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DISCOURSE ANALYSIS OF HEALTH RISK PERCEPTIONS. UNDERSTANDING PUBLIC DEBATES ON CHILDHOOD VACCINATION

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Abstract: Childhood vaccination has become one of the most intensely discussed topics not alone in Romania but other European countries as well. Mass media articles, personal experiences claiming that vaccines have side effects and can even lead to autism have generated various responses among parents and determined various perceptions and assessments of the health risks. Certain groups have emerged in the middle of these confrontational debates: there are those who resist vaccination, advocating that they inflict sufferance on children. Yet others who refuse vaccines because they fear the unknown, along with those who have not made a decision and still search for medical opinion, and those who insist upon gathering more information before deciding whether to get their children immunized etc. Each of these groups perceives and defines the risk in a different way. A discourse analysis of the comments and posts identified on various online platforms from Romania revealed the fact that the individuals who resist vaccination reframe the risk as unknown, while calling for a more informed decision from parents. These individuals do not bring any logical, practical, or scientific argument in order to support their position. Some of them even consider that a mandatory vaccination policy is a characteristic of a totalitarian state thus infringing upon the right of the population to free choice. Another result of our analysis is the fact that the majority of the online debaters tend to perceive the risk of non-vaccination as bigger than the one of vaccination.

Keywords: *risk; risk perception; resistance to vaccination; discourse analysis.*

Cuvinte-cheie: *risc; percepția riscului; rezistența la vaccinare; analiză discursivă.*

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Introduction

Nowadays informational environment abounds with breaking news stories regarding multiple risks that society must deal with, in the context of technological, environmental, security, medical or other types of evolutions that mark the current age. The large amount of data, present in the mass media that the common individual has to process in order to better understand and ensure his safety in front of risks and dangers can be quite overwhelming. Ulrich Beck (1992) underlines that mass media and scientific professions that are responsible with the defining of risks, represent the key players in the minimization or maximization, even dramatization of risks. In other words, as Beck suggest, risks are socially constructed and highly “dependent upon the means by which they are made socially visible” (Cottle, 1998, 7).

We can thus infer that the information or knowledge launched in the mass media can alter the risk, by increasing or decreasing its value. The present research will focus on the risks generated by childhood vaccination, a risk that received great attention in the mass media, which consequently led to debates and disagreements among parents regarding the necessity or the dangers posed by vaccination.

The purpose of this article is to study, using the discourse analysis:

1. the risk perception of the Romanian public regarding the negative consequences that MMR (measles, mumps and rubella) vaccination and other types of vaccines might have on the future development of children;
2. the risk perception of parents who have not yet vaccinated their children with all the vaccines that are specific for the first two years of childhood.

It is important to mention that the topic has been under great scrutiny in certain European countries, while in other countries the issue was solved easily, without any resistance from the public opinion. For example, countries like the UK were faced with a media storm that broke in the context of the MMR vaccine as well as with the emergence of a resistance group that opposed vaccination based on a reframing that defines risk as unknown. This type of speech and discourse has slowly become dominant in the public space (West, Trusting blindly can be the biggest risk of all: organized resistance to childhood vaccination in the UK, 2007, 198).

In Netherlands, on the other hand, the vaccination is mandatory; parents are obliged to have their children vaccinated, otherwise their children will not be permitted to attend classes (Streefland, Chowdhury and Jimenez, 1999). The general existing regulations did not permit any discussions on the topic of vaccination and, therefore, the public opinion from Netherlands did not consider that possible negative consequences or side effects of the vaccine could become a risk that should be given careful attention.

Authors like West (2003, 274) conclude that the resistance to childhood vaccination is built around concepts like risks, and it is more commonly encountered

in countries where vaccination is not mandatory but voluntary; this is why in countries like the UK or Romania there have been debates regarding the safety or the side effects of vaccines.

The concept of risk

There have been multiple definitions and approaches regarding risks, the underlying and commonly accepted idea suggesting that they refer to the probability that an undesired event or hazard can occur as well as the implications that it generates for society, individual, or a certain value. Authors like Gutteling and Wiegman (1996, 15), or Zinn (2008, 5) insist upon the idea that risks are not only connected to probability analysis but also to the idea of assuming risks in a totally rational manner, by weighting the costs and the benefits. The same authors explain that there are two different dimensions that are attributed to risks: firstly, the objective dimension which refers to the magnitude of a possible danger and loss, the balance between the negative consequences and possible benefits, the mechanisms to mitigate the uncertainty by means of specific and scientific techniques. Secondly, the subjective nature or dimension of a risk is connected to the perceived level of control over the risk, the degree to which a certain asset or a value can be affected, the number of people that are exposed to risks, the predictability of the negative consequences.

In the sociological and other multidisciplinary theories on risk, various processes must be taken into consideration such as risk perception, risk acceptance, risk framing, communication of risk, social amplification of risk etc. Some of these processes will be further discussed in the article in order to understand how people understand and respond to various risks. We will begin by discussing about risk perception, defined by Brewer et al. (2007, 36) as the personal beliefs of the individuals regarding the potential harm that an incident, phenomenon or action can have over them. This definition implies that the individual should possess a certain degree of knowledge regarding the harmful consequences that a certain phenomenon would entail.

