



## Vaccines: saving lives or depopulating the world? A discourse analysis

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### Abstract

*In the present paper, we have analyzed the discourse of four pro and anti-vaccine Facebook pages, in order to understand how the discourse of each party is constructed and to observe the main similarities and differences between them, employing a netnographical approach. Using Netvizz, we have collected data about the three posts with the largest engagement score from each of the four Facebook pages, two being anti, and two pro-vaccine. We have analyzed the discourse of each post in terms of appeal to senses or rationality, types and tone of used language, personal or institutional communication and the appearance of claims in support of alternative medicine, among other indicators. We have noticed that the discourses of pro and anti-vaccine pages have both similarities, the most prominent being the trust / distrust in the health system dichotomy, and differences, best represented by types and sources of argumentation.*

### Keywords

Vaccines, Facebook page, netnography, pro-vaccination, anti-vaccination

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## Introduction

When confronted with a medical concern, 80% of people look it up on the Internet in an attempt to solve the problem (University of Illinois at Chicago 2018). Faced with a considerable amount of social pressure to make informed decisions with regard to their children's health, parents often find themselves disoriented by opposing discourses. Given the post-modern circumstances, when people perceive truth as being a relative matter and they challenge the established points of view (Zimmerman et al. 2005), questioning science itself, the topic of vaccination, among other health related aspects, polarizes public opinion.

In terms of online discourses, we can distinguish between supporters of vaccination, anti-vaccinators, and a third segment of people who try to attain an understanding, despite the massive amount of emotional details and scientific facticity that are more likely to confuse them. Notwithstanding the fact that the opponents of vaccination are regarded as misinformed or ignorant with regard to science, people tend to manifest lack of trust towards the medical system and to disregard the scientific communities (Goldenberg 2016, p. 552). Although we usually categorize those who criticize vaccines as being part of the *Antivaccine Movement*, Ward (2016) considers that we should not generalize the term to all the entities that occasionally oppose vaccination, but we should restrict it specifically for those who are against vaccination in all respects (p. 49). This distinction is justified by the political or cultural agenda that "goes beyond the vaccine itself", as a result of occasional opposition to vaccination (p. 56).

The linkage between thimerosal vaccines (mercury-based preservative<sup>3</sup>) and autism has been widely supported by parents of autistic children during the last 20 years. They promoted the term *autism epidemic* and the causality between vaccines and autism. Their arguments can be seen as a reaction to psychoanalytic theories that blame parents for children's condition, such as the *refrigerator mother* (an emotionally distant mother). The refutation of the psychoanalytic theory around 1965 was the premise for the biological fundament of autism (Baker 2008, p. 248). Parents who seek information on the Internet find autism described as a "heterogeneous collection of discrete entities with different etiologies sharing a common presentation" (Ibidem, p. 249), despite the medical point of view, according to which autism is rather a spectrum of conditions. The controversy that stemmed from Wakefield's study in Britain traveled across the Atlantic facilitated by the Internet, where it caused considerable concern among parents. Although numerous studies rejected Wakefield's results, there still are people who claim the political manipulation of those studies (Baker 2008, p. 251).

Retrospectively, the course of events that marked the controversy regarding measles-mumps-rubella (MMR) vaccine and autism the 1970s and 1980s started in the United Kingdom, then it travelled across the Atlantic, giving rise to anti-vaccination movements in the U.S.A. (Baker, 2003, p. 4003). Pertussis vaccine was also attacked by

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<sup>3</sup> Centers for Disease Control and Prevention, 2015, *Thimerosal in Vaccines*, Vaccine Safety. Available at: <https://www.cdc.gov/vaccinesafety/concerns/thimerosal/index.html>

vaccine opponents during the same period (Ibidem, p. 4006). Despite the easiness of exporting vaccine related controversy, there is a culture specific propensity of defining an illness either as tolerable, even necessary for a child to grow up healthy, either as a serious condition that requires medical intervention. As an example in this regard, the United Kingdom, France, and Germany defined measles as a medical condition requiring vaccination later than the United States did (Miller 1967; Cutts & Markowitz 1994 apud Baker 2003, p. 4008).

A public concern caused by the anti-vaccination groups is that herd immunity might be lost, since the percent of the population being vaccinated is less than 90%. Blume (2006) draws attention to the mass immunization being scrutinized in UK, a state of affairs that is recurrent in other countries, too (Rogers & Pilgrim 1994 apud Blume 2006, p. 638).

### **Theoretical perspective**

Parents use a variety of online resources, such as forums, websites, or social media in order to get information and to share their experiences about vaccination. A Chinese online parenting forum dedicated to this topic was analyzed by Goh and Chi in their study published in 2017. On this forum, parents largely expressed their concern with regard to the necessity, side effects and efficacy of vaccines (p. 186). Parents who presented a higher level of uncertainties were those with younger children, so the lack of parenting experience might be a key factor explaining their online activity (pp. 186-187).

