

Non-vaccination of children and health literacy
A não vacinação dos filhos e a literacia para a saúde
La no vacunación de los hijos y la alfabetización en salud

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This is an integrative review study, conducted in the second half of 2019, in the database of the Biblioteca Virtual em Saúde with the descriptors: não vacinação (non vaccination), letramento (literacy), alfabetização (alphabetization), health literacy AND vaccination and literacia (literacy), considering the period between 2009 and 2019, in order to get to know the publications about non-vaccination in children and adolescents. Only the first descriptor returned a result (35,002 articles) and, after using the inclusion criteria, four studies were considered for analysis. In these, there was a focus on the Access dimension as the most pointed factor among the reasons for the non-vaccination of children, despite this, only making available and accessing information does not guarantee an increase in the level of Health Literacy. This expansion, and consequently, the choice for vaccination of the children it is necessary for the population to acquire skills and abilities also for Understanding, Evaluation and Investment towards the improvement of health. Further studies are suggested to understand the cultural elements involved in non-vaccination, as well as the measurement of Health Literacy and that, the increase of this occurs with the implementation of health education actions, with promotion of spaces for dialogue, reflection, development of competence, skills and knowledge exchange.

Descriptors: Vaccination refusal; Health literacy; Health promotion; Health education; Health communication.

Este é um estudo de revisão integrativa, realizado no segundo semestre de 2019, na base de dados da Biblioteca Virtual em Saúde com os descritores: não vacinação, letramento, alfabetização, health literacy AND vaccination, literacia, considerando o período de 2009 a 2019, com o objetivo de conhecer as publicações acerca da não vacinação em crianças e adolescentes. Apenas o primeiro descritor retornou resultado (35.002 artigos) e após utilizar os critérios de inclusão considerou-se quatro trabalhos para análise. Nestes verificou-se enfoque na dimensão Acesso como fator mais apontado entre os motivos para não vacinação dos filhos, apesar disto, apenas disponibilizar e acessar informações não garantem aumento do nível de Literacia para a Saúde. Esta ampliação, e consequentemente, a escolha pela vacinação dos filhos faz-se necessário para que a população adquira competências e habilidades também para *Compreensão, Avaliação e Investimento* rumo à melhoria da saúde. Sugere-se mais estudos para se compreender os elementos culturais envolvidos na não vacinação, bem como a mensuração da Literacia em Saúde e que, o aumento desta ocorra com a implantação de ações de educação em saúde, com promoção de espaços de diálogo, reflexão, desenvolvimento de competência, habilidades e troca de conhecimento.

Descritores: Recusa de vacinação; Letramento em saúde; Promoção da saúde; Educação em saúde; Comunicação em saúde.

Este es un estudio de revisión integradora, realizado en el segundo semestre de 2019, en la base de datos de la Biblioteca Virtual en Salud con los descriptores: não vacinação (no vacunación), letramento (literacidad), alfabetização (alfabetización), health literacy AND vaccination y literacia (alfabetización), considerando el período comprendido entre 2009 y 2019, a fin de conocer las publicaciones acerca de la no vacunación en niños y adolescentes. Sólo el primer descriptor retornó resultados (35.002 artículos) y después de utilizar los criterios de inclusión se consideraron cuatro trabajos para análisis. En ellos, se centró la atención en la dimensión Acceso como el factor más señalado entre las razones de la no vacunación de los hijos, aunque el mero hecho de proporcionar y acceder a la información no garantiza un aumento del nivel de Alfabetización en Salud. Esta expansión y, por consiguiente, la elección de la vacunación de los hijos es necesaria para que la población adquira habilidades y destrezas también para la *Comprensión, Evaluación e Inversión* hacia la mejora de la salud. Se sugiere que se realicen más estudios para comprender los elementos culturales involucrados en la no vacunación, así como la medición de la Alfabetización en Salud, y que el aumento de esta se produzca con la aplicación de acciones de educación en salud, con la promoción de espacios de diálogo, reflexión, desarrollo de competencias, habilidades e intercambio de conocimientos.

Descriptores: Negativa a la vacunación; Alfabetización en salud; Promoción de la salud; Educación en salud; Comunicación en salud.