Douglas and Wildavsky (1982) launched the hypothesis that the risk perception and the subsequent risk selection of a wider group of people are not necessarily based on a scientific approach, nor do they start from an increased knowledge of the population regarding the implications of a phenomenon. Furthermore, it does not imply the existence of a consolidated corpus of validated information concerning the prioritization of problems that have the greatest impact on the security and well-being of the individual. Instead, as the authors suggest, each society conceives its own "portfolio of risks" that reflects, not information and knowledge, but general beliefs on existence, institutions and values as well as moral behavior. Actually, Covello and Johnson (1987), point out that the most difficult problem regarding the understanding of risks and the study of the way people respond to risks is

generated by the fact that risks are not part of the objective reality. They maintain that instead these stand as a subjective perception of a possible evolution that can have negative consequences on various aspects of life.

In other words, the risk that one society believes is threatening or jeopardizing its existence is not a reflection of the objective reality; instead, it is a social construction, influenced by cultural and other social factors.

Furthermore, there are differences in risk perception not only between different cultures but also between members belonging to the same culture. In supporting this idea, Covello and Johnson (1987, 21) argue that regarding risk analysis, it is important to understand that people belonging to different institutions and organizations, who have different educational and cultural backgrounds and, consequently, different cultural filters to assess, assimilate and perceive information, will have different responses when being exposed to discussions and arguments regarding risks.

According to Luhman (1993, 3-5) the evaluation of risk as well as the risk acceptance are not entirely psychological issues; they are connected to the way in which one's behavior is compatible to the behavior of the reference group. Consequently, it is debatable whether the decision making process in front of a risk is an individual or a collective one.

Factors that influence the perception of risk

Scientific proof

Covello and Johnson (1987, 2-3) consider that one of the major factors that influence the perception of risk is the scientific proof that is delivered to the public opinion. Thus, since risks imply the analysis of the probability that something bad will happen, the accuracy of the argumentation should be doubled or supported by scientific results. The authors argue that, for a risk to be more widely accepted and placed in the prioritization of risks, it must have a scientifically agreed content. Any contradiction in terms of scientific proof and validation can generate mistrust and can lead to a total ignorance in face of the risk, or can lead to disagreements on the subject among members of society. If we are talking about childhood vaccination we noticed the fact that the discussions regarding the risks that children are exposed to if they get vaccinated, or the health risks that they may confront with if they are not vaccinated in our country, were affected by the publication of various so called international scientific researches. These researches, in general, contradicted the existent information on the subject, thus generating mistrust among parents. For instance, in 2017, the online newspaper Sputnik, which publishes articles in Romanian as well, invoked the results of a laboratory research conducted by a team of Scandinavian scientists, published on EBioMedicine. According to these researches, the mortality rate among the African children born in the 80's were

10 times bigger for those that had the DTP vaccine administered than those that did not receive the vaccine.¹

The complex social topics that capture the attention of the general society are connected to the concept of cultural relativism that underlines the fact that “the validity of public knowledge depends on its relation to the context of its creation through social activities such as science, technology, religion, and even magic” (Covello and Johnson, 1987, 7). In other words, for the scientific knowledge to be fully and widely accepted and embraced by the public opinion, it must perfectly fit in the social context and must be congruent with the existent knowledge and beliefs, that circulate in that specific period of time and social context. In this way, groundbreaking discoveries and knowledge are bound to receive a social validation and feedback. As we will see later on in the article, the MMR vaccine and other vaccines designed for children/babies, seen as a medical discovery that can reduce the mortality of infants, were not accepted among certain groups. In our opinion, this is due to the fact that they were not compatible with the general knowledge of the individuals, who considered that a single vaccine cannot be suitable for all children given the particularity of the hereditary predisposition to illnesses.

Slovic (2000, 47) advocates that the scientific information conveyed to the general public regarding the negative implications of an event can lead to hasty reactions from the society but sometimes such pieces of information can go without being noticed, depending on the way the risk has been communicated and perceived. In our assessment, the information delivered to the public opinion from Romania by the mass media, regarding the negative consequences that childhood vaccination against measles, mumps and rubella might entail, definitely was noticed and forced the medical institutions to better consolidate the argumentation and communication of risks.

The source of the risk

Covello and Johnson (1987, 27) advocate that sources of risks that are perceived by a group of people to come from within the community are considered as less threatening than those who are perceived to come from the outside. The authors give as example a case study concerning industrial communities who do not consider the risk of industrial pollution as being of paramount importance, as opposed to other types of risks whose sources are external to the community. The explanations of this phenomenon are multiple but perhaps the most important argument, as the authors insisted, is that discussion about possible risks deriving from the industrial activity could have had negative economic impact. In other words, representatives from that community ignored or disregarded the risk because, to a certain extent, they feared that by bringing these discussions to the central public attention they would have affected the income that they received from working at the industrial plants (Covello and Johnson, 1987, 28). The example thus concludes upon the fact

that risk perception and risk analysis should be studied from a larger perspective, including characteristics of the social context.

Prior incidents or experience

According to Slovic (2000, 37-39), the frequency of the risk perception is increased if there has been an incident which makes the materialization of the undesired event easier to imagine or to remember, a phenomenon known as the availability bias. Other variations of the concept, suggested by the author, exist – for instance, hindsight bias refers to the fact that when being told about a past negative event, that we did not witness in person, we still have the tendency to assume that this negative effect will occur once again. For example, if we are talking about the health risks generated by childhood vaccination, any incident that implied a child getting sick or having negative symptoms after being vaccinated can increase the perceived probability of the risk. We assume that the cases of febrile convulsions and other side effects that parents from various countries reported after having their children vaccinated not just with the MMR vaccine but other types of vaccines have had the potential to determine an increase in the frequency of risk perception.