The topic of parenting sites that address the issues related to vaccines was approached by Tangherlini et al. (2016). The authors identified narratives elaborated by parents who oppose vaccination. Within these narratives, parents' lack of trust in the government and in health care professionals was widespread. The use of storytelling, as opposed to the official communication, was highly valued by the users. Religious beliefs were extensively considered when making a decision on vaccination and also as a strategy to avoid vaccinating one's children. Users shared such strategies on a large scale, at the same time stressing adverse effects (autism, pain, compromised immunity, death). Wolfe, Sharp and Lipsky (2002) analyzed 22 web sites that oppose vaccination. A common feature of all 22 sites was the description of idiopathic illnesses that allegedly occurred because of vaccination (p. 3246). Links to other anti-vaccination sites were provided for users on all of the 22 sites. The authors identified three themes that were pervasive across the websites' content: "concerns about vaccines safety and effectiveness, concerns about governmental abuses, and a preference for alternative health practices" (p. 3247). People usually shared stories, as well as pictures of children who were suffering as a result of vaccination. They also shared information on methods that could help them with legally avoiding vaccination. Users found compulsory vaccination unacceptable due to its violation of personal choice. The discourse of these anti-vaccination sites was very similar in its argumentation to the rhetoric of 19<sup>th</sup> century opponents of compulsory smallpox vaccination (p. 3247).

Zimmerman et al. (2005) conducted a research on 78 sites that employed a critical discourse on vaccination. Analogously to Wolfe, Sharp and Lipsky (2002), they found that vaccines were most often related to idiopathic chronic diseases (multiple sclerosis, autism, diabetes) as adverse effects, the assertion of violation of civil liberties through mandatory vaccination, and the existence of links to other anti-vaccine websites. Moreover, users postulated that vaccines are contaminated with mercury and “hot lots”, the protection they provide being only temporary, and that governmental authorities employ conspiracies in order to promote vaccination. Users also stressed the responsible parenting and the resistance to the establishment as accurate ways of protecting children. The authors pointed to the connection between distrust in medical system / allopathic medicine / health care professionals and alternative medicine.

Conducting interviews with 20 parents, Senier (2008) detected parents’ tendency to employ both probabilistic and possibilistic thinking (p. 224). Probabilistic thinking is mostly characteristic to “technical methods or expert models”, whereas possibilistic thinking is rather a characteristic of people who “are governed only by fear and emotion” (p. 211). Parents were more interested in informants that claim to present “all sides of the story”. They valued the freedom to choose between various options regarding their children’s health. Despite the fact that parents were interested in probabilistic information on vaccines and they actively looked for it, they did not necessarily adhere to a probabilistic thinking. (p. 215). They rejected probabilistic information primarily because they were highly concerned of the financial interest that other actors, such as pharmaceutical companies, have in regard to vaccines (p. 221). As a further matter, parents might employ worst-case thinking when making decisions about vaccination, due to a variety of factors, such as their parenting style (p. 226).

People tend to perceive the adverse effects of vaccines as threatening their children to a larger extent than the diseases they could vaccinate against. In addition to the adverse effects, health care professionals’ recommendation and the contradictions they detect in official discourse led them to the refusal of vaccination (Carrion 2014, p. 133). Mothers who adopt certain prenatal care techniques and who are in favor of healthy child nutrition, free of toxins, relate these preferences to their decision-making about vaccination (Ibidem, p. 134). During the interviews conducted by Carrion (2014), the participants opted for a “model of motherhood” characterized by minimizing risks and maximizing benefits as central to their decision-making process (p. 160), while also valuing mother’s instinct more than any other established form of knowledge (p. 183).

Both the pro-vaccinators and the anti-vaccinators have similar discourses. This is a recurring fact when they make accusation of “being brainwashed” (by different instances, either by the media, or bloggers / members of the anti-vaccination movement), of blindly following the leaders / the official guidelines, of “being impostors and using falsified data”, of underestimating the risks related to their choice and overestimating the risks took by the adverse party (Rusu 2016, pp. 66 - 67). As an implication of employing the same arguments on the topic of vaccination, the author concluded that change in the position held by people engaged in online interactions was rather infrequent (Ibidem, p. 68).

## Research questions

The research questions which guide our research are:

- How is the discourse of pro and anti-vaccine Romanian Facebook pages constructed?
- What are the similarities and differences between the discourses identified on pro-vaccine, respectively anti-vaccine pages?

## Methodology

When discussing netnography as an approach in sociological research, Kozinets (2010) underlines the fact that the study of online communities can reveal certain understandings of wider social phenomena, which extend beyond the targeted community and the online environment. This can also be applied in the present study, as the online discourse of people who support or oppose vaccines can be interpreted in relation to the wider cultural context in which it occurs.

Some of the advantages of netnography, as mentioned by Kozinets (2010) are its reduced costs and time-effectiveness, as well as the fact that it can be employed as an entirely unobtrusive method when it uses publically available data. In order to avoid ethical issues, in the present study we have only analyzed Facebook posts from public pages, without interacting with the users or breaching any privacy rules.

One of the methods which can be incorporated in netnographical research is that of discourse analysis. Although this method has been defined in many ways, a suitable definition of discourse analysis for the present research is the one given by Potter and Wetherell (1988). They affirm that discourse analysis, in their approach, refers to the analysis of any form of discourse (spoken or written) in order to “...gain a better understanding of social life and social interaction” (Potter and Wetherell 1988, p. 7). Their definition is especially relevant for social scientists, since it underlines the importance of the social meanings encompassed in the discourse. Potter and Wetherell (1988) place language at the core of human interaction, emphasizing its multiple functions and the fact that is both constructed and constructive for the social reality.

