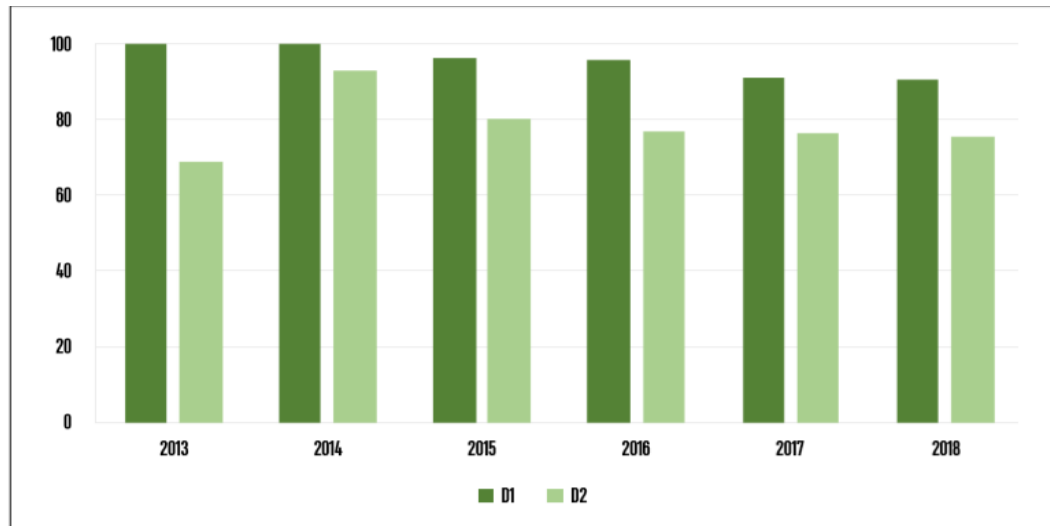
<sup>5</sup> Learn more at: <https://epocanegocios.globo.com/Tecnologia/noticia/2019/07/depressao-entre-adolescentes-tem-relacao-com-televisao-e-redes-sociais-diz-estudo.htm>. Accessed on 11/29/2019.

<sup>6</sup> Learn more at: <https://www.bbc.com/portuguese/geral-43705839>. Accessed on 11/29/2019.

<sup>7</sup> Learn more at: [https://www.em.com.br/app/noticia/economia/2018/06/04/internas\\_economia.964183/mercado-s-a.shtml](https://www.em.com.br/app/noticia/economia/2018/06/04/internas_economia.964183/mercado-s-a.shtml). Accessed on 11/29/2019.

Some fewer themes are expensive to the public interest than health. Population health, or a threat to it, interferes with all other social spheres, such as economics, politics and culture, for example. A large-scale epidemic can cause institutional crises and force changes in population habits. However, in recent years<sup>8</sup>, Brazil has seen its vaccine coverage rates decrease and its number of controlled disease cases increased and, in some cases, even eradicated until then, as can be seen in Figure 1, which shows the history vaccination of doses of the triple viral vaccine, which is the most used immunization against measles.

**Figure 1:** Coverage chart for dose 1 (D1) and dose 2 (D2) of the triple viral vaccine in the vaccination routine of 1-year-old children between 2013 and 2018.



Source: Health Surveillance Secretariat/Ministry of Health.

According to the Ministry of Health<sup>9</sup>, there was an exponential increase in measles cases in the country according to confirmed cases between 2003 and 2018. Especially in the year 2018<sup>10</sup>, more than 10,000 cases were registered against just three records of the disease in 2003. This explosion in the number of cases is directly related to the drop in vaccination coverage rates, which means fewer immunized individuals who can become infected and spread the virus.

<sup>8</sup> Learn more at: <https://www1.folha.uol.com.br/cotidiano/2019/06/brasil-tem-sete-vacinas-infantis-com-cobertura-abaixo-da-meta.shtml>. Accessed on 11/29/2019.

<sup>9</sup> Available at: <http://www.saude.gov.br/boletins-epidemiologicos>. Accessed on 12/15/2019.

<sup>10</sup> In 2019, more than 18 thousand cases were diagnosed. Available at: <https://www.saude.gov.br/images/pdf/2020/April/08/Boletim-epidemiologico-SVS-06-v2.pdf>. Accessed on 10/05/2020.

This phenomenon is also not exclusive to the country. The increase in cases of vaccine-preventable diseases is a worldwide trend identified by the World Health Organization, as can be seen in Table 1, which presents the annual cases, among other diseases, of measles.

**Table 1** History of the number of reported cases of vaccine-preventable diseases worldwide

Number of reported cases	2018	2017	2016	2015
Measles	359.921	173.457	132.413	214.816
Whooping Cough	153.631	162.938	174.177	149.089
Diphtheria	16.651	8.819	7.101	4.535
Yellow Fever	2.064	876	1154	72
Mumps	499.512	560.622	591.684	311.599

Source: World Health Organization.

Vaccination hesitation was considered a global phenomenon, as demonstrated by the World Health Organization report, which arouses reactions from health institutions to remedy the problem. The Ministry of Health, for example, intensified campaigns to encourage vaccination<sup>11</sup> after the drop in national coverage numbers and the increase in cases of infections.

However, as Succi demonstrates (2018), hesitation to vaccination is determined by the combination of several socio-cultural, political and personal factors. For example, public vaccination policy may have been poorly communicated, the government may have little credibility (extending it to immunization) or religious reasons prevent part of the population from accepting immunization.