Experience does not refer solely to bad or unfortunate episodes. Prior experience can also refer to types of behaviors that were favorable to vaccination. If a type of behavior is repeated, for example if a person gets constant vaccines against certain health hazards, then he is more likely to repeat the behavior in case of other types of illnesses (Brewer, Chapman, Gibbons, Gerrard, McCaul and Weinstein, 2007, 142). We thus consider that arguments against vaccination and even unwillingness to take into consideration the necessity to get vaccinated are more frequently encountered with those individuals who have not been vaccinated during their life or who refused to vaccinate their children.

Public trust in institutions/communicator of the risk

Kasperson and Kasperson (2005, 27) stress the fact that since members of the society do not have time or access to sufficient information in order to correctly assess the multitude of risks that they are faced with during their lifetime, they delegate the power to the legislators and institutions that are mandated to deal with these issues. Whether or not society has trust in the credibility of these institutions is a source of multiple debates with respect to the risk-mitigating decision-making. It is our opinion that in our country, the level of the public trust related to health services and medical institutions that are responsible with the vaccination of the population/children has been affected severely and negatively by the numerous scandals² in which hospitals as well as representatives from the Ministry of Health were involved. This consecutive waves of public criticism regarding the quality of the health services as well as the trustworthiness of the

medical representatives have influenced the decision making process related to having the children vaccinated or not.

The idea is supported by Pidgeon et al. (2003, 123-124), as well, who argue that public trust in institutions is a significant factor in the process of the social amplification of risks. Sometimes, the public opinion might feel that there are vested stakes on behalf of those who communicate the risk and who are supposedly responsible with the protection of the interests of the individuals. In other words, it is also about the trust of the population in those perceived as risk managers. We can infer that a piece of information regarding a risk, which is received from a source deemed as unreliable may lead to a type of behavior or attitude which is totally opposed to the expected behavior.

The social approach on the concept of trust argues that there are two determinant elements that influence the level of trust that the public opinion attributes to a certain source of risk information: firstly, the competence/expertise of the risk communicator, and secondly, the honesty of the communicator when conveying the pieces of information (Pidgeon, Kasperson and Slovic, 2003, 125-126).

West (2003, 279) considers that people tend to trust more in the source of the information and not necessarily in the content of the information. Otherwise said, people tend to clarify firstly whether the source of the information has the necessary competence for rendering credibility. As the author explains, this is why by using phrases like “experts from around the world agree upon the fact” or “argue that” on stressing the absence of a direct connection or relation between the vaccine and the side effects, policies on vaccination communicated to the public opinion try to put more weight on the available scientific research evidence. Hence, these phrases leave the impression that the source of the information is credible. However, it is important that the information conveyed to the public opinion regarding health risks and the need to have the children vaccinated should be aimed at reducing the level of uncertainty. Risk information delivered to the public will not reduce the uncertainty or the worries if people believe that risks do not take into account the long-term side effects. This means rephrased that, if the information conveyed to the public opinion do not reduce the level of uncertainty, then the whole amount of information will be pointless, and people will continue to exhibit the same reluctance towards vaccination (West, 2003, 281).

The aspects presented previously may enable us to understand the reluctance and resistance of certain members from the Romanian civic society related to children vaccination starting from the low level of trust in both the expertise of the Romanian medical entities who communicated the health risks as well as their perceived honesty.

Understanding health risks

The process of risk perception stands as a corner stone for the health-related behavioral theories. Society consciously and voluntarily accepts certain risks in exchange for some benefits whose nature depends on the type of risk that we are dealing with. In our case, people can accept the risk of post-vaccination side effects in exchange for health benefits for the children (Kasperson and Kasperson, 2005, 20). Of course, the risks might be reformulated, even in this particular situation in the sense that parents can accept the risk of refusing the vaccination in exchange for protecting their children against the unknown future side effects.

Brewer et al. (2007, 137) consider that health hazards comprise two different dimensions: the first refers to the probability of harm or damage if no action or prevention is taken, while the second one refers to the severity or magnitude of harm if no prevention is taken. Practically, these two dimensions reflect two types of scenarios: one scenario that the individual must take into account refers to the probability that one might be harmed by a health hazard (a scenario that takes into account the answer to the question “what is the likelihood that you will get a disease if you don’t get vaccinated). The second one deals with the severity of the consequences (“how harmful the disease might be for the individual?”).

The second dimension of the health hazards practically determines the individual to decide whether to be vaccinated or not since the individual assesses if the negative health consequences are manageable or not. The authors also mention a third dimension that might exist in certain cases, regarding health hazards that the individual can take into consideration when analyzing the risk, namely the vulnerability in front of the hazard. If the individual perceives himself as being more susceptible to a certain hazard then he is more likely to consider the risk as being important and significant to his health security (Brewer, Chapman, Gibbons, Gerrard, McCauland Weinstein, 2007, 137). In case of children, low immunity or other innate health deficiencies and vulnerabilities might constitute solid arguments to determine parents to opt for childhood immunization.

The studies conducted by the above – mentioned researchers, revealed the fact that susceptibility to a certain disease or illness can, to a certain extent, determine health behaviors; the decision to get a vaccine or not, as manifestation of behavior, is considered as a mechanism to reduce the likelihood of risk. In other words, the perception of a certain health risk or hazard by a certain person becomes the pure motivation for the behavior. Nevertheless, the results concluded on the fact that this concept has not been given enough attention and future research should be dedicated to the relationship between vulnerabilities/susceptibility and health behavior (Brewer, Chapman, Gibbons, Gerrard, McCauland Weinstein, 2007, 142).