In this paper, we analyzed the discourse of four public Romanian Facebook pages, two which support and encourage vaccination and two which are in opposition to it. The analyzed data were collected using Netvizz, a data extraction application. Using Netvizz, we have collected the most recent 50 posts from the four chosen Facebook pages. Then, we have selected the three posts with the biggest engagement scores from each page. Engagement is defined as the total score of likes, reactions and shares of a post. We have chosen to filter posts by engagement for two reasons. Firstly, engagement is an indicator of the popularity and relevance of a certain post, since the more Facebook users interact with it, the more engagement it gathers. Secondly, the bigger engagement score suggests that the respective posts have been seen by a larger number of people in comparison to other posts, thus becoming more representative for the page by the

criterion of discourse propagation. We have analyzed both the posts of the page and the comments left by Facebook users on the respective posts.

Our analysis was guided by a scheme targeting more dimensions of the discourse. The first part of the scheme focused on the posts, pursuing answers to the following questions:

- How is the argumentation constructed in the posts and what do the posts appeal to?

**Table 1 Argumentation scopes**

Senses, emotions	Rationality	Both senses and rationality
Examples: Love for the child tied to being a good or bad parent; Trust or mistrust in the government or health system.	Examples: Focus on proven positive or negative effects of vaccines; Using scientific sources in the discourse.	Examples: Employing a probabilistic or possibilistic discourse (Senier, 2008).

- Are the posts anecdotes, personal storytelling (Tangherlini et al. 2016), official communication or a combination of both? In other words, does the discourse represent a person, an institution or both?
- Do the posts include instances of a preference for alternative medicine?
- Whom are the posts addressed to, if this is explicitly stated or can be deducted easily?
- What is the “tone” of the language? (Rather passive or active, aggressive, strong?)
- Is the tone of the posts serious or humorous? If humor appears, in which ways is it used?
- What are the reactions to the posts?

The reactions to the posts (and to the comments, as mentioned further) are a rather quantitative element, but relevant for our purposes nonetheless. Facebook allows the users to interact with a post or a comment by a range of reactions: *like*, *love*, *haha*, *wow*, *sad*, *angry*. As each of these reactions represents a feeling, they can serve as helpful indicators in order to better understand the “climate” of the medium, of the page. For example, a very large number of *angry* reactions on a post could suggest a general disagreement to a certain statement or piece of discourse.

The second part of our analysis focused on the reactions to the analyzed posts, represented by the comments left by Facebook users. For the comments, we tried answering the following questions.

- Are the comments in agreement or disagreement with the posts?
- What types of argumentation are present in the comments? (Using the categories in Table 1, where applicable)
- If photos or videos are used in the comments, what do they consist of and how can they be interpreted?
- What are the reactions to the comments?

## Results

### Vaccinuri – Citește Prospectele

The most popular anti-vaccination post based on the engagement score (865) is a video from the Centers for Disease Control and Prevention (CDC), presenting the debate and vote on the release of a new vaccine. Although the original video appeals to rationality (experts debating the topic, their arguments being constructed on statistical data and the results of controlled trials), the edited video mostly appeals to the viewers' senses. The subtitles are sometimes written in capes lock, using red font and exclamation signs. The soundtrack that was added to the original video calls attention to some key moments, considered as such by the admin because of their potentiality of revealing the malevolence of the experts. The post implies that the “real” scope of the experts is to test the new vaccine, with its new and dangerous adjuvant, on the population and to simply observe how many people die from myocardial infarction as an adverse effect of the vaccine. Therefore, it promotes distrust in the health system. At this point, the discourse combines both senses and rationality in an attempt to compromise CDC's debate and its status of medical organization altogether. The post addresses the large public and encourages users to watch the whole video, warning them in a rather humorous manner to “mind the heart attack”.

The post was shared 604 times and the video has 32 000 views. Most of the reactions to the post are likes (97). There are also 72 *angry* reactions, 22 *sad*, 16 *wow*, 2 *haha*, 1 *love*. The total count of reactions is 210, hence this post is widely known within the community. There are 20 comments, most of which have at least 1 like. People combine claimed scientific information with conspiracy theory, trying to validate the latter despite acknowledging its conspiracy character. There is also an anti-feminist tendency, some people criticizing the fact that there are only women on the board.

Figure 1 Vaccinuri – Citește Prospectele - The first anti-vaccine post by engagement score<sup>4</sup>



<sup>4</sup> The post is available at: <https://www.facebook.com/vaccinuricitesteprospectele/videos/187182611904518/>

The second post mostly appeals to the watcher's senses by employing the storytelling technique, offering both personal and institutional accounts. It depicts the adverse effects of vaccines without offering information on the medical history of the children. Although the post does not include a preference for alternative medicine, in the comments for the post the page admin recommends alternative treatments to a concerned user. Since the video is compiled of news fragments / footage, it does not explicitly address just parents, but the large public. By inserting pictures with wounded children in between the news footage and a dramatic soundtrack, the post uses shock values to increase its impact. The post is serious.