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INTRODUCTION

Comprehensive child health promotion and disease prevention reduces child morbidity and mortality rates and ensures children's growth, development and quality of life, with immunization being one of the main aspects. This was legally instituted in Brazil by the public policy called the Programa Nacional de Imunizações - PNI (National Immunization Program)¹, and offers all vaccines recommended by the World Health Organization (WHO) to combat more than 19 diseases through the public health network. Vaccination is mandatory, with worldwide reference for promising results. The various vaccines were gradually implemented to meet individual, epidemiological, economic and scientific development needs and factors¹⁻³.

In 1930, 45.7% of deaths in Brazil were due to infectious and parasitic diseases, dropping to 4.3% in 2010. Still in the 1980s, there were 5,500 deaths in children up to five years old in Brazil due to measles, polio, rubella, congenital rubella syndrome, meningitis, tetanus, whooping cough and diphtheria; contrasting with 50 deaths in 2009³.

Despite the benefits resulting from vaccination internationally (with national impact), there is an anti-vaccine movement, which supporters choose (non) vaccination, including children. Among the consequences is the possible return of diseases considered eradicated, such as polio and measles³. Due to the risk of reversing the progress made in the fight against vaccine-preventable diseases, WHO included in 2019 the anti-vaccine (or anti-vax) movement among the ten biggest threats to global health, in which the acquired human immunodeficiency virus (HIV) and Ebola are also configured⁴.

The (non) vaccination of children and the consequent development of diseases can cause individual losses by affecting biological, existential functions (such as the social issue of not attending school), leisure and sport, and collective (through the transmission of pathogens and possible outbreaks disease). A worrying aspect refers to the data available in the Informação Sistema de Informações do Programa Nacional de Imunizações - SI-PNI (System of the National Immunization Program), which includes low vaccination coverage (79.05%) in Brazilian state of Minas Gerais against measles, for example⁵.

The reversal of this decision-making process, of not vaccinating or selecting vaccines, implies expanding the levels of Health Literacy (HL), since, to prevent problems in daily life, it is necessary to develop skills and competences in the field of communication in health and health education. Increasing HL involves access to safe and reliable information, the understanding of this information by family members, the assessment of this learning, the management of knowledge and the investment to apply such knowledge in healthier lifestyles and, in this case, in the decision to vaccinate children as recommended by the Ministry of Health⁶.

The level of HL at which an individual is found can be verified through instruments that assess health competencies and skills in terms of healing and care, disease prevention and health promotion, as well as their dimensions - access to information, understanding of information, evaluation, ability to manage and apply knowledge to increase control over health⁶.

Studies show that low levels of HL indicate poor health results, for example, in chronic patients who develop less self-care capacity and greater uses of health services⁶⁻⁸. Thus, both the measurement and the development of HL can be relevant to reduce the percentage of non-vaccination, consequent to the awareness of its relevance and effectiveness.

In Brazil, the term health literacy (HL) is still underused and is occasionally translated into health learning or health alphabetization; however, these terms are linked to a perspective of appropriation of information, while the concept of HL emphasizes the dynamic, progressive and reflective aspect that the appropriation of knowledge generates about health⁶.

HL presents itself as a field of social sciences, and involves a continuous learning process that enables people to achieve their goals, develop their potential and their knowledge, so that they can enjoy their maximum potential for quality and well-being. It is relevant to promote

health, prevent health problems, improve the quality of life, as well as assist in the capacity and motivation for healthier choices⁹.

Considering the importance of vaccination, the low national vaccination coverage, the measles outbreak in 2019, the need to understand the knowledge and motivations related to vaccination/non-vaccination in children and adolescents, this work aims to know the publications about the non-vaccination in children and adolescents.

METHOD

This work consists of an integrative review, which makes it possible to identify the current state of much of the knowledge produced in Brazil about non-vaccination of children in interface with Health Literacy and its gaps. To carry out the review, six (6) steps were developed: identification of the theme; establishment of criteria for inclusion and exclusion of studies in the database search; definition of information for categorization of works; evaluation of included studies; interpretation of results and presentation of the synthesis of knowledge¹⁰.

The research took place in the second half of 2019, in the database of the Biblioteca Virtual em Saúde (BVS). For the base survey, the descriptors were used: *não vacinação* (non-vaccination), *letramento* (literacy), *alfabetização* (alphabetization), *health literacy* AND *vaccination*, *literacia* (literacy). Only the first descriptor returned a result.