Resistance to childhood vaccination

We noticed, by reading multiple newspaper articles on the subject, that resistance to vaccination especially during childhood is seen as a paradox by many scientists, as well as by many NGO's and health organizations since vaccination to multiple diseases has succeeded in prolonging the life expectation and reducing mortality among youngsters.

When having to make a decision regarding the need to have their children vaccinated, due to media outlets and information referring to the side effects of the vaccine, parents must now conduct a risk assessment process, more precisely choosing from two different risks: the risk of having the vaccine taken and the risk of not getting their children vaccinated.

Pru Hobson West, in his research from 2003 (2003, 275) as well as 2007 (2007, 200) concluded upon the idea that resistance to vaccination should not be understood at the individual level but should be defined in terms of collective and organized opposition or collective behavior and implies a conscious action or decision. The same studies highlighted that parents tend to underestimate the nature of the risk related to childhood diseases simply because they do not have the memory of the period when child mortality caused by those particular diseases was very high.

Added to this, Streefland et al. (1999, 1711) point to the fact that "collective resistance to vaccination must be understood in the specific context of the ongoing social conflicts" that exist in the society (the religious conflict and other types of conflicts, the conflict regarding disinformation in the mass media etc.). This idea practically implies that in certain countries where religion, for example, occupies an important place and there is an ongoing confrontation between "the faith" and the scientific discoveries, there will inevitably be resistance coming from those that support the perspective of the Church/religion. The perspective is also supported by West (2003, 278) who stresses that religion plays a heavy role in maintaining the opposition and resistance to medical discoveries, including vaccines, and to the state-of-the-art biomedical advancements, discoveries and remedies, as well.

In both studies by West mentioned previously, the author underlines that even in countries where children vaccination is not mandatory, resistance or opposition to vaccination is not approached lightly as parents who refuse to get their children vaccinated pose a serious threat to what the researchers call "*the herd immunity*". Moreover, they are regarded as threat also to the immunity of the children who have been vaccinated by their parents (West, 2003, 275). This concept has practically enabled the government and the health services to support and promote the cause of the vaccination and, at the same time, to stigmatize those who opposed it (West, 2007, 198).

The concept of *herd immunity* implies that the benefits of the vaccines are not directed towards individual purposes; such vaccines are created and promoted in

such a way that they invoke the greater good of the community. Refusing to have children vaccinated implies a serious threat to the overall wellbeing and safety of the entire community (West, 2003, 277).

Pru Hobson West (2003 and 2007) advocates the fact that, first, parental decision-making related to vaccines, based on the calculation of risk, is influenced by a set of factors:

- prior experiences with other types of vaccines or with pleasant or unpleasant experiences with health services;
- the multitude of decisions that a parent must make; at a certain point of time, various child related problems might tamper with the analytical and mathematical calculation processes inside the mind of a parent which, consequently, affect the judgment specific to vaccination;
- the experience with the birth of the child, the dialog and consultations with family and other friends;
- hereditary characteristics or illnesses that the child suffers or might suffer which make parents personalize the risk.

Forms of resistance to vaccination

The studies conducted by West (2007, 204-207) revealed the fact that resistance groups reframe the risk in different ways:

- By questioning the benefits of the vaccines – those who question the safety and the benefits of the vaccines reframe the risk by underlying the fact that good, obedient and conscientious parents agree to have their children vaccinated because they are too busy to look up for more information on the topic. Those people, called the *Critical*, do not provide any further useful information about the negative effects of vaccines, or do not bring forward their own experience with vaccination because it is more likely that they have not had any type of experience. Instead, they just call on other parents to be more engaged and to make some inquiries before making a decision. These parents define themselves as good ones because they were informed when having to decide whether to vaccinate their children. The type of discourse promoted is that some parents act like sheep, without proper consideration to the implications of vaccination whereas other parents are more critical and freethinking.
- By claiming that the vaccination process leads to other health risks (like autism).
- By constructing the risks as unknowns. This type of framing refers to the fact that opposition to risk is justified by the lack of knowledge regarding the side effects, both short-term and especially long-term, of the vaccine. These categories of people claim that, after the vaccination process, there are many elements of uncertainty and unknown.

- By considering that one vaccine cannot be a remedy to such a wide typology of human beings, characterized by different hereditary traits and predispositions to illnesses. Furthermore, this group of people advocates the need for the vaccines company to treat humans as individuals, different from one another, and not as a herd. In other words, the last group of people called by the author the “*Reformist group*” underlines that diseases do not target people randomly; exposure to illnesses depends on multiple innate type of vulnerabilities that vaccines simply disregard.

Given the typology of discourses promoted by various groups of people who reject the idea of vaccination, the author concludes that instead of talking about risk perception, perhaps it would be wise to discuss about the “public perception of uncertainty” (2007, 211).

Streefland *et al.* (1999, 1711-1712) analyzed other forms of resistance to vaccination: the first form implies the willingness to go but the inability to do so, the second one implies a simple refusal (due to various reasons, usually by the unpleasant previous experiences with the vaccination), and thirdly the questioning of the need for vaccination. In certain developing countries, people refuse to vaccinate because they simply choose to apply other types of medicines, an aspect specific to local drug and self-treatment cultures.

Among the most common arguments invoked in order to oppose vaccination Streefland *et al.* (1999, 1714) mention:

- the fact that the medical discourse and opinion regarding vaccination can be disturbing and misleading;
- vaccination severely affects the immune system of the children which consequently leads, later on, to auto-immune disorders;
- natural, endowed immunity is the best protection whereas artificial immunity ensured by vaccines can lose its effect or even be inefficient.