The comments left by the page admin in reply to other users have a passive-aggressive tone, try to discredit the medical system and use questionable sources (articles published in the '50s, very vague news articles since they are hardly related to their comments). In the comments, they encourage people to read more in order to be better informed, but they provide links to their own Facebook page and site. The engagement score of this post is 676, the post having 173 reactions (93 likes, 61 *sad*, 8 *wow*, 8 *angry*, 2 *haha*, and 1 *love*) and 432 shares. The video has 24 000 views. The reactions to the comments vary between 1 and 15 (like, *haha*, and *sad* reactions). The popularity of this material and the comments corresponding to the post can be considered as a form of validation, within the anti-vaccination party, for the information exposed.

Figure 2 Vaccinuri – Citește Prospectele - The second anti-vaccine post by engagement score<sup>5</sup>



For the third post from the anti-vaccination page, the admin has recourse to the storytelling technique as a means of appealing to senses, rather than to rationality. The post presents the case of a little boy in UK who suffered from a serious condition, his parents being denied the chance to take him to Italy for treatment, since they lost the custody in favor of the hospital. Tremendous mistrust towards both the government and the health system is detectable when reading the post, which provides, besides the

<sup>5</sup> The post is available at: <https://www.facebook.com/vaccinuricitesteprospectele/videos/181826912440088/>



description of the case, the statement of an English mother who accused the government and the hospital for the deliberate act of letting the child die and disregarding the parents. Users can also find a link to an article published on an American site, which contains the same rhetoric, but also connects this case to a general anti-socialist discourse. The post addresses the large public, without explicitly targeting a specific category. The language is active, overflowing with accusations. Users are urged to read the prospects of vaccines (#citesteprospectele Vaccinurilor). Photos of the child are available at the end of the post, the ones depicting the child healthy and in his parents' arms contrasting to those in which the child appears sick and connected to medical devices.

Despite being hierarchized as the third one based on the engagement score (675), the post is fairly popular. It has 237 reactions, most of which are *sad* (106) and 362 shares. There are 39 comments for this post, most of which contain prayers for the child. Additional links are provided for news reports and an interview with the father. Preponderantly, the reactions to the comments are *angry* and *sad*.

Figure 3 Vaccinuri – Citește Prospectele - The third anti-vaccine post by engagement score<sup>6</sup>



### Vaccinuri – Cunoaște Riscurile

The first most popular post from this anti-vaccine page in terms of engagement (120) is an article about Alfie Evans, a toddler who died when his doctors decided to remove life support, after him having been hospitalized in a vegetative state for over a year, according to BBC.<sup>7</sup> The article shared on the page is taken from a pro-life news site and it presents Alfie's father claims about the way in which the toddler has been treated in an inhumane way while in the hospital, not being fed for a long time. The article presents the

<sup>6</sup> The post is available at: <https://www.facebook.com/vaccinuricitesteprospectele/posts/189260538363392>

<sup>7</sup> <https://www.bbc.com/news/uk-england-merseyside-43754949>

father's perspective through quotes taken from his Facebook page, as well as some opinions of Alfie's supporters and general updates on his situation.<sup>8</sup>

On the anti-vaccine page, the post is accompanied by a caption questioning the decisions of the doctors and the role of the state in this affair, claiming that the state is committing a crime in his situation. The post appeals to senses and emotions through its clear attitude of mistrust towards the state and the health system, as well as through the storytelling technique present in the article. The post doesn't explicitly target anyone, so it can be perceived as being addressed to every follower of the anti-vaccine page. The language of the caption is active, strong and ironic; these instances can be noticed by observing the strategic use of quotation marks for some words in order to underline their opposite sense. The tone of the post is serious and dramatic.

The post has 39 shares and 69 reactions, most of which are *angry* (30) and *sad* (27), followed by *like* (12). The big numbers of *angry* and *sad* reactions can suggest that most of the engaged audience have negative feelings towards the shared article. The 12 comments left by users express sadness or outrage towards Alfie's situation, claiming that the state and doctors are corrupted.

Figure 4 Vaccinuri – Cunoaște riscurile - The first anti-vaccine post by engagement score<sup>9</sup>



<sup>8</sup> <http://www.lifenews.com/2018/04/24/alfie-evans-father-hospital-is-starving-him-to-death-no-food-for-23-hours-how-is-this-humane/>

<sup>9</sup> The post is available at: <https://www.facebook.com/1939438999655613/posts/2032542253678620/>

The second post by popularity, according to the engagement score of 76, addresses the data collected by the Romanian National Public Health Institute regarding the number of deaths caused by measles in the last years. The page admin compares the number of deaths presented by the aforementioned institution with the number of total cases of measles declared by the World Health Organization, calculating the rates of death for each year. The post ends with the conclusion that the RNPH manipulates the public through the way in which they present the numbers.

This post appeals to rationality, through presenting numbers and official documents, as well as to senses through its highlight of the institution's tactic of claimed manipulation. The discourse presents data taken from institutions, as well as the conclusions of the page admin(s) regarding this data, and it is addressed to the large public. The language and tone, although mainly serious, imply irony through the use of quotation marks for certain words. Through the use of multiple exclamation marks, the tone of the post becomes dramatic.