<sup>11</sup> Learn more at: <http://agenciabrasil.ebc.com.br/saude/noticia/2019-04/campanha-buscam-elevar-cobertura-vacinal-no-pais>. Accessed on 11/29/2019.

In Table 2, the determinants for the vaccination hesitation by income of individuals are listed. It is possible to see that the more fragile the socioeconomic situation, the more related to this condition are the determinants. It can also be seen that the more favorable the situation is, the more likely individuals are to question the vaccine. In other words, the lower the income, the more conditional are the determinants for not being vaccinated and, the higher, the more anchored in opinions these determinants are.

**Table 2** The top three reasons for vaccination hesitation by income in the world

Income level	Determinants	Frequency
Low income	Religion / Culture / Gender / Socioeconomic	10
	Other	10
	Risk-benefit (scientific evidence)	9
Lower-middle income	Risk-benefit (scientific evidence))	21
	Knowledge / Consciousness	15
	Religion / Culture / Gender / Socioeconomic	13
Upper-middle income	Risk-benefit (scientific evidence)	27
	Religion / Culture / Gender / Socioeconomic	15
	Knowledge / Consciousness	14
Upper income	Risk-benefit (scientific evidence)	31
	Beliefs / Attitudes about health and prevention	10
	Risk-benefit (perceived, heuristic)	9

Source: World Health Organization, 2017.

This hesitation it is not new in the country. In fact, Levi (2013) drew a parallel between the 'Vaccine Revolt', which took place in 1904 in Rio de Janeiro, until this decade to analyze the causes and consequences of anti-vaccine movements. Although there are similarities, the historical moments are different, since movements "are predominantly a phenomenon of higher social classes and certain intellectual groups".

According to Levi (2013) the main causes alleged by individuals, parents or guardians for not being vaccinated were philosophical, medical, religious and medical guidance. Succi (2018) argues that, among the reasons for hesitation about vaccination, are also easier access to information (and misinformation) about vaccines, which further confuses citizens in a state of hesitation. Wolton (2011), argues that the abundance of information does not mean truth and, in many cases, this information is identical and can lead to intolerance and disinformation.

The constant increase in access to communication and information technologies, especially digital social networks, is directly proportional to the income and urbanity of Brazilian citizens, as demonstrated by the latest National Continuous Household Sample Survey on the subject. This correlation makes, at least in this respect, ICTs a factor of spreading misinformation about vaccines. As demonstrated in the World Health Organization's global report on vaccine hesitation, which includes research on the American continent, the greater the interviewee's purchasing power, the greater his propensity to question the scientific validity of immunizations. Another finding reveals that the lower the income, the determining factors for the hesitation to vaccinate are religious, gender, socioeconomic factors and ignorance.

This change in perspective that leads citizens to question the scientific validity of vaccines is new, therefore, as ICTs as diffusers and connectors. Several authors such as Brites and Porcello (2018), D'ancona (2018) and Fallis (2009) point out that rumors and misinformation have always existed. The novelty, according to the authors, is in the dimensions taken by the adoption of ICTs as diffusers of misinformation. But before looking for a concept for disinformation, an introduction to disinformation about vaccines is important.

Several authors, including D'Ancona (2018) and Levi (2013), credit the article by Andrew Wakefield et al., in the British magazine Lancet, in 1998, the origin of the conspiracy theories about vaccines today. D'Ancona (2018) and Levi (2013) refer that in this study, Wakefield and his co-authors relate autism to the triple viral vaccine against measles, mumps and rubella. The Article was quickly refuted by the British and global scientific community and Wakefield was questioned by a conflict of interest for having

relationships with groups that were suing the British government for alleged vaccine sequelae.

Finally, ten of the thirteen co-authors removed their names from the article, which was excluded from the Lancet collection, and Wakefield had his license revoked from practising medicine in England. Since then, Wakefield has lived in the USA, where he participated in the production of the anti-vaccine documentary *Vaxxed*<sup>12</sup>, which has its own website and has a great repercussions in the american anti-vaccine movement.

Wakefield has been scientifically discredited and several subsequent studies have refuted the supposed correlation between vaccines and autism. However, as D'Ancona (2018) identify, "the verification process that discredited him was weaker than the fear virus he injected into the public's bloodstream". Confirming the trend of reproducibility of misinformation thank to ICTs, the document gained a sequence, *Vaxxed*<sup>13</sup>, and the contents related to the study by Wakefield were detected in the sample of this work.

D'Ancona (2018) argues the existence of a disinformation industry, defined by him as a systematic dissemination of false information by organizations that are not easily identifiable in favor of interest groups that benefit from obscuring the facts, confusion and/or controversy the public on a particular topic. The conception of the industry brings with it the idea of organization, individuals working towards a goal. Wakefield's relationship with lawyers who were suing the British state for alleged side effects of vaccines or the prominent presence of personalities offering homeopathic and/or alternative treatments observed in the group *The Dark Side of Vaccines* may be indications for a future investigation.

Nyhan and Reifler (2007) implement experiments with individuals exposed to fake news who were later exposed to real news and settle that the participants refused to change their opinion on the topic. In fact, in some cases, they ideological commitment went beyond factual contradiction of beliefs. Disinformation, it can be seen is not about rationality but about conviction and emotion, which is also pointed out by D'Ancona (2018).

