

## Broadcasting about Vaccination Campaigns: An Analysis of the Media in Ceará

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**Keywords** — Vaccines, Media, Campaigns,  
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**Abstract** — Vaccines have been used since the beginning of the 19th century as a disease control measure. However, it was only in 1973 that the National Immunization Program (PNI) was formulated, which established the National System of Epidemiological Surveillance (SNVE). This organizes the entire national vaccination policy for the Brazilian population and has as its mission the control, eradication and elimination of immunopreventable diseases<sup>(2)</sup>. Thus, the objective of this study was to understand the social representations elaborated by the media in Ceará about vaccination campaigns. To reach the proposed objective, we used the proposed steps of documentary research<sup>(8)</sup>, anchored in the theory of social representations<sup>(6-7)</sup>. The search for journalistic articles occurred through access to two electronic addresses of major newspapers of Ceará; *Jornal O povo* (<http://www.opovo.com.br/busca/>) and *Diário do Nordeste* (<http://diariodonordeste.verdesmares.com.br/servicos/busca/>), focused on

*the period of July 2017. Thus, the social representivities elaborated by the media of Ceará about the vaccination campaigns were understood. As the low or high acceptance of this population before the immunization campaigns that were conveyed to the two important newspapers. Has as a limiting factor this study, the selection of local media news, in which the data are punctual and can not be generalized. Despite being a prerogative of the qualitative approach the non-generalization.*

## I. INTRODUCTION

The reduction in the morbidity and mortality rates of the world's population due to immuno-preventable diseases as a result of the practice of vaccination is undeniable proof of its relevance to global health<sup>(1)</sup>.

Vaccines have been used since the beginning of the 19th century as a disease control measure. However, it was only in 1973 that the National Immunization Program (PNI) was formulated, which established the National System for Epidemiological Surveillance (SNVE). This organizes the entire national vaccination policy of the Brazilian population and has as its mission the control, eradication and elimination of immunopreventable diseases<sup>(2)</sup>.

The historical trajectory of immunization in Brazil is marked by fluctuations in the perception of public power of its epidemiological importance in the agenda of the imperial government and in the early days of the republic and politics *vis-à-vis* (in face of) other diseases of epidemic and endemic character. Epidemic outbreaks, and social fear, can clarify the occurrence of adherence to immunization campaigns, or distrust of them, however, they do not explain immunization as a social practice. The coercivity in certain periods, such as the "Revolta da Vacina" of 1904 in the city of Rio de Janeiro, and some previous and subsequent episodes of vaccinophobia in Brazil, were, and continue to be, not very effective, and do not fully explain the "popularization" of immunization in Brazil<sup>(3)</sup>.

It is recurrent in public policies the difficulty in provoking/ sensitizing people and/or groups to adhere to the practice of vaccination. The following obstacles stand out: the non-acceptance and trivialization of risks, difficult identification of the target group (by the population itself), availability of vaccines, adherence and control of booster doses, technical capacity of professionals, among other reasons<sup>(4)</sup>. These stratifications, when added together, potentiate the low adherence of the population. As recently, the national vaccination campaign against influenza, in which most Brazilian states had rates below the target, being made available to the entire population<sup>(5)</sup>.

The awakening for this theme began during the performance of the main researcher of the study as a

resident with emphasis in family and community health, in a city of Ceará located in the highlands region. It was observed that some people, while waiting for medical attention, justified their absence during the vaccination campaigns as "government measures to kill the elderly", being reported in the press and on television the death of people after taking the vaccine.

With all this mentioned, it should be understood that the media is one of those responsible for promoting information<sup>(6-7)</sup>. What makes it essential to know and discuss what kind of information the population is having, because it has representation in the social diffusions, conferring one of the social representations. Moscovici was the first to study and mention the term *social representations*<sup>(6)</sup> in a work of psychoanalysis entitled: *son image et son publique*. In this work, the author shows the results of his research, in which he seeks: "to understand in what way psychoanalysis, by leaving the closed and specialized groups through its dissemination by the media, acquired a new meaning for popular groups". It is clear that the diffusion of a certain news item in a social environment can modify the way in which people live, as well as the vision they have of themselves and of the world.

Thus, the objective of this study was to understand the social representations elaborated by the media in Ceará about vaccination campaigns.