In the second stage of the integrative review, the following inclusion criteria were adopted for analysis and discussion: full text; main subject health knowledge, attitudes and practice; Spanish, Portuguese and English languages; interval of the last 10 years (2009 to 2019); and country of affiliation, Brazil. Still, the titles and abstracts of the remaining works were read and only those that addressed the vaccination or non-vaccination of children were included.

RESULTS

The search in the VHL database showed 35,002 articles as the initial result, only in the descriptor "*non-vaccination*". It was found in the search: full text (16,925), main subject knowledge, attitudes and practice in health (804), Spanish, Portuguese and English (791), interval last 10 years (779), country of affiliation Brazil (11).

After the preliminary survey in the database, 11 articles were selected that met the inclusion criteria and the titles and abstracts were read, four of which were considered.

From the theoretical framework of HL, it was obtained: article 1 - *Conhecimento do adolescente sobre vacina no ambiente da Estratégia Saúde da Família* (Adolescent's knowledge about vaccines in the Family Health Strategy environment)¹¹, article 2 - *Conhecimento e atitude de usuários do SUS sobre o HPV e as vacinas disponíveis no Brasil* (SUS users' knowledge of and attitude to HPV virus and vaccines available in Brazil)¹², article 3 - *Factors related to non-compliance to HPV vaccination in Roraima-Brazil: a region with a high incidence of cervical cancer*¹³; and, article 4 - *Conhecimento e aceitabilidade da vacina para o HPV entre adolescentes, pais e profissionais de saúde: elaboração de constructo para coleta e composição de banco de dados* (Knowledge and acceptance of HPV vaccine among adolescents, parents and health professionals: construct development for collection and database composition)¹⁴.

The third stage of the review consisted of categorizing the terms presented in the publications based on the dimensions of the HL: *Access, Understanding, Evaluation and Investment*.

Article 1 used the *Access* dimension: access to information; Health education; training of subjects. Article 2 includes: educational interventions; provide adequate information; not just select and transmit scientifically correct information; and health education. Article 3 presented: *Inform* and 4: *Knowledge*.

In the *Understanding* dimension, there is in article 1: dialogue; encounter between subjects; constructions that imply sharing actions and commitments. For article 2: comprehensive care; interpretation difficulties. And, for 3: perception of importance ... it was a protective factor.

In the *Evaluation* dimension, there is only Article 1: individual risk assessment and, in investment: decision making; guarantee the improvement of the population's living and health conditions.

The dimension of HL most indicated for adherence to vaccination in an appropriate way was *Access to information*. To describe the access, different terminologies were used in all articles studied. Then, there is the *Understanding* mentioned in three studies. The other dimensions, *Evaluation* and *Investment*, were addressed in only one of the studies.

The main reason found for not vaccinating children and adolescents, according to the parents, was the need for more information, mentioned in three articles. Followed by fear of side effects, and fear by the children of the needle and pain during vaccination.

DISCUSSION

The reasons given by children and parents, on the researches mentioned, for not vaccinating children and adolescents were: fear of needles and pain¹¹; need for more information about vaccines and studies. Reasons for not vaccinating an adolescent was that the decision would be up to the adolescent, only if there was a medical indication¹²; fear of side effects, forgetfulness, lack of time due to busy life and lack of knowledge about vaccines - there is no significant difference in these reasons between public and private schools¹³; fear of experiencing pain during application, fear of family disapproval, uncertainty about vaccine efficacy and safety, and fear of possible side effects¹⁴.

Increasing HL involves accessing information, understanding this information, evaluating this learning and investing in healthier lifestyles. In the articles analyzed, HL appeared as necessary through terms in the Access dimensions such as: *...access to information that would allow individual assessment of the risks of acquiring an immunopreventable disease, health education¹¹, educational interventions, not just selecting and transmitting scientifically correct information¹², inform¹³, knowledge¹⁴; in the dimension Understanding through dialogue, meeting between subject, sharing¹¹, difficulties in interpretation¹², perception of importance¹³; in Evaluation as an individual risk assessment¹¹, and in Investment through decision making, to ensure the improvement of the population's living and health conditions¹¹.*