In an attempt to systematize disinformation and its operability, Don Fallis (2009) seeks to conceptualize disinformation, placing the term "desinformation" in contrast to false information from sincere error "misinformation" and lies. According to the author, misinformation occurs when information I is disseminated, and the disseminator believes that proposition P is false and that the recipient individual will probably infer that P is true through the content of I, and it is reasonable that the recipient can infer P

<sup>12</sup> Available at: <https://vaxxedthemovie.com>. Accessed on 11/29/2019.

<sup>13</sup> Available at: <https://www.vaxxed2.com>. Accessed on 11/29/2019.



from this content of I. And, supremely, the proposition P must be false. This is the procedural concept of disinformation to be considered in this work.

### **Methodology**

The exploratory study provides a description of the group and presents preliminary data from the selection and analysis of the posts with the greatest repercussion in the group. It is noteworthy that the results are still initial and partial, however the qualitative character of the research allows us to assess the nature of the content posted by a group. We defined this research as exploratory, with a qualitative approach. Bibliographic and documentary research was used to provide data and establish the concepts to be considered in the analysis. Data collection was done manually and using the Lightshot tool, screenshot images were captured. The choice of API was due to the suspension of operability of the type tools and difficulty in having access to Facebook data after the Cambridge Analytica scandal<sup>14</sup>.

With the Lightshot tool it was possible to register publications, which were later organized chronologically. The categorization and analysis of these publications was done using; the Content Analysis methodology.

Laurence Bardin (1977) defines Content Analysis as a set of communication analysis techniques that aims to obtain, by systematic and objective procedures for describing the content of messages, indicators that make it possible to infer knowledge about the conditions of production/reception of these messages posts. "This approach aims to make logical and justified deductions, referring to the origin of the messages taken into account (the sender and its context, or, eventually, the effects of those messages)" (BARDIN, 1977).

### **The role of anti-vaccine groups on Facebook – an analysis by the group “The Dark Side of Vaccines”**

Disinformation, as previously presented, has a close relationship with the penetrability of ICTs in contemporary society, with the inadequate appropriation of these technologies and media by citizens as their engine. Therefore, to answer the problem question of this work, which is configured as an initial exploratory research on the topic and is part of an ongoing dissertation, the largest group reportedly anti-vaccine on Facebook was analyzed: “The Dark Side of Vaccines”. The choice of the network over others was due to the fact that it has the largest number of users in the country and more forms of interactivity. In a mapping of groups and pages of the type, others were found, but did not have the same number of members or did not exclusively treat vaccines.

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<sup>14</sup> <https://link.estadao.com.br/galerias/geral,entenda-o-escandalo-do-uso-de-dados-do-facebook-pela-cambridge-analytica,36615>. Accessed on 01/02/2020.

In the initial mapping realize, five large groups with anti-vaccine content were identified, among them the “The Dark Side of Vaccines”. The choice of this group basically met two criteria: In the throes of the groups it was the one with the largest number of members and, still, it was the only group that exclusively treated vaccines. Preliminary results, based on data extracted from the Facebook group, reveal that the disinformation currency has elements that allow a categorization whose patterns show the nature of these contents.

To perform the work, taking as a piece of October 2019, a period in which the Brazilian government started a National Measles Vaccination campaign,<sup>15</sup> after alarming numbers of infection resulted in the loss of the country’s disease eradication certificate.

The exploratory study provides a description of the group and presents preliminary data from the selection and analysis of the posts with the greatest repercussion in the group. It is noteworthy that the results are still initial and partial, however the qualitative character of the research allows us to assess the nature of the content posted by the group.

The group was created on December 24, 2014 and has a current number of 13.313 members. The privacy type was recently changed to open, which means that Facebook users who are not members of the group can see their activities, members and administrators. Previously, a request for admission and approval from management was required to be part of the group, view and interact with its members and content.

Figure 2 Print of the group<sup>16</sup>



<sup>15</sup> Available at: <http://saude.gov.br/noticias/agencia-saude/45873-campanha-de-vacinacao-contra-o-sarampo-comeca-na-segunda-feira-7-10>. Accessed on 11/29/2019.

<sup>16</sup> Translation of the text of the image: “The dark side of vaccines. Are vaccines really safe? For the right to choose”.

Source: <https://www.facebook.com/oladoobscurodasvacinas/>.

The administration and moderation of the group are performed by only one person, through a personal profile, and through a personal profile, and through the group's page, which works as a mirror for posting the content conveyed in the group and will not be analyzed in this work. This administrator/moderator can delete publications, members, change the privacy character of the group, accept or reject users who request to join the group and can also, at any time, suspend or delete the network profile, since her profile has privacy settings that allow only friends to view her activities.

The Description of the group establishes the rules for the users, as well as expresses its purpose: to discuss supposed harm of vaccines and to request the right of not being obliged to be vaccinated. Finally, the description ends with a list of links to posts, websites and videos that question the credibility of the polio vaccine and attribute the spread of the disease to conspiracy theories.

**Figure 3** Print of the group description<sup>17</sup>

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<sup>17</sup> Translation of the text of the image: "OPEN GROUP! READ THIS POST!"