## II. METHOD

To reach the proposed objective, we used the proposed steps of the documentary research<sup>(8)</sup>, anchored in the theory of social representations<sup>(6-7)</sup>.

The search for journalistic articles occurred through access to two electronic addresses of large circulation newspapers from Ceará; Jornal O povo (<http://www.opovo.com.br/busca/>) and Diário do Nordeste (<http://diariodonordeste.verdesmares.com.br/servicos/busca>), focused on the period of July 2017.

As a search strategy, we used the search engines: VACCINATION, IMMUNIZATION, and VACCINE, separately on the sites. The process of conducting and selecting articles was based on the recommendations of

PRISMA<sup>(9)</sup>. Two filters were applied: the first consisted in reading the headlines, and the second was based on reading the news in full. We identified 281 articles in the two newspapers in question (Diário do Nordeste and O Jornal O

Povo), but only 92 articles addressed the issue of vaccination in humans. Finally, we applied the two filters based on the PRISMA model flowchart, resulting in 32 selected journalistic texts for processing (Figure 1).

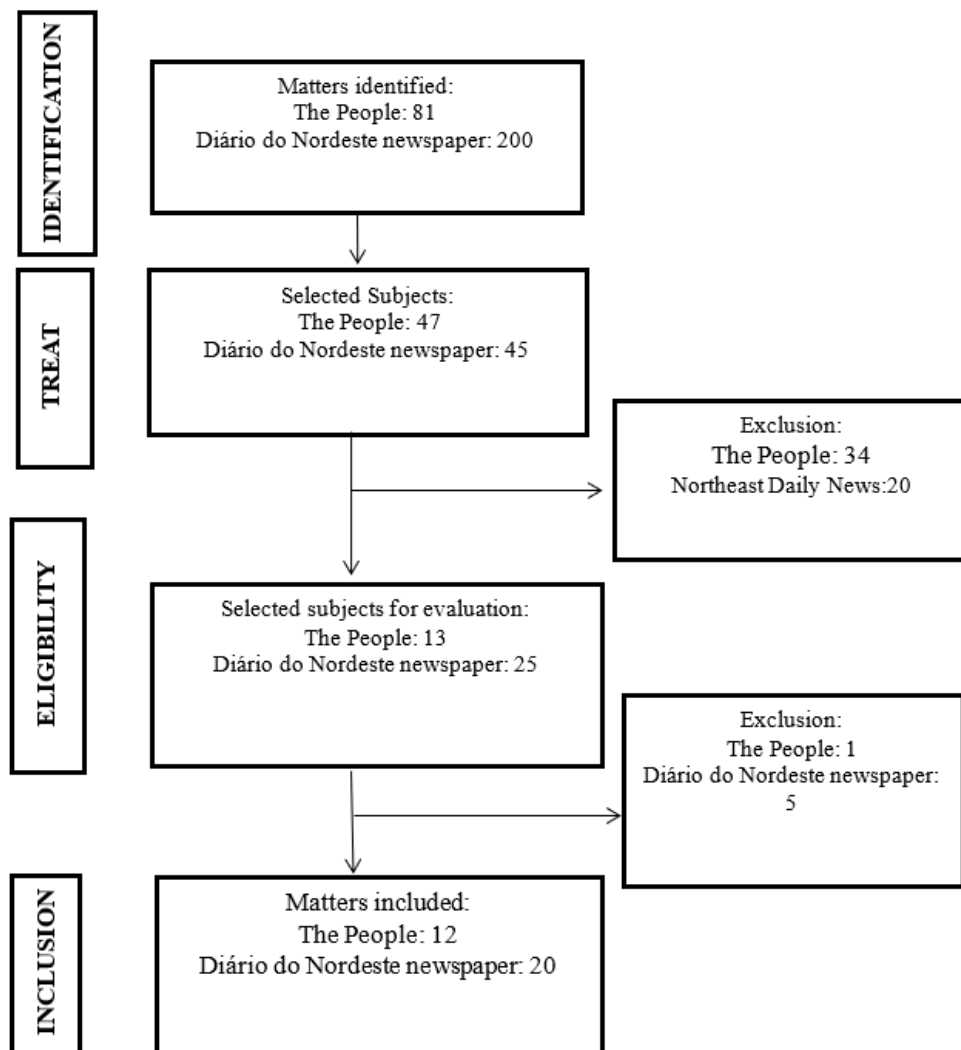


Fig.1 - Flowchart of the selection of journalistic stories, based on the PRISMA model - Fortaleza-Ceará-Brazil, 2017.