It is important to mention that, as the authors suggest, these so called arguments are not necessarily based on actual experience with vaccines; on the contrary, they are either intuitively formulated or extracted from social media platforms dedicated to such topics or from comments posted on different online health platforms.

Discourse analysis in practice: methodology

Our main interests in this article are to analyze the way people construct their discourse when addressing the issue of risks generated by vaccination (discourse analysis of risk perception), and of the way they formulate anti-vaccination arguments, as well.

In doing so, we use netnography as a qualitative sociological approach that will enable us to understand how people communicate on health risks on various online platforms or social media. Kozinets (2015), the promoter of the concept of

netnography, advocates that this type of research is directed towards understanding social actors in this contemporary setting where most of the communication has been relocated in the online world. The author defines the concept as “a specific set of related data collection, analysis, ethical and representational research practices” conducted upon network communication (2015, 79). In a netnographic research, the author underlines that there are no limits or restriction regarding the type of data that can be collected, this including both texts or images that can add further details regarding the content of the communication.

In the netnographic research, we include comments on risk vaccination extracted from the Comment sections of media articles published on this topic as well as posts and comments from the Facebook pages dedicated to vaccination.

The criteria we took into consideration when choosing the content to analyze were the following: it should cover main perspectives and perceptions over childhood vaccination risks, to be available online, the discussions should be held in different contexts, on different sites and blog posts. We do not intend to cover all the online debates over the topic, but to analyze multiple approaches and experiences revealed within the discussions.

The process followed in discourse analysis application began with data selection, using the criteria above-mentioned. The second stage involved content understanding and classification, to ensure the analysis is focused on the objectives of this paper. The main categories covered are vaccines under debate, risks regarding child vaccination, experiences with child vaccines: negative/positive, rational arguments pro or against vaccines, opinions regarding mandatory vaccinations. These categories are used not only to describe the content, but also to determine the health risk perceptions revealed by the people involved into public debates. Last, but not least, the analysis tries to compare and discuss different perspectives on children vaccination and focuses also on the attitudes revealed by the ones who are for or against vaccines, in general or on some specific vaccines.

Jorgensen and Philips (2002, 1) define “discourse analysis” as “a particular way of talking about and understanding the world, or an aspect of the world”, under the umbrella of social constructionism approach. This type of approach starts from the premises that our access and interaction with reality is through language and language allows us to create representations of reality that eventually lead to our own construction of reality (9). The authors further adds that language does not represent only a channel through which thoughts and data on mental states or other facts related to the world are communicated but is also an instrument through which the social world is constituted (9).

The discourse analysis is also focused on the meaning, reasoning revealed by the subjects involved into the discussions. According to the fuzzy-trace theory for vaccination, developed by Reyna, the reasoning and meaning used in order to take vaccination decisions are dependent on experience, knowledge, beliefs.

In searching for meaning, people tend to base their decisions on singular stories and experiences and not on regular events or studies taken on the topic (2012).

The first step in discourse analysis is to understand the meaning of the discourse (emitter, receiver, channel of communication, context, and conversation tone). After carefully reading the content, the text is fragmented into categories, according to the researcher's understanding and objectives. The categories reveal main topics, complaints of the discussions and help the researcher analyze the discourse, from a sociological perspective (taking into account the realities and social contexts that could influence the arguments). This last stage in discourse analysis is completed only after listing the main assumptions that could explain the attitudes of those speaking, their reasoning, revealed choices. Sociological analysis of the discourse refers to the connections between the content and its social space, referring to items like the language used, and the subjects' beliefs and the dynamic of the discussion group (Ruiz, 2009, 15).

Having as a main objective to analyze media debate over childhood vaccination, we selected comments on mainstream articles and blog posts, written on topics like Measles, Mumps, Rubella (MMR), mandatory vaccination, a debate from a discussion board and public testimonials on post-vaccination experiences, as well. The content we gathered is public, written in the last two years (2017-2019).

Our objectives are to identify the main risks people mention and fears regarding childhood vaccination and to assess the reasoning used in order to evaluate health risks, before or after vaccination. Thus, the discourse is analyzed by taking into consideration the categories mentioned above (*vaccines under debate, risks regarding child vaccination, experiences with child vaccines: negative/positive, rational arguments pro or against vaccines, opinions regarding mandatory vaccinations*). These categories serve as guidelines for structuring and analyzing the online content, in order to identify people's perceptions over health risks driven by children vaccination.

The categories were inferred while reading and trying to understand the sense of the arguments, opinions revealed by the people involved into the public debates. This classification is meant to enhance the understanding over the evident content and over the latent one (the one difficult to identify, hidden in some expressions, words, even arguments).

Vaccines under debate are the ones made in the first months or years of life: hep-b shot, tuberculosis BCG vaccine (done few days after the child is born), hexavalent, hexacima (that should be administered when the baby is 2-4 months old), DTaP (should be administered when the baby is 9 months old), MMR (1 year old), tetanus, rabies, polio.

There are testimonials or comments of parents that do not mention the type of the vaccines delivered to the children. They speak generally negative about the vaccines their children received in maternity and about the ones administered in the first months of life (2, 4 and 6 months).

The main risks discussed are associated with post-vaccine negative reactions, from fever, bronchitis, allergies to epilepsy or autism. The risk of autism and epilepsy seem to be most feared by the parents who refused to vaccinate their children.

Discussion board on vaccines: main results

Analyzing *the debate from a discussion board³ on the topic*, held in March 2018, we noticed the lack of rational arguments when people talk about possible vaccines' side effects – opposed by the approach of the ones supporting the vaccine (they provide arguments, own or known experiences).