NOTE: 1. Posts in English without translation will not be released! Please use Google translator. The demand is very high. We need you helping with the translation  
2. Not all posts will be released for some special reasons, where generally administrators and moderators discuss risk and benefit.  
3. A tip: Be patient, and don't attack someone who attacked you first, let me know, I have a peaceful solution!  
4. This group is mainly intended to disclose information about all possible vaccines and their content that may be harmful to our group. The decision to vaccinate should rest with the parents, not the government's obligation.  
5. If you are not convinced that vaccines are bad, there is certainly another group, which could serve you better. Vaccination discussions are against. Peace!"



Source: <https://www.facebook.com/oladoobscurodasvacinas/>

After exploratory research, some behavioral aspects of the group were detected. First of all the frequency of posting. During the analyzed period, ninety publications were registered. This corresponds to an average frequency of 3 Daily publications in the period. The frequency seems to be random without obeying a specific criterion, intensified when some subject resonates in the public sphere with resonance in the group itself, such as the measles vaccination campaign, for example.

Another aspect is related to authority. The Administrator has notoriety among the group, being frequently praised and having some of the most commented posts. The member of the group that have published the higher numbers of publications in the analyzed period was the Administrator. Effectively, there were twenty-four publications by the Administrator, while the second member with the most posts had only six. In this way, the Administrator published almost 30% of the content in this group.

There is a conspiratorial tone associated with vaccines as something frequent in posts, and in some of them, it is assumed. Just as the group's public privacy character is often questioned and alleged as a reason for non-interaction in publications by some members. These factors demonstrate that the group members are aware of the question to which their ideology is subject and also the negative public image about the movement.

Finally, members are well articulated in exchanging content, information, seeking political representation, right and public health policies. Content in other languages is often translated by members of the community itself and the praise of public figures such as doctor and anti-vaccine politicians is frequent.

Thus, from the ninety publications from October 2019, a categorization was made in specific thematic axes that were then grouped into five categories to facilitate the analysis. As a sample, the publication with the greatest repercussion the sum of reactions, comments and shares according to the operational logic of the platform itself.

After initial exploratory research, when we observed the activity of the group, its members and its publications, it was possible to detect indicator that served for further categorization of publications. These index concerned both the logic of consumption and production of content on the platform itself and the origin of the content.

The first indicator concerns the origin of the content. Whether it comes from a page or profile on the platform itself, from a website or blog. And what is the nature of this origin in observance of the concept of disinformation adopted.

The second indicator concerns the form of the content. Here the distinction is made between images (montages, cartoon, etc.), reports, manifestations in the group and prints.

The third indicator concerns the publication process. Conditioned by the platform, this process can be the sharing of user publications, pages and other platforms such as websites and blogs, or publication of the member in the group.

After the establishment of indicators, made possible by the prior exploratory research, publications in October 2019 were classified in the following categories:

**Table 3** Content and frequency categories

Category	Frequency
1 Shared content from government websites, health institutions and news portals whose credibility is recognized.	17
2 Shared contents of pages, personal profiles and websites with questionable content.	45

3	User demonstrations, questioning the community or issuing opinions not necessarily related to vaccines.	9
4	Reports of alleged harmful effects of vaccines (personal, shared and/or translated) and prints of publications, comments, posts and messages whose origins cannot be verified.	9
5	Other types of posts: montages, cartoons, political and/or religious content.	10
<b>Total</b>		<b>90</b>

Source: Authors.

The first category comprises those publications that are shared from pages and sites outside the group and whose origin has recognized credibility and whose content has not been identified as misinformation from Facebook pages of media outlets such as Folha de São Paulo and G1, for example, as well as publications from the Ministry of Health page. It is interesting to point out that, commonly, these publications are shared in a decontextualized manner and with accompanies the publication. The publications in this category had as a general argument the criticism of vaccination campaigns, the questioning of their scientific validity and the denunciation of alleged side effects.

The second category is similar in nature to the first. The distinctive indicator is the one from the origin. It gathers content shared from Facebook pages and profiles, as well as from websites and blogs. However, in addition to adding the origin of personal profiles, which did not exist in the first, this category also includes publications whose origin has no credibility. In an analysis from the perspective of the concept of publications can be considered suspect. The classification of these publications as disinformation, in short, would require checking the statements, an action that could not be performed at this stage of the work. However, it can be noted in the nature of these publications a great emotional appeal, sensationalism, evident false correlations (such as associations between autism and vaccines) and conspiracy. This is the category with the highest frequency index, surpassing half of the registered publications.

The third category brings together the publications that were personal. That is, those that the members themselves published for the group. The form of these publications was textual, as a question, aimed at the group. This category includes, for example, questions about more efficient ways to avoid mandatory vaccines in children, requesting informational (or uninformative) material and interlocations.

The main feature of the fourth category is the reports. Although it also includes some publications that could be classified in the previous category, it is distinguished from the third by the form, origin and process of its content. Included in this category are reports by members themselves about alleged harm from vaccines, including some posts with photos. Also included are reports of external profiles that were shared in the group and prints of reports in profiles, comment boxes, publications and private conversations whose origin cannot be consulted or verified.

The last category includes publications whose frequency was very low and, at this stage of analysis and with this sample, could not be considered in a more significant way. The shape of these publications is imagery and originates from members' profiles, pages or personal publications. Included are montages, memes, cartoons, publications of political and religious content. Also included were publications that were deleted/blocked after being reported by Facebook.