The post has 15 likes (no other type of reaction), 57 shares and 4 comments. In the comments, a user agrees with the post, telling a personal story, to which the page replies with a suggestive joke about Romanian authorities. Most of the engagement score of the post stems from its shares, suggesting the fact that the presented information resonates with the page public.

Figure 5 Vaccinuri – Cunoaște Riscurile – The second anti-vaccine post by engagement score<sup>10</sup>

The screenshot shows a Facebook post from the page 'Vaccinuri - Cunoaște Riscurile'. The post is dated May 4 and contains text about measles deaths and the death rate. The post has 3,049 likes and 3,224 followers. The post is titled 'Atentie! INSP colecteaza date in legatura cu decesele cauzate sau "cauzate" de rujeola abia din 2004!!!'. The post text includes: 'Conform datelor oficiale publicate de Organizatia Mondiala a Sanatatii (OMS), cele mai multe cazuri de rujeola s-au inregistrat in anii 2005, 2006, 2011, 2012, 2013 si 2016, astfel: - in anul 2005 au fost 5.043 cazuri de rujeola, - in anul 2006 au fost 3.196 cazuri de rujeola, - in anul 2011 au fost 4.189 cazuri de rujeola, - in anul 2012 au fost 7.450 cazuri de rujeola, - in anul 2013 au fost 1.159 cazuri de rujeola, - in anul 2016 au fost 2.435 cazuri de rujeola. Va rugam sa observati acum si numarul deceselor cauzate de rujeola pentru fiecare an de mai sus: - pentru anul 2005 INSP a declarat 11 decese, - pentru anul 2006 INSP a declarat 3 decese, - pentru anul 2011 INSP a declarat 1 deces, - pentru anul 2012 INSP a declarat 1 deces, - pentru anul 2013 INSP a declarat 1 deces, - pentru anul 2016 INSP a declarat 11 decese. Deci: - in anul 2012, atunci cand au fost inregistrate 7.450 de cazuri de rujeola si un singur deces, rata de deces a fost de 0.0134%; - in anul 2016, atunci cand au fost inregistrate 2.435 de cazuri de rujeola si 11 decese, rata de deces a fost de 0.4517%. Rata de deces in 2016 a fost de 33,7 ori mai mare decat in 2012!!! Acum se vede clar manipularea lor? \* Asteptam datele oficiale ale OMS in legatura cu numarul de cazuri de rujeola pentru anul 2017 pentru a calcula rata de deces. https://cunoaste-riscurile.ro/raspuns-solicitare-insp-numa.../'

<sup>10</sup> The post is available at: <https://www.facebook.com/1939438999655613/posts/2036588529940659/>

The third most popular post according to its engagement score (73) is a screenshot of a mother's experience from the emergency room of a hospital. The mother recounts how she and her son went to the hospital after the child suffered an injury and the staff inquired about vaccines. She said the child was not vaccinated and a doctor told her that they need to give him a vaccine. The mother protested, asking for the prospect and more information before making her decision, to which the doctor replied she should inform herself. The story ends by asking the readers to draw their own conclusions.

This post uses the personal storytelling technique and it appeals to both senses and rationality. While the storyteller shows her lack of trust in the health system throughout the story, she also claims she wishes to be properly and thoroughly informed about vaccines in order to make the right decision for her child, mentioning that she wants to know the side effects and what the vaccine contains.

Since the screenshot is probably taken from a group or from the mother's page, the audience is represented by either her Facebook friends or the group members. The language is active, the use of exclamation marks giving a dramatic effect to certain sentences. The tone of the story is serious, inviting the audience to judge the attitude of the doctor for themselves.

This post has 17 shares and 51 reactions, most of which are likes (37) followed by *angry* (7), *sad* (3) and *haha* (2). The five comments agree with the story, being either other personal similar stories or insults towards the health system.

**Figure 6 Vaccinuri – Cunoaște Riscurile – The third anti-vaccine post by engagement score<sup>11</sup>**



<sup>11</sup> The post is available at: <https://www.facebook.com/1939438999655613/posts/2030182400581272/>



## Proimunizare

The post with the biggest engagement score (352) from the page in support of vaccines (Proimunizare) is a photo of a graphic containing a vaccination schedule for 2018. In the post description, the page admin only mentions what the graphic represents, choosing a neutral, serious and informative tone and approach. Since the page is created by a Non-Governmental Organization, its discourse is that of the institution which it represents. The few comments left come from parents who are mostly discussing about obligatory and optional vaccines, requesting information about the periods and ages when they can be administered. The post has 72 likes (no other type of reaction) and 274 shares, suggesting the fact that the information from the post has been trusted and spread by other Facebook users.