After refining the articles included in the analysis, they were transcribed into the LibreOffice® program, elaborating the corpus for data processing. The processing of the corpus content was done through the software IRAMUTEQ (Interface de R pour analyses Multidimensionnelles de Textes et de Questionnaires) version 0.7 alpha 2<sup>(10)</sup>.

Among the possibilities of analysis by IRAMUTEQ, we chose the analysis of similarity and word clouds, since the similarity produces graphics that allow the identification of the distributional principle that concerns the possibility of lexical units occurring in combinations with others. The cloud analysis, on the other hand, starts

from the premise of how the words are organized and grouped graphically, taking into account the frequency of their appearances, originating from the textual *corpus*<sup>(10)</sup>.

The data obtained through the *software* processing were analyzed by the researchers, and then interpreted and discussed in light of the theory of social representations and literature on the subject.

### III. RESULTS AND DISCUSSION

The data were organized by means of a table that indicates the News Code, Headline, date, and source (Chart 01).

Table 01 - Characterization of the journalistic stories included in the study based on code, title, publication date, and source, Fortaleza-Ceará, 2017.

Code	Title	Date	Source
N01	Immunization is limited due to lack of vaccines in Fortaleza	17/03/2016	The People
N02	As our grandparents used to say, prevention is better than cure...	20/03/2016	The People
N03	Improving coverage is the biggest challenge	10/02/2016	The People
N04	Campanha Permite Atualização da Caderneta de Vacinação.	01/02/2016	The People
N05	Vaccination to Ensure Protection	11/03/2016	The People
N06	Minas Gerais declares a state of emergency due to Yellow Fever	14/01/2016	The People
N07	Government wants schools to charge vaccination booklet for enrollment	16/03/2017	The People
N08	Only 239 municipalities have adequate coverage against HPV	16/03/2017	The People
N09	Brazil adopts a single dose of yellow fever vaccine	05/04/2017	The People
N10	Risk of contracting yellow fever may be lower for those who have already had dengue fever	16/04/2017	The People
N11	National mobilization for vaccination against influenza begins on Monday The main goal of the campaign is to reduce influenza-related hospitalizations and deaths.	17/04/2017	The People
N12	Free application helps keep vaccination up to date.	17/03/2017	The People
N13	Dengue vaccine in test estimates 85% efficacy.	26/07/2017	Northeast Daily
N14	BCG vaccine is increasingly important in the fight against tuberculosis	03/07/2017	Northeast Daily
N15	More than 356 thousand boys must be vaccinated against HPV in the CE	21/06/2017	Northeast Daily
N16	Anvisa studies to allow the application of vaccines in pharmacies	21/06/2017	Northeast Daily
N17	Fear of Dengue Fever puts population at risk of this "hostage"	20/06/2017	Northeast Daily
N18	Vaccination Coverage	09/06/2017	Northeast Daily
N19	Ceará has three deaths from the Influenza virus	28/05/2017	Northeast Daily
N20	Government releases flu vaccination for the entire population	02/06/2017	Northeast Daily
N21	Groups against vaccination advance in Brazil	22/05/2017	Northeast Daily
N22	Low compliance forces government to extend flu vaccination	26/05/2017	Northeast Daily
N23	Readers and Letters.	20/05/2017	Northeast Daily
N24	Search for vaccine grows in the city	27/01/2017	Northeast Daily

N25	Zika vaccine test shows efficacy in mice and monkeys	15/08/2017	Northeast Daily
N27	Search for vaccine grows in the city	27/01/2017	Northeast Daily
N28	Demand for yellow fever vaccine doubles	17/02/2017	Northeast Daily
N29	Vaccine resistance	22/10/2017	Northeast Daily
N30	Avoidable Mortality	02/01/2016	Northeast Daily
N31	Vaccination Campaign Includes Rural Areas	22/09/2016	Northeast Daily
N32	How to make young people aware of vaccination	22/10/2016	Northeast Daily

Source: Data obtained from the newspapers O povo and Diário do Nordeste.