The discussion is started by one of the mothers who hasn't yet decided to vaccinate or not her newborn child. She is asking for opinions (pros and cons) and starts from the belief that autism can be one of the major negative effects of the refusal of childhood vaccination.

Her words, used to start the debate are *'I worked with a group of children with autism. I am a painting teacher. Some of them weren't vaccinated'*.

The reactions she receives are mostly pro vaccination than against. The arguments delivered by the ones who support the vaccination are the following:

- *autism and spectrum disorders` are genetic malfunctions without a connection with the vaccines the child receives;*
- *autism is a genetic disorder`;*
- *there could be side effects but you shouldn't worry about it`;*
- *I am pro vaccines, I don't see a reason why I should be against it`;*
- *I am pro-vaccines. Today I went with my boy to administer the last vaccine. He is 2 months old`;*
- *I am pro. I agree my boys to be vaccinated`;*
- *I am pro-vaccines. I think it's better this way for the babies`.*

The arguments provided by mothers agreeing to vaccinate their children, or who experienced no side effects after the vaccines were administered, explain the lack of correlation between genetic disorders and vaccine side effects. Moreover, they outline the positive effects vaccine can have on children's health and even if they claim there could be some side effects, they perceive it as a normality, nothing out of the ordinary.

There are few opinions against vaccination on the same discussion board. Some of the comments reveal no rational arguments against vaccination, no scientific proof to support their discourse, only opinions or fears related to side effects (*'I heard there can be negative consequences of vaccines, that can happen especially to girls`;* *'I know two families that have children with autism. I can't decide if the vaccines are good or bad for them`;* *'I know some cases where post vaccines, the children got allergies. There are multiple side effects. You should read more*

about it, on sites from abroad to convince yourself"; I heard there can be several negative effects, I heard it also from the physicians I talked to`).

No one mentions a certain type of vaccine. They talk generally about the vaccines that should be administered to the child in the first months of life.

Few subjects fear the risk of autism, a disease that could be generated, in their opinion, post-vaccination. The entire debate is focused on the connection between autism and vaccines, a connection not properly explained by the ones that believe it is plausible.

The discourse of the ones opposing vaccines seems to be irrational. They talk about side effects without mentioning an argument, a relevant experience. They mention they know children with autism without explaining if the autism was certainly generated by some vaccines. They suggest the need to read more about vaccines' side effects, but not from Romanian sites, but from online forums, where foreign physicians explain better the consequences of certain vaccines. They say there are some doctors, they talked to, that advocated some negative effects, but they do not offer better explanations. The reactions revealed towards vaccines are extremely negative, through expressions like *negative consequences of vaccines, several negative effects, and multiple side effects*. People talk mostly about possible vaccines' negative effects, without offering details or arguments to sustain the correlation between the vaccine and its effects. The uncertainty claimed by a majority of them and the possibility of side effects reveal their difficulty to assess the impact of vaccines on children's health.

The discourse of those supporting the vaccine seems to be rational. They mention statistics, data that prove the benefits of vaccines. They tend to be irrational when talking about the difficult decision to be taken, knowing that it is possible that the child could suffer from side effects, post vaccination implications. The subjects involved into the discussion share their reasoning concerning the decision to have their children vaccinated or not.

The experiences revealed with children vaccination are rather positive than negative. Some mothers talk in good terms about their children's health, post-vaccine. The experiences of others (heard by the ones involved into the debate) are used as an argument against vaccination.

The fear of severe negative effects (autism) may be explained by the online content against vaccination, available to mothers trying to learn about children immunization. An ongoing general debate correlates autism with vaccines, where trustworthy public figures discuss about the risks of children's vaccination and the high probability that severe side effects might happen to them.

Comments on an article on the topic of Measles, Mumps, Rubella (MMR) vaccination

Regarding the reactions on the article released on Measles, Mumps, Rubella (MMR) vaccination⁴ (its content highlights the fact that MMR vaccine has the highest denial rate in Romania – mostly in urban areas, even if the last measles epidemic led to 59 deaths, mostly unvaccinated babies and to almost 15.000 cases of infected people), we noticed:

- a major discontent against the parents that refuse to vaccinate their children (*'stupid parents should be in jail'*);
- a general fear regarding the risk that unvaccinated children could give the disease to the vaccinated children (*'within measles victims there could be vaccinated children. The disease could be spread before the vaccine becomes effective'*);
- an assessment (shared by the majority of the ones that commented on the article) regarding the main cause of the measles epidemic: the large number of refusals of vaccinations, mentioned also in the article (*'the epidemic was caused by refusals (...). The one that believes Pharma is planning to poison his children with aluminum and cause autism will never agree vaccination'*).

The blame is put on misinformed parents that get their data about vaccines from social media or online (*'the parents that have their children sick because of unaware parents should have the possibility to sue them, if something happens with their vaccinated children'*; *'the parents that refuse to vaccinate their children should be punished with fees or even jail'*).

The risk is no longer the one of autism, but the epidemic extension or epidemic relapse. There are opinions that claim the risk of autism is nothing compare to having your child killed by a measles epidemic, because of the parents refusal to vaccinate them (*'I am sure that the parents whose children died of measles are no longer interested now in the risk of autism'*).

The subjects talk about the real danger regarding vaccination: the online and social media content that convince parents to refuse vaccines and which leads to infant mortality (*'too many 'truths' on Facebook and online could kill your children!!'*).

The ones that commented on the article are the ones that have experienced positive effects of the MMR vaccine and perceived the non-vaccination risk as a major one.