Figure 7 Proimunizare - The first pro-vaccine post by engagement score <sup>12</sup>

**Calendarul național de vaccinare 2018**

Vârsta	Vaccin
primele 24 ore	Vaccin hepatitic B (Hep B)*2]
2 - 7 zile	Vaccin de tip Calmette Guérin (BCG)
2 luni	Vaccin diftero-tetano-pertussis acelu-lar-poliomielitic-Haemophilus B-hepatitic B (DTPa-VPI-Hib-Hep. B)
2 luni	Vaccin pneumococic conjugat*3]
4 luni	Vaccin diftero-tetano-pertussis acelu-lar-poliomielitic-Haemophilus B-hepatitic B (DTPa-VPI-Hib-Hep. B)
4 luni	Vaccin pneumococic conjugat*3]
11 luni	Vaccin diftero-tetano-pertussis acelu-lar-poliomielitic-Haemophilus B-hepatitic B (DTPa-VPI-Hib-Hep. B)
11 luni	Vaccin pneumococic conjugat*3]
12 luni	Vaccin rujeolic-rubeolic-oreion (ROR)
5 ani	Vaccin rujeolic-rubeolic-oreion (ROR)
6 ani	Vaccin diftero-tetano-pertussis acelu-lar-poliomielitic (DTPa-VPI)
14 ani	Vaccin diftero-tetanic pentru adulți/vaccin diftero-tetano-pertussis acelu-lar

72  
274 distribuiri

The second post by the engagement score (92) is an image with prevention measures for the flu. The mentioned measures are vaccination, personal hygiene and respecting a healthy lifestyle (having a balanced diet, being active and respecting a sleeping schedule). The post caption describes the content of the image in a few words, maintaining the simple, serious and informative approach mentioned above. The post appeals to rationality, encouraging the public to follow the measures recommended by the Ministry of Health (as this is the source stated on the image). Judging from the given source, the discourse in this particular post is a reformulation of an institutional account. The post has 30 likes, 63 shares and no comments, implying that it left a rather positive impression on the users who have “interacted” with the post.

<sup>12</sup> The post is available at: <https://www.facebook.com/stopgripa/posts/2013722938844972>

Figure 8 Proimunizare - The second pro-vaccine post by engagement score <sup>13</sup>



The third post consists of an infographic about the situation of the 2018 measles outbreak in Romania. The engagement score for this post is considerably lower compared to the others (48). The infographic presents the number of total cases of measles, the number of registered deaths and the effects of the disease. The caption contains the hashtag #VaccinareaSalveazaVieti (Vaccination Saves Lives). This post mostly appeals to rationality, mentioning the National Center for Surveillance and Control of Transmissible Diseases as the source of the information. Again, the discourse is serious and simple, but the statement “Vaccination Saves Lives” and the information about deaths caused by measles are stronger statements compared to the other two posts. This post has 4 likes and 31 shares, appearing to have more engagement outside the page than on it.

Figure 9 Proimunizare - The third pro-vaccine post by engagement score <sup>14</sup>



<sup>13</sup> The post is available at: <https://www.facebook.com/stopgripa/posts/1992084817675451>

<sup>14</sup> The post is available at: <https://www.facebook.com/stopgripa/posts/2008213592729240>

### Pro Vaccin

The other pro-vaccination page that we analyze is Pro Vaccin. The first post has an engagement score of 84 and we can infer that it appeals to rationality, since it quotes a doctor who participated to a national conference on epidemiology. Beyond the picture of the doctor with the stethoscope as an indicator of status (an attempt to legitimate the opinion and the post overall), this post extensively appeals to senses by employing a quote which asserts the suffering of a doctor watching psychiatrically impaired people (as he suggests) refusing to vaccinate their children. The post also has an anecdotic character, given the attempt of being funny to a certain extent.

The post was shared 28 times and it has 41 likes and 15 comments. The comments are actually a debate between pro and anti-vaxxers. The former party accuses the malfunction of the education system for the existence of anti-vaccination doctors and also considers anti-vaccination people ignorant. The latter party has a more varied argumentation that includes the malignancy of European / foreign vaccine producers (as opposed to Romanian producers), depreciation of the doctor quoted in the post by attaching a link to an article in a scandal newspaper, and the depopulation conspiracy theory that allegedly is supported by a video montage of a Bill Gates' speech. They urge people to inform themselves before vaccinating their children, the implicit message being that the act of informing oneself is irrefutably related to an anti-vaccination position.

Figure 10 Pro Vaccin - The first pro-vaccine post by engagement score <sup>15</sup>