### **Data analysis**

Based on the previous categorization, we consider the operational logic of the platform to determine the relevance of publications in the context of the group. This relevance was measured by adding the interaction numbers of the group members with each publication, that is, adding the number of reaction, comments and shares. Taking this relevance as criterion for sample selection, the most relevant publications within each category were selected for analysis.

#### **Category 1**

The publication that serves as a sample for the first category contains all the indicators in its category and is suitable for analysis. It is a sharing of material from a recognized credibility website, Galileu Magazine<sup>18</sup>, belonging to Publishing Company Globo and Grupo Globo, the largest media conglomerate in Brazil and the world<sup>19</sup>

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<sup>18</sup> Available at: <https://oglobo.globo.com/principios-editoriais/>. Accessed on 12/15/2019

<sup>19</sup> To learn more, visit: <http://observatoriodaimprensa.com.br/feito-desfeitas/grupo-globo-e-o-17o-maior-conglomerado-de-midia-do-mundo/>. Accessed on 12/15/2019.

susceptibility to accountability. The magazine article that was shared in this publication was part of a special issue focusing on anti-vaccine movements and their influence on the resurgence of epidemics.

The article was shared through a link to the magazine's website. However, the publication was increased by the manifestation of the sharing and print of the story with graphic markers highlighting visual elements of illustrative art. It should also be added that the publication was made by the group's administrator.

**Figure 4** Print of post about the article<sup>20</sup>

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<sup>20</sup> Translation of the text of the image: "Guess who's healthy? Guess who hasn't been injected with Measles virus? Guess who is not a danger to the vaccinated society? Galileo Magazine, it is in lala land!

Are they trying to show that in the package inserts, there are no reactions and even anaphylactic shocks that can happen with vaccination? Who is it that is lying about the dangers of the vaccine? Or who says vaccines are safe? What kind of people are they who defends vaccines?

And not to mention the studies that prove that the vaccines developed the disease for which they were vaccinated and many direct after vaccination!"





Source: [Grupo O Lado Obscuro das Vacinas](#)

In the administrator's statement, it is possible to note the conspiratorial tone, the questioning of the efficiency or scientific credibility of vaccines. Also cited are studies that are supposed to prove health consequences of newly vaccinated people. However, none of these statements is supported by the author of the post by any type of verifiable reference. The content of the article itself is not discussed, nor is the relationship between anti-vaccine movements and the resurgence of epidemics pointed out by her.

The article is, therefore, from a credible source and shared in a decontextualized manner, which is common to all publications in this category, regardless of their origin. The accessibility of information and knowledge provided by ICTs does not mean a responsible appropriation of them.

The uninformative phenomenon, as discussed, is nourished by emotional appeals and attacks on the credibility of institutions such as science and the media. This sample manages to represent the group's relationship with scientific and official information and how they are conveyed in the group. Not in a critical and dialogical way, but in an accusatory and conspiratorial way. The content is not denied logically or through data from verifiable sources, but with appealing statements or from doubtful and possibly uninformative sources.

### Category 2

The publication chosen as a sample of the second category illustrates; just how blurred the distinction can be between a legitimate news portal and an apt one to be categorized as uninformative. 'Folha do Acre' calls itself a portal for web journalism<sup>21</sup>, has a website, profiles on social networks and thematic divisions. However, it does not have an editorial, a page presenting the editorial or historical profile of the portal, nor a presentation of the body of journalists and their positions. In a quick analysis of its articles it is short articles and the frequent lack of sources in them. Their social networks, especially the Facebook page, follow the same logic<sup>22</sup>.

### Figure 5 Print of post with questionable content<sup>23</sup>

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<sup>21</sup> Available at: <https://folhadoacre.com.br>. Accessed on 12/15/2019

<sup>22</sup> Available at: [https://www.facebook.com/pg/folhadoacreoficial/about/?ref=page\\_internal](https://www.facebook.com/pg/folhadoacreoficial/about/?ref=page_internal). Accessed on 12/15/2019.

<sup>23</sup> Translation of the text of the image: ""Most cases occur convulsions, tremors, facial paralysis, multiple sclerosis, hypertension, movement disorder. The list is huge. There is also the complex functional syndrome that was a situation that started to occur after the vaccine was commercialized, the result of all this research is to show that yes, there are adverse events after vaccination", it says."



Source:

<https://www.facebook.com/groups/OLadoObscuroDasVacinas/permalink/2409177522658188>

The publication was shared followed by a manifestation from the sharing member, as in the sample of the first category, but without prints, with only the preview image of the material generated by the platform. This manifestation is a direct quote from one of the excerpts of the article, which mentions alleged side effects of the HPV vaccine. This quote is in line with the group's apparent general opinion on the consequences of vaccines, serving to corroborate it. Analyzing this matter from the perspective of the concept of disinformation, we can conjecture the travesty of possibly uninformative content as journalistic content to add credibility to the content conveyed.

It is interesting to note that, although the credibility of the media and science are under constant attack in the group, the journalistic and scientific form is adopted to acquire credibility among the group itself. As shown in Figure 5, the scientific argument is simulated in "studies" that are broadcast in the community to disseminate anti-

vaccine misinformation. The same occurs in this category, with portals, blogs, Facebook pages and profiles that simulate journalistic and scientific portals to gain credibility. In fact, it is common do adopt nomenclatures that refer to traditional journalistic and scientific portals, such as "Paper, Science, Portal, Health"<sup>24</sup>, among others. In one of the publications in this category, for example, you can see that the source of the news is an alternative medicine portal that sells quantum treatments and family constellations as alternatives to immunizations.