When analyzing the dimension of the most recurrent HL for adherence to vaccination in an appropriate way, there is Access to information, such as: *...necessary to choose the vaccination of children, followed by Understanding. The articles show that informing the population, through educational interventions, guarantees an improvement in living and health conditions^{11,12}, and that it is necessary to obtain greater vaccination coverage^{13,14}. Thus, Access to information is said to guarantee the choice of vaccination of children by parents¹¹⁻¹⁴. The media, the school and the community are identified as easy and low-cost sources of access to information¹⁵⁻¹⁷.*

Despite the wide availability of health information, there are notes that it is not capable of improving the population's level of health and quality of life¹¹⁻¹⁴. It is inferred that there is difficulty in *Understanding* and *Evaluating* this information and investing in health-friendly behavior. It is confirmed that the predominant HL dimension for adhering to the vaccination of children was *Access to information*, which information was made available by several vehicles¹¹⁻¹⁷. Contradictorily, the most cited reason for not vaccinating children was *the need for more information¹²⁻¹⁴*. Therefore, for educational actions to expand vaccination coverage for children and adolescents, it is necessary to explore and use the other dimensions of HL.

Research points to the relationship between low levels of HL and lower quality of life, increased treatment costs, higher frequency of hospitalization, less adherence to treatment, among others⁶⁻⁸. When addressing the integral health of children and adolescents, there are

challenges, such as the approach of the theme health in a positive (salutogenic) perspective by health professionals, in educational actions, and proper compliance with the national immunization calendar of children and adolescents as a result.

The difference between the factors found in this review and in studies outside Brazil refers to the high cost, absence of memory of the severity of previous epidemics, belief in the immunization of the herd, belief in conspiracy theories, religious and philosophical ideologies^{15,16}. Regarding the high cost, pointed out as a reason for non-vaccination in other countries, it was not found in this review of national surveys. This may be due to the fact that all vaccines recommended by the World Health Organization (WHO) are offered free of charge by PNI¹.

The non-vaccination aspect if there is *no indication from a doctor*¹² reveals the hegemonic medical model in the researched community. However, an exploratory research in a private medical school in Brazil reported that 43.4% of medical students and 41% of doctors had contact with patients who refused to vaccinate their children and 54.7% and 59%, respectively, with patients who refused to be vaccinated, regardless of medical indication. It was also found that doctors and medical students had incomplete vaccination cards, doubts about the vaccination schedule, insecurity regarding vaccines, and believed in herd immunity and ethical aspects of refusal¹⁶.

The factors *Forgetfulness and Lack of time*¹³ were also presented in another study, such as one carried out in the city of Barbacena, in the state of Minas Gerais, that evaluated the vaccines with the longest vaccination delay in 112 children aged between zero and five years old. The number of vaccines in arrears was 196, with a delay of DTP (diphtheria, tetanus and pertussis vaccine) at four years (2nd booster) and triple viral vaccine (measles, mumps and rubella vaccine) at 15 months (D2). The alleged reasons for the delay were: post-vaccination symptoms, ignorance and forgetfulness, professional guidance and lack of vaccine. The conclusion was the need to expand research in other municipalities¹⁸.

The factor *Parents who believe that the decision belongs to the adolescent*¹² is pointed out in many investigations that question the balance between the autonomy of those responsible for deciding on the vaccination of their children and the benefits for public health in carrying out vaccination campaigns^{15,16}. There are countries that do not require vaccination as mandatory and legal. In the German state of Brandenburg, for example, after a 300% increase in measles in 2018, mandatory vaccination was ordered for children attending school¹⁹.

In the United States, there is great ethical concern about pediatric vaccination. Such unrest was exacerbated after a measles outbreak in December 2014, which started on an amusement park in California and spread to Canada and Mexico. The result was the legal removal of the non-vaccination option justified by personal beliefs in California, after a study of the absence of vaccinated individuals^{15,17,19,20} as a probable cause of the outbreak.

In Brazil, vaccination was instituted as a public policy in 1975, with the PNI, establishing technical standards, and regulation by Decree No. 78.231 of 1976, which presented vaccination as mandatory^{1,2}. The mandatory vaccination of minors was reinforced by Law No. 8,069 of 1990, which provides for the Estatuto da Criança e do Adolescente - ECA (Child and Adolescent Statute). In its Art. 14, Single Paragraph, it states: "*Vaccination of children is mandatory in the cases recommended by health authorities*"²¹.