Similarity analysis through IRAMUTEq, in which a list of semantically identical words was generated, showing their relative frequencies in the text corpus, and a word cloud was generated with central and peripheral terms, with the central and larger ones being the most relevant in the text corpus. The word 'vaccine' was the central term, while the peripheral terms 'vaccinate', 'take', 'protect', 'person', 'child', 'immunization', and 'epidemic'. The words 'vaccination', 'health', 'disease', and 'dose' were derived from the central area (Figure 1).

Thus, the 'vaccine' through 'vaccination' 'campaigns', promote 'prevention', through 'dose' of the 'vaccine'. However, the 'target audience', in large majority, does not adhere to the 'vaccine' 'scheme', thus reducing the 'coverage' and 'protection', increasing 'outbreaks' of diseases such as 'yellow fever', 'measles'. In the second clockwise branch of Figure 1, the word 'disease' is preceded by the word 'vaccine' since, for 'prevention' to occur, it is necessary to 'transmit' information so that pathologies such as Yellow Fever, for example, are avoided. However, there are diseases that the 'vaccines' are still under development, Dengue is an example.

Another important factor presented in the third branch of the clockwise direction of figure 1, is the decrease in 'cases' of 'death' by 'influenzas', but this 'incidence', is only evidenced when people adhere to 'preventive' campaigns, in which the media in general, television, newspapers, magazines and others, has a high power of persuasion in front of people who adhere to the vaccine campaign consistently, especially in those vaccines that are

not administered in a single 'dose'. It is necessary to update the 'vaccination' booklets in order to protect all 'groups' that need the proper 'immunization'.

The Ministry of Health (MH) is one of the main promoters of these immunization campaigns, which use television vehicles, inserts, banners, and newspapers for this unquestionable form of prevention.

The next figure shows the word cloud from the text *corpus* obtained in the present investigation, remembering that the vocabulary words were organized according to the frequency they appear in the text processed by Iramuteq<sup>(10)</sup>

In what is related to the vocabulary words and their absolute frequencies, within the two news reports, obtained evidence of the main terms: vaccine (frequency of 160), vaccination (frequency of 78), dose (frequency of 76), health (frequency of 65), immunization (frequency of 44), campaign and child (frequency of 32), vaccinate and fever (frequency of 31), group (frequency of 29), dengue (frequency of 28), take (frequency of 27), risk (frequency of 26), vaccine (frequency of 24), public (frequency of 23), coverage (frequency of 22), protection (frequency of 21), adolescent (frequency of 18), protect (frequency of 17), brazil and flu (frequency of 16), incidence, virus and information (frequency of 15), important (frequency of 14), prevention, tuberculosis, calendar, adherence and receive (frequency of 11), measles and scheme (frequency of 10), outbreak and adverse (frequency of 9).

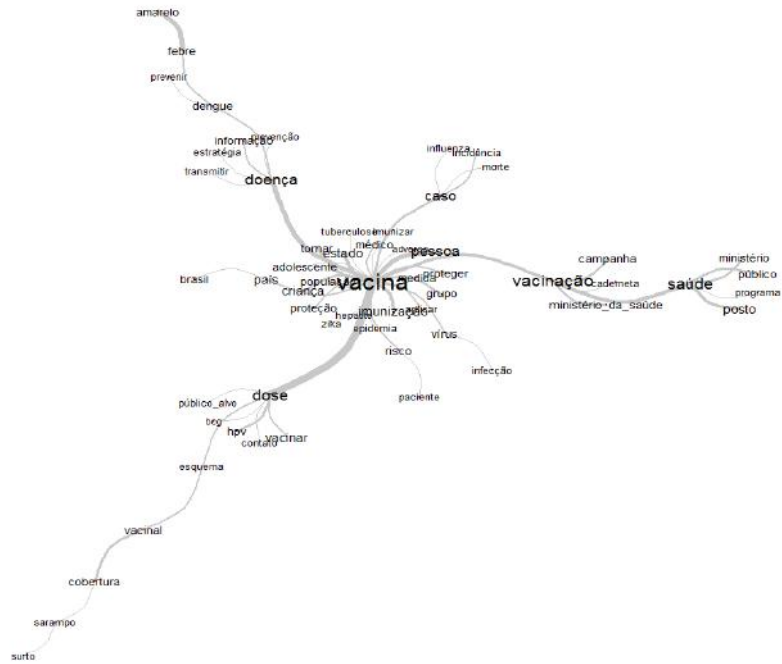


Fig.2 - Similarity analysis between the vocabulary words. Fortaleza-Ceará-Brazil, 2017

Source: IRAMUTEQ 0.7 alpha2 data processing.



