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The Brazilian National Immunization Program and its main challenges: an integrative review

O Programa Nacional de Imunização e os principais desafios enfrentados: uma revisão integrativa

El Programa Nacional de Inmunización y los principales retos enfrentados: una revisión integrativa

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ABSTRACT

Objective: To analyze the reasons why parents and/or guardians of children under five do not adhere to the vaccination schedule and to identify factors associated with reduced vaccination coverage. **Method**: An integrative review was conducted in October 2023 using databases from the Virtual Health Library. The descriptors "vaccination coverage," "vaccine refusal," "child," "anti-vaccination movement," "fake news," and "vaccine hesitancy" were used. Articles in English, Portuguese, and Spanish published from 2018 to 2023 were included. Articles were excluded if they were duplicates, dissertations, theses, or did not meet the research objectives. **Result**: A total of 510 publications were found, but only 10 articles met the criteria. A critical analysis and interpretation of the material led to three themes: 1) hesitancy among parents and/or guardians; 2) the role of parents and health professionals in vaccination; and 3) vaccination coverage and the return of eradicated diseases. Some authors identified vaccine hesitancy as being linked to moral convictions, disbelief in vaccines, and previous experiences with adverse events following vaccination—especially moderate or severe cases—among other factors. **Conclusion**: The reasons that lead parents or guardians to hesitate in vaccinating their children include negligence, lack of information, and fear of severe side effects, often fueled by anti-vaccine movements. Nevertheless, effective vaccination coverage remains a crucial ally in controlling and eradicating numerous vaccine-preventable diseases.

Descriptors: Vaccination coverage, Vaccination refusal, Child, Movement against vaccination, Vaccine hesitancy.

RESUMO

Objetivo: *Analisar os motivos que levam os pais e/ou responsáveis das crianças menores de cinco anos de idade a não aderirem ao calendário de vacinação e os fatores associados na redução da cobertura vacinal.* ***Método:*** *Revisão integrativa, de abordagem metodológica, realizada em outubro de 2023, por meio das bases de dados da Biblioteca Virtual em Saúde, consultando os descritores "cobertura vacinal", "recusa de vacinação", "criança", "movimento contra vacinação", "fake news" e "hesitação vacinal". Critérios de inclusão: idiomas inglês, português e espanhol, publicado de 2018 a 2023. Critérios de exclusão: artigos duplicados,*

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dissertação, tese ou que não atendessem os objetivos da pesquisa. ***Resultado:*** *Foram encontradas 510 publicações, mas apenas 10 artigos atenderam aos critérios. A partir da análise crítica e interpretação do material, dividimos nas seguintes temáticas: 1) hesitação dos pais e/ou responsáveis; 2) atuação dos pais e profissionais de saúde na perspectiva da vacinação; e 3) cobertura vacinal e o retorno de doenças erradicadas. Alguns autores listaram a hesitação vacinal como um dos fatores associados às convicções morais, não concordam ou não acreditam nas vacinas, experiência anterior de eventos adversos após a vacinação, especialmente casos relatados como moderados ou graves, dentre outros.* ***Conclusão:*** *Dentre os motivos que levam os pais ou responsáveis a hesitarem vacinar os seus filhos, destacamos: a negligência; falta de informação; e medo dos efeitos colaterais graves, alicerçados aos movimentos antivacinas. Contudo, apesar de todos esses desafios, sabemos que uma cobertura vacinal efetiva é um importante aliado no controle e erradicação de inúmeras doenças imunopreveníveis.*

Descritores: *Cobertura vacinal; Recusa de vacinação; Criança; Movimento contra antivacina; Hesitação vacinal.*