Significantly, this is the category with the highest frequency in the group. When D'Ancona (2018) associates disinformation with an idea of industry, which would mean a coordinated action in favor of objectives, this category can be better understood. A further development of what are these portals, profiles, sites and organizations sharers anti-vaccine content, what are your arguments, references and possible alternatives offered to vaccination may present interesting data on the anti-vaccine misinformation. In other words, who is interested in disseminating this type of content?

### Category 3

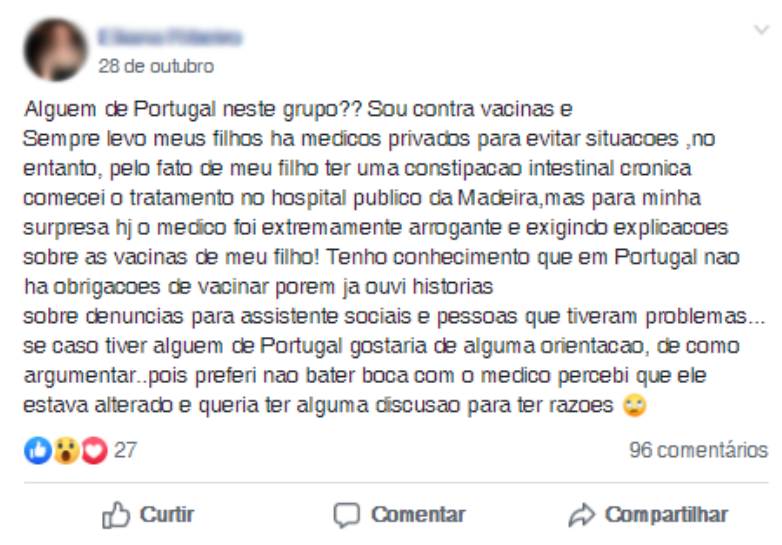
The sample in the third category illustrates your group well. The publications of this group are usually questions about habits, requests for information and interlocutions between members. In this publication there is an example of a subcategory that has a certain frequency: the manifestation of members from other countries. Although it is a Brazilian group, there is a considerable number of publications of this type in other languages and/or translated by members into portuguese, so that community members can read its content. This category differs from the fourth, that of reports, in that it has a more dialogical and opinionated carácter.

### Figure 6 Print of member manifestation<sup>25</sup>

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<sup>24</sup> Paper, Science, Portal, Health.

<sup>25</sup> Translation of the text of the image: "Someone from Portugal in this group? I am against vaccines and I always take my children to private doctors to avoid situations, however, due to the fact that my son has a chronic intestinal constipation I started treatment at the public hospital in Madeira, but to my surprise today the doctor was extremely arrogant and demanding explanations about my son's vaccinations! I am aware that in Portugal there are no obligations to vaccinate, but I have heard stories about complaints to social workers and people who have had problems ... If you have someone from Portugal I would like some guidance, how to argue ... because I preferred not to argue with the doctor I realized he was upset and wanted to have a discussion."



Source:

<https://www.facebook.com/groups/OLadoObscuroDasVacinas/permalink/2409330955976178/>

In this publication it is possible to observe the request for help from a member of the group to avoid problems with the doctor of their children and possible relation by organs and protective laws for minors in Portugal. It should be noted that, in Brazil, the Child's and Adolescents' Statute in its Article 14<sup>26</sup>, determines that the vaccination of minors is mandatory in the cases recommended by the authorities.

CAS is a recurring subject in publications in this category, as it is a legal aspect of vaccination hesitation. Many members ask for help to circumvent vaccination campaigns in daycare centers, ways to get enrollment in educational institutions and travel with their children without presenting the vaccination card on time, for example.

This category demonstrates how dialogue within the group is coordinated and how its members easily exchange information, documents, legitimate and suspicious content about vaccination and experiences. This dialogue can reinforce the sense of community and the credibility mutually granted among members. In view of this communicative nature, vaccination campaigns may encounter problems as they lack credibility among this audience by insisting on a massive communication logic. In fact, even during the month of the national measles vaccination campaign, which was the focus of the corpus analysis, few publications that touched on the subject were registered and none had a relevant number of interactions. The group's response to such campaigns appears to be ignoring or disgusting.

<sup>26</sup> Available at: <https://www.jusbrasil.com.br/topicos/10618559/artigo-14-da-lei-n-8069-de-13-de-julho-de-1990>. Accessed on 12/15/2019.

#### Category 4

The fourth category is reports (personal and/or shared) and prints of publication of the type on comment boxes, private conversations, among other places. The central point of this category is the impossibility of checking these reports, due to the nature of their form and origin. On Facebook, any user can write their personal account. Only if other users report it, this content can be deleted if inappropriate by the platform (action that is not usually agile or frequent).

#### Figure 7 Print of report publication<sup>27</sup>

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<sup>27</sup> Translation of the text of the image: "True testimony. Not everyone knows, not because I have something to hide or because I'm ashamed, but my daughter has autism. She is a beautiful and very caring girl and is not to blame for anything.

When I was 16 years old I got a vaccine for hepatitis B, and after a few weeks I developed a neurological disease that paralyzed me almost completely in the leg muscles. I stopped walking.

My daughter, and without anyone asking me shit, took this same vaccine.