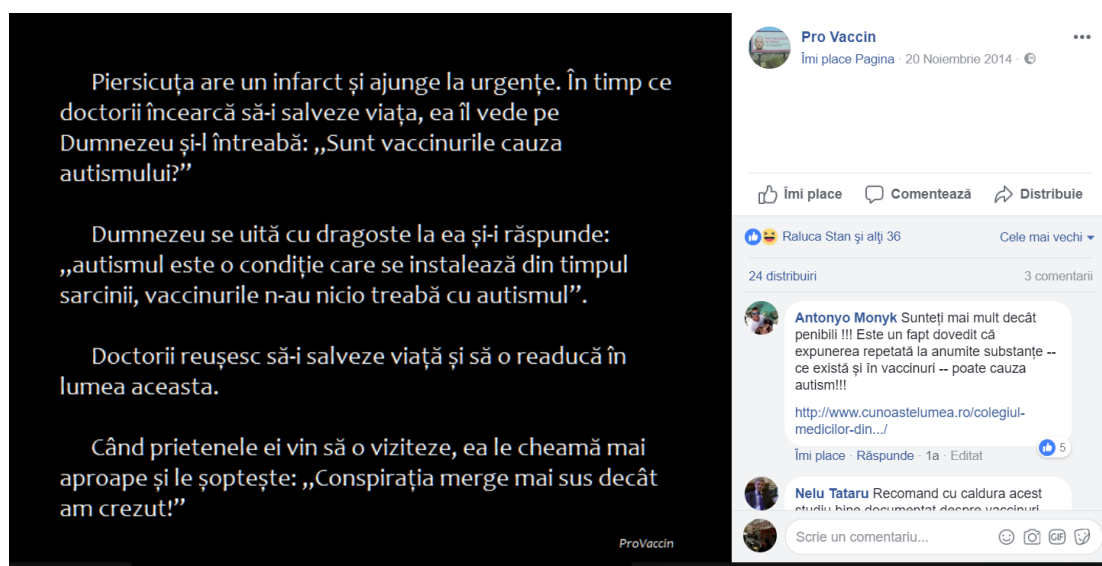


The second post from Pro Vaccin page consists of a joke that euphemizes a Romanian public figure who frequently expresses her anti-vaccination opinions. Piersicuța talks to God about vaccines and autism, and He assures her that the two are not

<sup>15</sup> The post is available at: <https://www.facebook.com/provaccin/posts/721701021249510:0>

connected, employing an argumentation that resembles to a medical explanation. Despite its humorous character, the text appeals to rationality, trying to prove that the anti-vaccination position lacks judgement. The post addresses the general public. It has 37 likes and was shared 24 times, while the engagement score is 64 for this post. Only 3 people commented, all of them being anti-vaccination (the first one has 5 likes).

Figure 111 Pro Vaccin - The second pro-vaccine post by engagement score<sup>16</sup>



The third post from Pro Vaccin page provides a summary and a link to a blog article which contradicts Olivia Steer's anti-vaccination arguments presented in a TV interview. The article argues against Olivia's main ideas, the paragraphs being supported by links to scientific articles / reports and official institutions' sites. The post praises the success of the article and its authors. It actively addresses people who are interested in scientific / medical information, but it also targets the general public, aiming to promote this type of information detrimentally to the pseudo-medical one that is present online and on TV.

The post is less popular than the previous two from this page, having an engagement score of 45. Furthermore, it has 13 likes and 23 shares and received a total of 9 comments. The admin responded in the comments section to both pro and anti-vaccination users who expressed their gratitude for a scientifically informed article and their disagreement with researchers respectively. All comments received at least one like.

<sup>16</sup> The post is available at: <https://www.facebook.com/provaccin/posts/724624040957208:0>



Figure 12 Pro Vaccin - The third pro-vaccine post by engagement score<sup>17</sup>



## Discussion and conclusion

The four Facebook pages that we studied, two of them pro-vaccine and the other two anti-vaccine, communicate stringent aspects of trust and distrust towards the medical system, as a main actor in the pro / anti-vaccine dispute, the trust / distrust dichotomy being an essential component of both discourses. Distrust towards the medical system is expressed in 5 of 6 anti-vaccination posts, which is in line with the remark of Zimmerman et al. (2005) concerning the expression of such distrust on web sites.

Another characteristic of the anti-vaccine posts is the attempt to discredit official institutions / organizations that act either in the health or statistics domain, claiming that the information provided by these instances is invalid and misleading. One of the pro-vaccination pages, Pro Vaccin, accuses the education system for anti-vaccination opinions among health care providers. By accusing the education system, Pro Vaccin tries to

<sup>17</sup> The post is available at: <https://www.facebook.com/provaccin/posts/711076735645272>

preserve the prestige of (most) doctors and places the anti-vaccination ones in an isolated, distrustful category.

The anti-vaccine party brings to the discussion conspiracy theories as valid arguments. They consider them as necessary for someone's quest to inform him / herself. Anti-vaccination pages combine (claimed) scientific sources with conspiracy theories, accusations, and a slightly expressed preference for alternative medicine (in the comments section). They also employ both senses and rationality when explaining their position, which might be consequential to the association of scientific sources and conspirational arguments.

Anti-vaccination posts have a pronounced possibilistic approach of the vaccination phenomenon, which is explained by the appeal to emotions. As the interviews with parents conducted by Senier (2008) revealed, possibilistic thinking is common among those who are primarily concerned with emotions. Anti-vaccinators do not talk about adverse effects in terms of probability, but as an undisputable consequence of vaccination, as the studies of Senier (2008) and Carrion (2014) reflected previously.

Anti-vaccination posts employ very often the technique of storytelling as a means to strengthen the emotional appeal. Also, these posts aim to sadden the public by the use of storytelling technique. The account of vaccines' adverse effects by employing this technique was extensively documented by Tangherlini et al. (2016) and Wolfe, Sharp and Lipsky (2002), as we previously detailed.

Some of the pro-vaccine posts aim to trigger laughter among the public, whereas other pro-vaccine posts want to spread information in a neutral manner, appealing only to rationality. Therefore, pro-vaccine pages have different discourses. Proimunizare is more serious, having a neutral, informative tone that resembles to the discourse of an official institution, while Pro Vaccin is humorous in an arrogant way. In certain respects, the pro-vaccine and anti-vaccine discourses reflect one another (trust / distrust, the importance of scientific proofs, trigger laughter / cry). Some elements of the discourses are the same (as Rusu, 2016, reported), others are opposed, others differ in terms of graduality eventually reinforcing one another, further accelerating the dispute between the two parties.