RESUMEN

Objetivo: *Analizar las razones por las cuales los padres y/o tutores de niños menores de cinco años no se adhieren al calendario de vacunación e identificar los factores asociados a la reducción de la cobertura vacunal.* ***Método:*** *Se realizó una revisión integradora en octubre de 2023 utilizando las bases de datos de la Biblioteca Virtual en Salud. Se utilizaron los descriptores "cobertura vacunal", "rechazo a la vacunación", "niño", "movimiento antivacunación", "fake news" y "hesitación vacunal". Los criterios de inclusión fueron artículos en inglés, portugués y español publicados de 2018 a 2023. Se excluyeron aquellos que fueran duplicados, disertaciones, tesis o que no cumplieran con los objetivos de la investigación.* ***Resultado:*** *Se encontraron un total de 510 publicaciones, pero solo 10 artículos cumplieron con los criterios. El análisis crítico e interpretación del material se agruparon en tres temáticas: 1) la hesitación de padres y/o tutores; 2) el rol de los padres y profesionales de la salud en la vacunación; y 3) la cobertura vacunal y el retorno de enfermedades erradicadas. Algunos autores identificaron la hesitación vacunal como vinculada a convicciones morales, incredulidad en las vacunas y experiencias previas con eventos adversos posteriores a la vacunación —especialmente en casos moderados o graves—, entre otros factores.* ***Conclusión:*** *Las razones que llevan a padres o tutores a dudar en vacunar a sus hijos incluyen la negligencia, la falta de información y el miedo a efectos secundarios graves, a menudo alimentados por movimientos antivacunas. No obstante, una cobertura vacunal efectiva sigue siendo un aliado crucial en el control y erradicación de numerosas enfermedades prevenibles mediante vacunación.*

Descriptores: *Cobertura de vacunación; Negativa a la vacunación; Niño; Movimiento Antivacunación; Vacilación a la vacunación.*

INTRODUCTION

The Brazilian National Immunization Program (PNI) was inspired by Brazil's first mass vaccination campaign, which was conceived by Oswaldo Cruz, the founder of public health in the country. His goal was to control the spread of smallpox—a disease that decimated much of Rio de Janeiro's population in the early 20th century. The success of the smallpox vaccination campaigns in the 1960s demonstrated that mass vaccination could eradicate the disease. Consequently, the last reported case of smallpox in Brazil was in 1971, and the final case worldwide occurred in 1977 in Somalia[1].

In 1973, the PNI was formulated by the Brazilian Ministry of Health to coordinate immunization efforts, which until then had been sporadic, episodic, and limited in scope. In 1975, the PNI was institutionalized as a result of a convergence of national and international factors aimed at encouraging and expanding the use of immunizing agents and ensuring comprehensive health actions across Brazil[1].

The PNI began coordinating routine immunization activities within the service network. It established guidelines based on the experience of the Public Health Services Foundation (FSESP), which provided comprehensive health services through its own network. Specific legislation on immunizations and epidemiological surveillance[2,3] emphasized ongoing vaccination efforts and helped strengthen the program institutionally[1]. Over the years, the PNI has made significant progress by consolidating the national vaccination strategy. Its achievements include the elimination of polio, congenital rubella syndrome, and neonatal tetanus as well as the control of other vaccine-preventable diseases such as diphtheria, whooping cough and accidental tetanus, hepatitis B, meningitis, yellow fever, mumps, severe forms of tuberculosis, and rubella[4].

PNI's success can be attributed in part to its adherence to the doctrinal principles of the Brazilian Unified Health System (SUS), including universal and equitable care. PNI also embraced the organizational principle of decentralization with a single leadership at each level of government, as defined by the SUS regulations in the Organic Law of Health of September 20, 1990[5].

According to the Primary Health Care Observatory, the national average vaccination coverage remained consistently above 70% from 2001 to 2015. However, it dropped to 59.9% in 2016 and has been declining since 2019, reaching 52.1% in 2021. Among states with coverage below the national average, rates can be as low as 59.25%,

with Roraima having the lowest rate at 29.9%. Tocantins recorded the highest rate at 61.9%[6]. In the North region, four out of the seven states have coverage of around 30%[6].