Fig.3 - Word cloud of the text corpus. Fortaleza-Ceará-Brazil, 2017

Source: IRAMUTEQ 0.7 alpha2 data processing.

In the vast majority of news stories, these words considered high frequency, such as vaccinate, vaccination and vaccine, were exposed by the newspapers as health protection campaigns, which had an appeal for adherence, especially by the MH, so that the incidence of diseases already eradicated in Brazil does not return to have a high incidence rate. However, the target audience of these campaigns, in most cases, only obeys the vaccination scheme and the vaccination booklet when facing an endemic outbreak of a certain pathology, failing to prioritize the non-endemic preventive immunization (which are part of the vaccination booklet, said to be mandatory). A fragment taken from news item N27, according to Table I, makes this premise explicit:

*[...]Faced with the yellow fever outbreak that has hit Minas Gerais and São Paulo, the demand for yellow fever vaccine in the public network of Fortaleza increased. The information is from the Municipal Health Secretariat (SMS), which did not mention the percentage of growth. The coordinator of Immunizations, Vanessa Soldatelli, says that people are afraid of the outbreak in other states. "Because of the cases in São Paulo and Minas Gerais, many people have been looking for the posts to get vaccinated, even if they don't need to. The manager says that the vaccines are available to the entire population, but it is necessary to prove travel to the regions of the country classified as endemic. [...]" (N27)*

Besides that, it is clear that there is a certain prejudice against the low information on the part of the Brazilian population about the therapeutic benefits that active immunization can bring. Given this fact, the media is an important vehicle to demystify the real role when it comes to the word immunization, which is often mentioned in the newspapers used in the research. In this context, it is worth demonstrating this distorted view before the printed news used, N21:

*[Although Brazil has one of the most recognized public vaccination programs in the world, with the main immunizers available to everyone for free, groups refusing to vaccinate their children or themselves have been gaining strength in the country. These movements are being pointed out as one of the main factors responsible for the recent measles outbreak in Europe, where more than 7 thousand people have already been infected. In Brazil, the groups are driven by thematic pages on Facebook that*

*disclose, without scientific basis, supposed side effects of vaccines. [...]" (N21)*

On the other hand, the press media from Ceará also focus through statistical data and through arguments from authorities such as the World Health Organization (WHO) and the State Health Secretary (Sesa), on the benefit of vaccination through persuasive headlines (*A mortalidade evitável*), as an example of the news item code N30:

*[In the 1980s, for every thousand births in Ceará, 111 children died before reaching one year of age. In 2015, the rate fell to 12. This remarkable reduction, the largest in the country proportionally, made the state a model of transformation in this that is one of the most relevant indicators of human development. Amidst this evolution, there are relevant aspects on which public policies should focus. Among the urgent and unpostponable initiatives, the one that concerns the still high percentage of the so-called avoidable deaths stands out, especially in relation to babies up to one month old. According to Sesa's data, in the first half of 2016, there were 634 infant deaths, 59% of which could have been avoided. Within this contingent, 70% (449 children) were up to 28 days old, a rate that, according to experts, is considered high for this age group. Last year, of the 1,586 registered deaths, 1,100 could have been avoided. Avoidable deaths are those potentially reducible by effective actions of the Health services. [...]*

As for the verifications of social representations, facing the newspapers linked to the Ceará media, the central core terms were justified as terms that justify the non-adherence to vaccination, as problems reported by ambiguity for the target audience of the vaccination schedule. In addition, the news reports focus on the perception of low frequency of vaccination and promote their adherence to complement the basic immunization framework and how to receive new vaccines suitable for new age group, as depicted in the news taken from the *Jornal do Nordeste* reference N32 "How to raise awareness of the Youth to Vaccinate", especially the youth of adolescent age group:

*[The adolescent situation (from 11 to 19 years old) can still be more delicate than the adult*

individual. Even because the child has a pediatrician, besides the care of the parents to follow to the letter the vaccines indicated in the vaccination card of the minor, that is, it is an age group better assisted in this sense" [...]