With a few months to live she changed her behavior almost overnight. She stopped looking us in the eye, became squinting and socially stopped interacting with people almost entirely.


As a nurse I understand the importance of vaccines, but not everyone is the same and shouldn't have taken any.

Now it's up to us as parents to deal with what the scientific community has ruined (I want to believe that due to ignorance) and try to make it have the best life possible.

This video was before she has taking the vaccines (those of the National Vaccination Plan). When she looked us in the eye and imitated what we did.

As parents do not believe everything the State and the scientific community tell you.

What is normal and taken for granted, how your children look at you and respond when they call you, for the parents of a child with autism is an absence".

 **Alvaro Claudio**  
14 de outubro

Depoimento verídico.

Nem toda a gente sabe, não porque tenha algo a esconder ou porque tenha vergonha, mas a minha filha tem autismo. É uma menina linda e muito carinhosa e não tem culpa de nada.

Quando eu tinha 16 anos levei uma vacina para a hepatite B, sendo que após umas semanas desenvolvi uma doença neurologica que me paralisou quase totalmente os musculos das pernas. Deixei de andar.

A minha filha, e sem que ninguém me tenha perguntado merda nenhuma, levou esta mesma vacina.

Com alguns meses de vida ela mudou o seu comportamento quase do dia para a noite. Deixou de nos olhar nos olhos, ficou com estrabismo e socialmente deixou de interagir com as pessoas quase totalmente.


Como enfermeiro percebo bem a importância das vacinas, mas nem todas as pessoas são iguais e ela não devia ter levado nenhuma.

Agora resta-nos a nós enquanto pais lidar com aquilo que a comunidade científica estragou (quero acreditar que por desconhecimento) e tentar que ela tenha a melhor vida que for possível ter.

Este video foi antes de levar as vacinas (as do Plano nacional de Vacinação). Quando nos olhava nos olhos e imitava o que faziamos.

Como pais não acreditem em tudo o que o Estado e comunidade científica vos dizem.

O que para vocês é normal e dado adquirido, como os vossos filhos vos olharem nos olhos e responderem quando os chamam, para os pais de uma criança com autismo é uma ausência.

 71

41 comentários 16 partilhamentos

Source:

<https://www.facebook.com/groups/OLadoObscuroDasVacinas/permalink/2398871323688808/>

As shown by the sample, the reports are strongly emotional. lacking any type of proof, with an appealing and conspiratorial tone. all of these characteristics are common to uninformative content, as pointed out by D'Ancona (2018), Brites and Porcello (2018) and Fallis (2009). Facts or evidence has less space than moving testimonials with emotional appeal.

Although they are not the subject of this work, comments from publication in this category usually receive other reports in response, in a vicious circle of sharing experiences. The Distinction of this category with the previous one is in the nature of the content, in addition to the possibility (which is the majority of sharing third party content and including prints.

#### Category 5

The last category is that which includes sub-contents with no apparent pattern by the sample. The contents of these publications are varied and their frequency does not say much about their nature. However, certain topics usually more interactions than

others, such as memes and assemblies, for example. Political and religious content were also addressed in the sample, but without significant interactions.

Figure 8 Print with varied content<sup>28</sup>



Source:

<https://www.facebook.com/groups/OLadoObscuroDasVacinas/permalink/2413744385534835/>

Regarding the sample, it is possible to note that, again, the page administrator is the one who publishes the image, generating an expressive number of interactions – the largest of the clipping period. The publication is a humorous mixture that makes fun of the scientific credibility of vaccines. This argument is important to clarify one more characteristic of the publications in the group: all publications are related to the vaccine theme. This is the unique theme of the group and it determines, among its rules, that it is mainly intended for discussions on this topic.

<sup>28</sup> Translation of the text of the image: “Trying to find out how unvaccinated transmit diseases to vaccinated ones, if vaccines work”.



The easy understanding, humorous tone and reproducibility is an enhance of the page's argument. The adoption of this type of communication strategy may indicate an intention of communicative relevance by the administrator, on addition to reinforcing the feeling of community in the group.

### **Final considerations**

The correlation between misinformation and worsening vaccine and epidemiological indices cannot be overestimated, but it must also not be underestimated. The inclusion of fake anti-vaccine news on radars in health institutions such as WHO and the Ministry of Health demonstrates that this is a sphere of the problem to be considered in public health policies and in communication related to the topic.

Of a communicational nature, the misinformation operates tangentially to the official communication of institutions that have credibility and authority to speak on the subject in question. Indeed, when addressed, the communication from these institutions is used by the anti-vaccine group to further strengthen the misinformation arguments. This is, of course, in addition to the constant attack on the credibility of these institutions themselves.

Understanding how disinformation operates in practice is essential to combat it. Throughout this work, it was possible to detect the most frequent types of content in the largest anti-vaccination group on social networks in Brazil and, among the identified categories, which are most relevant for this group.

Some characteristics of the group were evidenced by this work, such as the significant participation of the administrator in the dissemination of content, the almost never critical consumption of information, the great presence of portals, profiles, pages and websites in the dissemination of information, the disposition, the presence of international members, the travesty of their speeches in credible ways and the self-perception of their members as dissenting from good citizen practice in the eyes of a large part of the population.

These studies contrast with the inadequate appropriation of information and communication technologies by individuals who, in their possession, could share knowledge, dialogue and seek mutual understanding. However, in practice, they serve vested interests and assist discourses that tainst society. If disinformation gains power with ICTs, it may be necessary to rethink the social appropriation of ICTs by society, which allows this phenomenon to have such a negative impact on the social sphere.