Vaccination coverage has not reached 100% of intended targets since 2016. This is a major public health challenge. The World Health Organization (WHO) recognizes this problem and recommends an average coverage of 95% as an important benchmark for controlling and eliminating vaccine-preventable diseases[7].

In the 21st century, when people have access to information and technology, some parents still choose not to immunize their children for various reasons. These include concerns about adverse reactions, doubts about the effectiveness of vaccines, a preference for a natural lifestyle, and philosophical and religious beliefs[8]. Aware of the legal implications and the pros and cons of not vaccinating, these parents fear facing legal action more than dealing with the consequences of (not) vaccinating[8].

Given the decline in vaccination rates[2] among children aged 0 to 5 years and the resurgence of communicable diseases that had been eradicated, it is necessary to investigate why parents and guardians choose not to vaccinate their children. This inquiry is warranted even with the existence of Decree 78.231/76. In Title II – The National Immunization Program and Mandatory Vaccinations – Article 29 of the decree, it is stated that "All citizens have the duty to submit themselves and the minors for whom they have custody or responsibility to compulsory vaccination"[2].

A study conducted in 82 countries by the WHO in collaboration with the United Nations Children's Fund (UNICEF) shows that vaccination rates have dropped significantly as a result of the COVID-19 pandemic[9]. This event had a direct impact on vaccine distribution and affected global immunization coverage. COVID-19 disrupted immunization systems in at least 68 countries, putting approximately 80 million children under the age of one at risk of contracting diseases that could have been prevented with these vaccines[9].

Vaccination coverage is an issue that has implications not only in Brazil but also in many other countries with low vaccination rates. Understanding the reasons why parents and/or guardians choose not to vaccinate their children is therefore important. This is particularly important as vaccine hesitancy has been identified as one of the main challenges facing this group.

This study will provide insight into the reasons and challenges behind vaccine refusal and hesitancy among parents and guardians. The aim is to address these issues more effectively in promotion and prevention initiatives, thereby maintaining vaccination coverage above the expected average. Understanding these reasons is critical for health care workers to develop strategies to improve practice and maintain quality health care. Once the causes are identified, it becomes easier to implement new procedures.

In addition, the sharing of research contributes to the improvement of health care interventions and strategies aimed at minimizing the harm caused by non-vaccination. As a result, the overall quality of life is improved by enhancing health care practices based on up-to-date standards of care, adapted to the new context experienced by professionals and the public in recent years due to the COVID-19 pandemic.

This research aims to analyze the reasons why parents and/or guardians of children under five do not adhere to the vaccination schedule and the factors associated with reduced vaccination coverage.

METHOD

An integrative review[10] is a methodological approach that aims to gather both experimental and non-experimental studies, providing an overview of a specific topic. This type of review requires several distinct steps, including: identifying the topic; selecting the review problem; establishing inclusion and exclusion criteria; identifying the selected studies; creating categories for these studies; and finally, analyzing, systematizing the results, and presenting the knowledge acquired[10].

Regarding Step 1 – Identification of the topic and selection of the review question: With a focus on the reasons behind the decline in vaccination coverage in recent years and guiding this integrative review, the review question is: "What are the reasons that lead parents and/or guardians of children under five to not adhere to the vaccination schedule, and what factors are associated with the reduction in vaccination coverage?".

Through this integrative review, we were able to analyze the scientific literature regarding vaccination from databases spanning 2018 to 2023 as well as to guide the findings and discussion in relation to the central review question.

Regarding Step 2 – Inclusion and Exclusion Criteria, the inclusion criterion considered was: full-text articles written in Portuguese, English, and Spanish, articles published in journals, original/full articles, articles that met the guiding research question, and articles that dealt with the topic and had been published in the period from 2018 to 2023.

Additionally, the exclusion criteria were duplicate articles, incomplete articles that did not address the researched topic, publications with only abstract, master's theses, doctoral dissertations, articles not found in the databases, and studies that were not fully aligned with the research objectives.