In fact, social representation is fundamentally a system of classification and denotation, of allocation of categories and names. Such things that seem strange and disturbing to us also have something to teach us about the way people think and what people think about a certain subject. The perception of vaccination focuses on the campaigns and the health-disease process; what is healthy becomes an integral pre-pathogenic state, without pathophysiological changes that the body "lives through". This specific prevention, which guarantees a whole state of health, is triggered by the promotion of the use of appropriate vaccines, which can be widely disseminated in the media, and is also linked to its perception before the social masses<sup>(11)</sup>.

It can be stated, as revealed by the word cloud represented by figure 2, that the term 'vaccine', the most cited and central word, can be considered the one that best represents prevention and evidences the real need for the applicability of vaccination schedules and its due information by documentary media.

In the intermediate periphery of Figure 1, the link between the words: transmission, strategy, prevention and information was evidenced. Related to the vaccine category are *side effects*, which are one of the main problems facing the adherence of the target audience to be vaccinated, since there is a remote possibility on the part of the patient to think that he or she may contract the pathology of the vaccine in question. The goal of epidemiological surveillance of deaths is primarily to rule out coincidental causes unduly attributed to vaccines. For example: sudden infant death syndrome, which has no relation to vaccination, can occur in the same period of the application of various immunobiologicals from the basic vaccination schedule of the child. Many adverse events are merely temporal associations, not due to the application of vaccines. Thus, when they occur, there is a need for careful investigation, aiming at differential diagnosis and possible treatment. If they are indeed caused by the vaccine, there are three basic points for investigation.<sup>(12)</sup>

In this way, the analysis of social representations has been breaking the evolutionist perspectives: from pre-logical, fragmented reasoning to logical, formal reasoning. Moscovici goes against the individual nature of social

psychology and seeks to rescue historical and cultural values that may influence the current thinking<sup>(13)</sup>. This becomes clear in the study in question about vaccination, specifically related to the two newspapers from Ceará, which concretizes a thought of the collectivity when facing news about a certain subject, in this case; vaccination. Moscovici, also emphasizes the importance of the subject in the perceptions and constructions of stories, being an active subject, builder of social reality. The subject is active in the process of appropriation of the objective reality<sup>(14)</sup>.

The perception of vaccination shifts to the elaboration by a collectivity centered on the knowledge of social productions, in the face of social media; what is fundamental becomes a concrete project of disclosure and perception by the being in a given context.

The representations are presented as a way of interpreting and thinking about everyday reality, a form of knowledge of mental activity developed by individuals and their groups, fixing their positions in relation to situations, events, objects, and communications that concern them. In other words: social representation is a practical type of knowledge, which gives meaning to the events that are normal to us<sup>(15)</sup>.

Based on this assumption, it can be stated, as revealed by the news reports and the textual corpus, that the term 'vaccine', the most cited and central word, can be considered the one that best represents 'prevention' and characterizes the reality of immunization for most people. As shown in news item N02: "It is much better and easier to prevent an illness than to treat it and that is what vaccines do, being one of the most important measures of prevention against diseases and of preventing these diseases from being transmitted to other people." Jodelet<sup>(16)</sup> states that all social perception is based on a symbolic, representative, and constructive character.

In this way, the conception of representations comprises a set of concepts, statements, and explanations through which the interpretation and even the construction of realities is carried out<sup>(17)</sup>.

Therefore, it should be understood that social representativeness has an imagetic character and the property of making the sensation, the idea, and the game of concepts interchangeable, giving each group or individual an autonomous and individualistic character, as well as a collective one. As for example in the vaccine, in which each group and each individual constructs a relative perception of the subject.



#### IV. CONCLUDING REMARKS

The principles of the processes that generate social representativeness are guided by a society marked by historical processes that define the impression of an everyday subject. It is often said that social representativeness about a given content or subject is born in the course of various transformations that generate new contents.

Thus, the social representivities elaborated by the media in Ceará about the vaccination campaigns were understood. As the low or high acceptance of this population before the immunization campaigns that were broadcasted in two important newspapers.

The limiting factor of this study is the selection of local news media, in which the data is punctual and cannot be generalized. Although it is a prerogative of the qualitative approach not to generalize. In the area of collective health nursing, the conception and mapping of the difficulty in the face of social representivities is of utmost importance for an improvement in immunization campaigns in the face of the subjectivity of social collectivity expressed in the media, in this case, newspapers.

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