Despite the possibility of deepening and unfolding new studies, the research allowed us to point out some central elements to understand how the members of these groups consume content and the communicative dynamics of the group to clarify, their processes and arguments. It appears that the punishment, with the exclusion of publication based on complains on the platform itself, is not enough to contain the group's influence. Thus, it is concluded that a greater understanding of these individuals and their communicative logic is needed, also perceiving them as victims of disinformation.

### References

- BARDIN, Laurence. **Análise de conteúdo**. São Paulo: Edições 70; 1977.
- BRITES, Francielly; PORCELLO, Flávio. Verdade x mentira: a ameaça das fake news nas eleições de 2018 no Brasil. **Anais do 41º Congresso Brasileiro de Ciências da Comunicação – Intercom**; 2018; Joinville. São Paulo: Intercom; 2018. Available in: <https://www.lume.ufrgs.br/bitstream/handle/10183/184434/001078994.pdf?sequence=1&isAllowed=y>. Access at 03 jan. 2019.
- D'ANCONA, Matthew. **Pós-verdade: a nova guerra contra os fatos em tempos de fake news**. Barueri: Faro Editorial; 2018.
- FALLIS, Don. **A conceptual Analysis of Disinformation**. University of Arizona .[Internet]. 2009 Available in: [https://www.ideals.illinois.edu/bitstream/handle/2142/15205/fallis\\_disinfo1.pdf?seq](https://www.ideals.illinois.edu/bitstream/handle/2142/15205/fallis_disinfo1.pdf?seq)  
[eq](https://www.ideals.illinois.edu/bitstream/handle/2142/15205/fallis_disinfo1.pdf?seq)
- HOOTSUIT, Wesocial. [Internet] **Global Digital Report 2019**. Disponível em: <https://hootsuite.com/resources/digital-in-2019> Access at 11 nov.2019.
- IBGE. **Pesquisa Nacional em Amostragem Contínua (PNAD-C) 2017**. Access at: <https://www.ibge.gov.br/estatisticas/sociais/trabalho/17270-pnad-continua.html?edicao=23205&t=publicacoes>. Acesso em 20 jun. 2019.
- LEVI, Guido. **Recusa de vacinas: causas e consequências**. São Paulo: Segmento Farma; 2013.
- MAINIERI, Tiago. **Um peso duas medidas: desvelando a comunicação pública na sociedade midiaticizada**. Goiânia: Gráfica UFG; 2016.
- McLUHAN, Marshall. **Os Meios de comunicação como extensão do homem**. Tradução de Décio Pignatari. São Paulo: Cultrix; 1964.
- MINISTÉRIO DA SAÚDE. Secretaria de Vigilância em Saúde. **Vigilância em saúde no Brasil 2003|2019: da criação da Secretaria de Vigilância em Saúde aos dias atuais**.

**Bol Epidemiol** [Internet]. 2019 set; 50 (n.esp.):1-154. Available in:

<http://www.saude.gov.br/boletins-epidemiologicos>.

NYHAN, Brendan; REIFLER, Jason. **When corrections fail**: the persistence of political misperceptions - Duke University; Georgia State University; 2007. Available in:

<https://psycnet.apa.org/record/2010-08932-007>

SUCCI, Regina. Recusa vacinal: o que é preciso saber. In: **Jornal de Pediatria**, Volume 94, Issue 6, November–December 2018.

WOLTON, Dominique. **Internet, e depois?** Uma teoria crítica das novas mídias. Porto Alegre: Sulina; 2011.

WORLD HEALTH ORGANIZATION. [Internet] **World Health Statistics; 2018** [citado em 2019 nov. 11] Available in:

[https://www.who.int/gho/publications/world\\_health\\_statistics/2018/en/](https://www.who.int/gho/publications/world_health_statistics/2018/en/).

**RESUMO:**

A proposta do artigo é discutir o papel das redes sociais na disseminação de notícias falsas e a repercussão no contexto da promoção da saúde a partir da análise de conteúdos desinformativos que circulam num dos principais grupos anti-vacina no Facebook. A proliferação de notícias falsas está suportada em uma rede de desinformação cuja natureza expõe a fragilidade do sistema público de prevenção na área de saúde e o perigo do retorno de doenças já erradicadas no país. Como consequência da desinformação, corre-se o risco de redução dos índices de cobertura vacinal e exposição dos indivíduos às doenças.

**PALAVRAS-CHAVES:** Desinformação; Comunicação em saúde; Movimento contra vacinação; Internet; Mídias sociais.

**RESUMEN:**

El artículo propone una discusión del rol de las redes sociales que difunden noticias falsas en el contexto de la salud analizando el contenido de información errónea que circula en uno de los principales grupos antivacuna en Facebook. La proliferación de noticias falsas está respaldada por una red de información errónea cuya naturaleza expone la fragilidad del sistema de prevención de salud pública y el riesgo de del regreso de algunas enfermedades en Brasil. Como resultado de la desinformación, hay una disminución en las tasas de cobertura de la vacuna y una mayor exposición de las personas a las enfermedades.

**PALABRAS-CLAVES:** Desinformación; Comunicación en salud; Movimiento anti-vacunación; Internet; Medios de comunicación sociales.