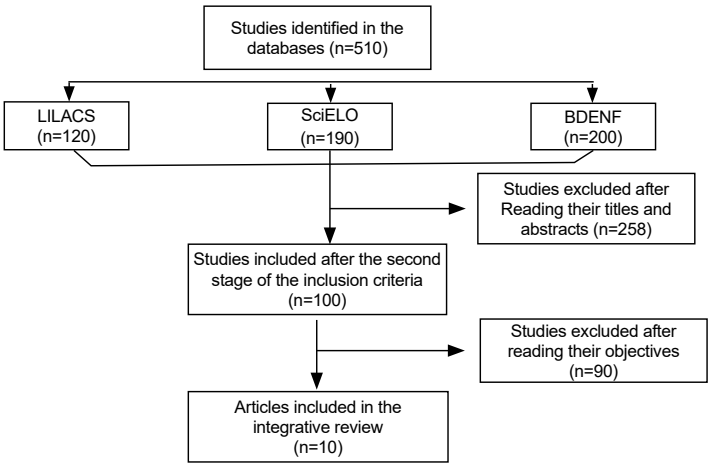
In Step 3 – Identification of Pre-selected and Selected Studies, the review team conducted a search in the following databases: Brazil Scientific Electronic Library Online (SciELO), BDENF (Nursing Database) via the Virtual Health Library (BVS) with access to the Specific Nursing Database (BDENF), and the Latin American and Caribbean Health Sciences Literature (LILACS). The articles for the integrative review were collected in October 2023. It is understood that using descriptors is essential to easily find the desired material in the databases. Therefore, the following descriptors were used: "cobertura vacinal", "recusa de vacinação", "criança", "movimento contra vacinação", "fake news", and "hesitação vacinal", all registered in the Health Sciences Descriptors (DeCS). In BVS, descriptors in Portuguese were used, along with the following keywords: "cobertura vacinal", "hesitação", "recusa", "fake news", "antivacina". In English, the following descriptors were used: "vaccination coverage", "hesitancy", "vaccination refusal", "disinformation", "anti-vaccination movement". In Spanish, the following descriptors were used: "cobertura de vacunación", "vacilación a la vacunación", "negativa a la vacunación", "desinformación", "movimiento anti-vacunación".

The search strategies employed in the databases were developed using the Boolean operators "AND" and "OR". This approach aims to include a wide range of terms and different combinations to cover as many publications as possible.

The articles were selected as follows: in the first stage of the search, 510 articles published in the BVS database were retrieved using the descriptors. After applying the filters based on the inclusion criteria, the search yielded 252 publications. These included articles published in journals, original/full articles, articles that addressed the guiding research question, and articles that addressed the topic within the defined five-year period.

In the second stage, after searching the databases, the titles, descriptors, and abstracts were reviewed to select articles based on the inclusion and exclusion criteria. A total of 100 full-text articles were then read, resulting in a total of three articles from SciELO, six from BDENF, and one from LILACS. In all, 10 articles (Figure 1) were selected to compose the review.

Figure 1: Flowchart of the database search process with inclusion and exclusion criteria.



Source: Authors, 2023.

Regarding the categorization of the selected studies (Step 4), the included studies were organized to answer the following question: "What were the main objectives of the studies according to the authors?"

Step 5 corresponds to the analysis and interpretation of the results, carried out in Steps 4 and 5 of this integrative review. Step 6 corresponds to the presentation of the review/synthesis of knowledge, which includes compiling the texts from the articles.

RESULTS

The selected studies that comprised this integrative review were full articles that correlate with the topic under discussion. The articles were organized in a list that includes the authors' names, publication year, title, study type, and study objectives (Chart 1).