And, despite the fact that vaccination is mandatory and available at health facilities free of charge, Brazil has experienced an outbreak of measles, with 1,680 confirmed cases between epidemiological weeks 1 (12/30/2018) and 33 (10/08/2019) in 11 Brazilian states²².

Immunization is one of the strategic actions for the integral health of children, whose goal as of 2018 of the Qualification Program for Health Surveillance Actions (PQA-VS/2018) consists of 100% of vaccines and 95% of children with coverage vaccine in the case of Pentavalent (3rd dose), Pneumococcal 10-valent (2nd dose) and Poliomyelitis (3rd dose) for children under 1 year old, as well as the Triple viral (1st dose) for children 1 year old life²³.

Vaccination protects the individual and their community, provided that at least 95% of this population is vaccinated. In cases where vaccines are contraindicated due to age, immunosuppression or allergy, an individual belonging to 5% of the non-vaccinated is indirectly protected, since the probability of a pathogen entering the community and infecting the non-vaccinated is small. However, for this herd or community immunization to occur, it is extremely important that vaccination coverage is adequate^{4,15}.

In Brazil, it is increasingly evident that the vaccine is the only means to interrupt the chain of transmission of some vaccine-preventable diseases. Disease control will only be achieved if coverage reaches homogeneous rates for all subgroups of the population and at levels considered sufficient to reduce morbidity and mortality from these diseases¹. Vaccination coverage in children and adolescents in Brazil has not reached the targets since 2015 and, it is noted that 90% of mandatory vaccines up to one year of life are covered below the recommended WHO²⁴.

There is a movement that arose simultaneously with the creation of the vaccine, called anti-vaccine¹⁷. Currently, this movement is constituted as a global social phenomenon, whose reflexes extend to Brazil. The anti-vaccine movement, indecision and delay in vaccination induce risky attitudes individually and collectively, as in the case of measles epidemics that cause avoidable suffering and increased public spending^{15,16,25}.

There are studies that capture attitudes or behaviors, but not both, aiming at providing an incomplete picture of the vaccination scenario¹⁵. The reasons why children and adults fail to be vaccinated due to the anti-vaccine movement or indecision regarding vaccines are not yet adequately evaluated and identified in Brazil, as well as instruments to assess confidence in vaccines and vaccine refusal are not yet clear¹⁶.

It is essential that researches are developed in the context of the understanding of behaviors favorable to health by family members in the understanding of the cultural elements involved in this process and in the measurement and development of HL. Well, we can see the small scientific production related to this theme and its aspects.

In addition, educational programs aimed at improving health are restricted to providing information so that they are understood, but the other dimensions necessary to increase the level of HL (Evaluation and Investment) are ignored.

Thus, the educational strategy is not effective in achieving vaccination coverage in Brazil, since family members do not feel qualified and qualified to evaluate and invest in the salutogenic choice to vaccinate their children based on information and understanding of information.

CONCLUSION

To increase the level of HL and, consequently, reflect on the choice to vaccinate children, it is necessary to have *Access to understandable information*. Also, the *Evaluation and Investment* dimensions should be better explored in educational practices.

As limitations, it was found that there is a small amount of publications about the reasons for not vaccinating children, understanding the elements involved, the relationship between HL and vaccination. Studies are needed to understand the cultural elements involved in this process, through listening to family members who chose not to be vaccinated, as well as measuring their HL.

It is believed that the implementation of educational activities in the different segments and services of society can promote spaces for dialogue, reflection, exchange of knowledge and development of competences and skills. Thus, it is emphasized that it is not enough that information is available in the various media and social media. It is necessary that this information can be accessed, understood, discussed and linked to the social reality of the population served.

With this, it will be possible to advance from a context in which part of the population has an inadequate HL level to a regular HL, sufficient HL and in the future aim that the majority of the population can reach an excellent HL level with the capacity to access, understand, evaluate manage information by transforming it into knowledge that allows them to make decisions favorable to their health and that of their community.

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CONTRIBUTIONS

Kéllen Campos Castro Moreira contributed to the conception, collection and analysis of data, writing and revision. **Rosane Aparecida de Sousa Martins** participated in the design, writing and revision.

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