The opinions are definitely framed by the statistics included in the article (MMR vaccine has the highest denial rate in Romania, the number of MMR victims, national coverage of 5 types of vaccines – bcg, hep-b, DTaP, polio shot, Hib, MRM, reasons against vaccination, declared by parents). To these is added the connection made between the deaths led by the epidemic and the high rate of MMR refusal, at a national level.

The subjects deliver mainly rational arguments to support their opinions – references to the number of deaths due to the measles epidemic and the increasing number of vaccination refusals.

Blog post discourse over mandatory vaccination

The blog post about the possible mandatory children vaccination⁵, being debated in the public arena but also within our Parliament (a law project that claims the obligation for parents to vaccinate their children before kindergarten and school) covers another debate over children vaccines. Our sociological analysis highlighted the risk of non-vaccination as being higher than the risk of vaccine side effects (which is perceived as unknown).

There are no names for the vaccines mentioned. The debate is mainly about the decision to vaccinate children (should be taken by individuals or by the state?), the risks involved in this decisions, the mandatory vaccinations (how can it function, which are the positive and negative effects).

The risks mentioned by the debaters are: the ones generated by the acceptance or refusal of the vaccine, the ones posed by an unvaccinated child or adult to a community, the ones generated by the state's involvement in this topic (individual vs. state regarding our choices), the effect of mandatory vaccination on people's right to education.

The risk of non-vaccination is perceived as bigger than the one of vaccination. There are numerous comments that agree there are lower chances for side effects to happen, post-vaccination and that the decision requires a lot to think about (*the one that dies or gets very sick may be your child*).

There blame is laid on the parents that believe vaccines are harmful. *It's unbelievable that in our century there are still parents that think vaccines are bad and produced according to conspiracy theory* and on the ones that don't know *how many lives vaccines saved, during history*, they are against it (*We, as a society have a tendency to search to put the blame on someone for our problems. It's easier to argue against vaccines than to inform better about its benefits and implications.*).

A decision against vaccination is perceived as risky, harmful for the community not just for one child or one adult. Therefore, not getting a vaccine means, for some of the debaters, *putting in danger all of us*. These comments practically confirm "the herd immunity" concept which was detailed in the theoretical section of the article.

The risks caused by vaccines are perceived as unknown. There is a need to be more informed about side effects: *Someone should contest all the wild allegations against vaccines and talk more about the real risks*. One of the debaters argues that the fears associated with some children vaccines are actually associated with

the negative image our health system has, with all the issues from hospitals and malpractice cases.

The risk of autism, post-vaccination is perceived as unreal, due to the lack of scientific arguments that could prove the correlation between vaccine and autism. There are also arguments that claim there must be other factors that cause autism, not the vaccine taken by the child.

There is a tendency, between the subjects, to accept the vaccination, only if the possible side effects are accepted and assumed and mitigated by the state (including financially) offering some sort of guarantee for the shots (*'what's the guarantee given by the state concerning the shots produced?'*).

There are opinions that claim the context of the legislative initiative regarding mandatory vaccination is inappropriate. Many issues should be taken into account before debating mandatory vaccination (for example the poor conditions from most of Romania's hospitals).

Pro-vaccination comments refer to statistics, to the low probability of side effects (*'1 from 100 babies can suffer side effects, or even die because of the vaccine'*). There are also opinions influenced by pictures or data accessed (*'I recently saw a picture back from 1940-1950 with lungs of steel for children with poliomyelitis. It was really scary.'*).

There are comments that describe personal beliefs against vaccination as non-valid, compared to the large amount of statistics that claim the benefits of vaccination for children (*'personal benefits mean nothing compared to the masses of statistics that prove the benefits of vaccines on children's health'*).

The obligation to vaccinate children before kindergarten and school is perceived in positive and negative terms by the ones involved into the debate.

Few people say the children can be allergic to one of the substances the vaccine contains, which means these children can make the vaccine.

There are voices that argue the decision shouldn't be taken by the state, but by individuals. The debate develops with more opinions that support the state's involvement in this field (*'it is the state's business because a decision pro or against vaccination can affect the entire community, not only the individual'; 'it is our business if you decide not to get a vaccine!'*).

Moreover, some subjects describe mandatory vaccination as a characteristic of totalitarian states or as a segregation cause: *'Mandatory vaccination is crazy, sounds like a decision taken in totalitarian regimes. (Ironically speaking) I think there must be rooms for vaccinated children and rooms for the unvaccinated ones'*.

Another topic connected to the mandatory vaccination is the possibility to limit the right to education – if schools won't accept children without being vaccinated.

The same risk discovered in previous debates analyzed is also discussed on this blog: the chances for some diseases to spread from unvaccinated to vaccinated children.

One of the recommendations made by some of the subjects is a public campaign over the risks the children face if they are not vaccinated. In this campaign doctors, teachers, and kindergarten managers should be involved.

Some of the subjects talk from their personal experiences, offering not only their opinions, but also facts and arguments they took into consideration when making the decision (to vaccinate or not their children): *I agreed to vaccinate my child seven days ago. It was my decision. I think the risk of not getting my child vaccinated is bigger than the one of taking the vaccine`.*

Testimonials on vaccination risks

The testimonials⁶ about vaccination risks and side effects are referring mostly to negative experiences parents had with their children's health after vaccination.

The risks mentioned are the ones posed by side effects of vaccines like hexavalent, hexacima, MMR and possible negative outcomes for the parents who refuse to agree the vaccine for their children.

The parents talk about side effects like infantile spasm, skin rashes, bronchitis, epileptic seizures, food intolerances, allergies to food and even autism or death. There are life experiences, described by parents that have noticed side effects of vaccines and tried to find a treatment to improve their children's health.