Generally, both pro and anti-vaccine posts target the general public in their posts. The posts on Proimunizare seem to address more adequately those who are in favor of vaccination. But the debates that emerge in the comments section are characteristic only to Pro Vaccin page. All the comments on the anti-vaccine pages agree with the posts, which suggests that negative comments might be deleted. This state of affairs would be conducive to an isolated digital space that refuses the dialogue / debate generated by contrary opinions. Such practices would develop a discourse constructed in an authoritarian manner. On Proimunizare users request additional pieces of information in the comments, but there is no dialog between pro and anti-vaxxers. When debates are generated in the comments section of Pro Vaccin page, the admin responds politely, although somewhat ironically to anti-vaccination comments.

Anti-vaccination posts generally use an aggressive language. They make strong accusations, aiming to disqualify instances that are recognized as trustworthy sources.

On Proimunizare the language is formal and neutral. On Pro Vaccin the language is passive-aggressive, being more similar to the anti-vaccination discourse in this respect. Users are urged to inform themselves by anti-vaxxers, while Pro Vaccin urges them to search for scientific sources when looking for information on vaccines. Proimunizare does not specifically call to action, it states pieces of information retrieved from official communication / statistics, the action of opting for vaccination being implicit in their message.

Anti-vaccine posts and comments are serious, as well as the posts from Proimunizare, although the seriousness is different in kind. Pro Vaccin is humorous, trying to ridicule the anti-vaxxers and targeting especially public figures from this party. All the anti-vaccination posts use photos or videos that are edited most of the time as to emphasize the validity of anti-vaxxers' opinions and to reveal pro-vaxxers' manipulation and hidden interests. In most of anti-vaccination posts, there is a wide-spread use of photos of wounded children and videos of crying parents. Proimunizare uses only infographics in their quest for persuasiveness, while Pro Vaccin uses unedited photos and captions with doctors or public figures that reflect the content of the post. They do not post neither photos, nor videos of children. The preference for visual materials depicting children in the anti-vaccination party can be explained by their emotional content and shock values which are essential for the accusatory rhetoric.

Some of the anti-vaccination posts are more popular than pro-vaccination ones, according to the engagement score. The most popular post from the page Vaccinuri – Citește Prospectele has an engagement score of 865, while the other two posts have 676 and 675 respectively. On the second anti-vaccination page, Vaccinuri – Cunoaște Riscurile, the most popular post has an engagement score of 120, followed by scores of 76 and 73 for the other two posts. The engagement scores of pro-vaccine posts are significantly lower when compared to the posts from the first anti-vaccination page. The most popular posts from Proimunizare and Pro Vaccin have an engagement score of 352 and 64 respectively, while the other posts have engagement scores below the previous ones (92 and 48 for the posts on Proimunizare and 64 and 45 for the posts on Pro Vaccin). As a consequence of this difference, we can consider the anti-vaccination posts as more representative in terms of discourse propagation.

The comments left by page visitors or followers on the analyzed posts can be understood as a representation of the ways in which the pro and anti-vaccination discourse is recognized and reacted to by the public. On the anti-vaccination pages, a significant number of comments represent personal stories which are similar to the situations illustrated in the posts or in accord to them, creating a sense of community by sharing their experiences. These stories are often accompanied by mentions of mistrust in the government or in the health system, which can either be subtle or direct insults. Some users also express sadness towards the situations presented in the posts, showing sympathy and even writing prayers for the children depicted as sick in the comments. Additionally, some users employ conspiracy theories supported by claimed scientific information to justify their anti-vaccination position. The “atmosphere” of the comments, reflected through the reactions to the comments and the content itself, is

mostly defined by sadness and anger which are usually directed towards the institutions of the state.

On the pro-vaccine pages, the comments have a different dynamic. On the Proimmunizare page, which uses a rational, simple and informative approach in all of the analyzed posts, there were no comments at all. This could be an effect of the smaller engagement scores in comparison to the anti-vaccination pages, but also of the way in which the information of the posts is presented, in a neutral and inoffensive manner. On the Pro Vaccin page, however, there are comments left by both pro and anti-vaccination users. On one of the posts, the two parties engage in a debate, where the pro-vaccination users blame the educational system for the existence of anti-vaccination people which they consider ignorant, while the latter party employs conspiracy theories as arguments. The anti-vaccination users are also present on the other two analyzed posts, expressing their disaccord with the presented information. Therefore, on the pro-vaccination pages, the comments are either completely absent or they suggest a state of conflict or disagreement with the information presented in the posts.

To conclude, the discourses of pro-vaccine and anti-vaccine pages have both similarities and differences. The most prominent similarity of the discourses is the approach of trust versus distrust towards the medical system and other institutions of the state. The main differences stem from the type of arguments employed by the two parties, with the anti-vaccine pages using the storytelling technique and a mix of claimed scientific information and conspiracy theories as their main argumentation sources and the pro-vaccine pages using either official information, statements from doctors or anecdotal posts poking fun at the anti-vaccine community. The discourses of the two parties are entangled, often perpetuating each other through the types of used arguments, as well as through the debates of their supporters.

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