Conclusions

The topic of children immunization has generated heated debates not only in Romania but in other countries as well. Cases of so-called post-vaccination side effects, not proven to be completely connected to vaccines yet, have determined parents to either refuse the vaccine, and question the necessity of vaccination, militate against it, or pause to think before making a decision in this respect.

The discourse analysis of the comments on mainstream articles, blog and Facebook posts, and testimonials, revealed that resistance to vaccination:

- is specific to those who frame the risk as uncertain. This group of people does not present solid arguments in order to counter the scientific arguments of the institutions and supporters of vaccination. As West mentioned, this group of people can be called the *Critical*, as they question the need to have children vaccinated;
- is amplified by the ongoing public debates (including testimonials like the ones analyzed before) that highlight the possible side effects of vaccination on children;

- is, in some cases, generated by negative experiences – personal or heard about post vaccination effects, which have not been entirely or scientifically proven to consequential to vaccines;
- is due to the lack of communication – in media, but also between a doctor and a patient – about the vaccines that could be harmful for some children.

The comments of this category of people who resist vaccination are directed:

- towards parents, advocating the need to be better informed before deciding whether or not to have their children vaccinated;
- towards state institutions and medical staff, calling for more transparency, commitment and better and more applied dialogue with parents regarding the need to have children vaccinated and possible consequences for both decisions (acceptance or refusal).

A general conclusion is that the people involved in the public debates which were previously analyzed, tend to perceive the risk of non-vaccination as bigger than the one of vaccination. They blame the misinformed parents that get their data about vaccines from social media or online and think vaccines are harmful for their children. Furthermore, they are supporters and protectors of what researchers highlighted as “herd immunity” (West, 2003, 275) – the idea that one case of refusal regarding childhood immunization can affect the health of an entire community.

The subjects involved into the debate use an irrational one, when talking about their own experiences, their children, known negative experiences of others. They talk about side effects without mentioning an argument, a relevant experience. The reactions revealed are extremely negative, through expressions like *negative consequences of vaccines*, *several negative effects*, and *multiple side effects*. People talk mostly about possible vaccines’ negative effects, without offering details or arguments to sustain the correlation between the vaccine and its effects. The uncertainty claimed by a majority of them and the possibility of side effects reveal their difficulty to assess the impact of vaccines on children’s health. However, when trying to combat the opinions against vaccination the subjects’ perspective is mainly rational.

The majority is worried about the side effects of vaccines, and would like to be more informed in making the decision and agreeing, or not, to immunize their children.

Concerning the mandatory vaccination, there is a tendency to argue against the state’s involvement into this matter. This initiative is perceived in positive and also negative terms by the ones involved into the debate (a characteristic of totalitarian states or a justified measure taken for the entire society, giving the risks posed by the one that refuse to vaccinate their children to the entire community).

Discussion

By the objectives stated at the beginning of this paper, we set out to identify and analyze risk perception of the public from Romania regarding childhood vaccination, the factors of influence to be taken into account when parents face the decision to have their children vaccinated or not. Moreover, we have included also the perceptions of the parents that have not yet vaccinated their children with the vaccines specific for the first years of life.

We chose to accomplish these objectives by assessing public content from online media, using the discourse analysis as a qualitative research method. Our results revealed perceptions over the risk of non-vaccination or over the possible side-effects children could confront with, the uncertainty parents face when facing the decision pro or against some vaccines and the arguments, opinions shared by the ones involved into the discussions regarding the benefits or negative impact of childhood vaccination.

The results clarified the way in which people discuss about childhood vaccination in terms of risk; more precisely, the analysis revealed the way in which the information presented in mass media influenced the perception of risk.

Analyzing the main results of discourse analysis application, from a theoretical perspective, we noticed that people's risk perceptions are influenced by scientific proof (there are some subjects that claim there are studies that prove health risks generated by childhood vaccination are not significant). To it are added the source of the risk (people tend to refute the possibility of mandatory vaccines imposed by law without guarantees for the children's safety, post-vaccine), and prior incidents or experiences (some subjects talk about own or known experiences regarding childhood vaccination that demonstrate the benefits or negative effects of some vaccines).

The study, of course, is characterized by a set of limitations. The results cannot be generalized to the entire population in our country given the fact that the authors collected those debates and commentaries that were available to the public. Apart from that, there are plenty of Facebook groups dedicated to discussions about childhood vaccination risks, which are restricted. Moreover, the complexity of the topic and the multiple theoretical or methodological approaches towards people's risk perceptions regarding children vaccination made the task challenging to accomplish and difficult to study from an unilateral perspective.

Notes

¹ Available at <https://ro.sputnik.md/International/20170425/12349460/studii-copii-vaccinati-expusi-risc-deces.html>.

² For example, the Hexi Pharma scandal, or the poor treatment the patients suffering severe injuries from "Colectiv" incident received in the medical units from our country.

³ Available at <http://www.sarcinapesaptamani.ro/forum-discutii/q=164669>.

⁴ Available at <https://www.hotnews.ro/stiri-sanatate-22589375-date-oficiale-insp-vaccinul-ror-are-cea-mai-mare-rat-refuz-dintre-vaccinurile-din-romnia-chiar-dac-epidemia-rujeol-cut-59-mor-majoritatea-bebelu-nevaccina.html>. The article has almost 8400 views.

⁵ Available at <https://www.nwradu.ro/2017/10/voi-ce-parere-aveti-despre-legea-vaccinarii-obligatorii/>

⁶ Available at www.cunoaste-riscurile.ro.

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