Chart 1: Distribution of the studies included in the integrative review according to author, year of publication, title, study type, objective, and results. Sobral, CE, Brazil. (2018-2023)

Authors, year of publication	Title	Study type	Objective	Results
Nobre R et al., 2022[11]	Vaccine hesitancy and refusal in countries with universal health systems: an integrative review of their effects	Integrative review	To review the effects of vaccine refusal/hesitancy on the population of countries with universal health systems in the scientific literature.	Helped to understand how vaccine refusal and hesitancy occur in different settings, their effects, and how these factors are interconnected.
Procianoy GS et al., 2022[13]	Impact of the COVID-19 pandemic on the vaccination of children up to one year of age: an ecological study	Ecological study	To evaluate the impact of the COVID-19 pandemic on vaccination rates for immunizations targeting individuals under one year of age in Brazil.	Demonstrated that vaccination rates in 2020 were significantly lower—a phenomenon also observed in other countries. An association with the pandemic and social distancing measures can be inferred.
Corrêa SMC et al., 2021[14]	The possible causes of non-adherence to immunization in Brazil: a literature review	Bibliographic review	To review and analyze the possible causes leading to non-adherence to immunization in Brazil.	Provided a theoretical and methodological basis for understanding the population's refusal to adhere to immunization and analyzed vaccination coverage in Brazil. Supported the development of strategies to boost immunization adherence.
Martins KM et al., 2019 [15]	The importance of immunization: an integrative review	Integrative review	To analyze and synthesize the results of independent studies on the same subject, potentially benefiting the quality of patient care.	Indicated that failures in immunization occur due to a lack of professional training, resulting in a knowledge deficit and insufficient qualification regarding immunization practices.
Slendak M dos S et al., 2021[19]	The importance of vaccination: the opinion of parents of children aged 0 to 5	Descriptive study with a quantitative approach	To assess the opinions of parents of children aged 0 to 5 years regarding the importance of vaccination.	Revealed a good level of knowledge among respondents regarding the vaccination process, along with an awareness of its safety, effectiveness, and importance for their children's health.
Ramos ACL da C et al., 202[3(20)])	Vaccination coverage and the anti-vaccine movement: the impact on public health in Brazil	Mixed-methods research (qualitative and integrative review)	To evaluate how the anti-vaccine movement impacts public health in Brazil through a reduction in vaccination coverage.	Indicated that the rise of the anti-vaccine movement is one of the factors contributing to the decline in vaccination rates in Brazil, as seen in diseases such as measles and yellow fever.
Silva JFG da et al., 202[2(21)])	Paradigms of vaccine adherence within 1000 days of life: analysis and repercussions for public health	Analytical epidemiological study	To analyze vaccination coverage for children during the first 1000 days of life between 2016 and 2020.	Despite the importance of vaccines in controlling infectious diseases, a reduction in immunobiological administrations was observed along with increased morbidity and mortality, highlighting the need for strategies to promote immunization adherence.
Araújo GM et al., 2022[22]	The importance of vaccination as disease promotion and prevention: an integrative review	Integrative review	To present the importance of vaccination as a means of promoting and preventing diseases and to show that non-adherence to vaccination can become a public health problem.	Although vaccination is the most efficient method for combating infectious diseases, hesitancy in completing the vaccination schedule still exists. Health care workers play a crucial role in providing effective information and implementing strategies to increase vaccination coverage.
Sato APS, 2018[23]	How important is vaccine hesitancy in the drop in vaccination coverage in Brazil?	Qualitative study	To present the definition and factors related to vaccine hesitancy, and to discuss its significance in the Brazilian context.	The observed decline in vaccination coverage from 2016 underscores the relevance of the topic, which requires further understanding through scientific investigation.
Araújo MCG et al., 2020 [24]	Factors that interfere with compliance with the childhood vaccination schedule	Descriptive, exploratory research with a quantitative approach	To analyze the factors that interfere with maintaining the childhood vaccination schedule.	Found that non-compliance factors are varied, ranging from social issues to health-related factors. A high number of children fell outside the appropriate age range for the recommended immunobiological administration, making it difficult to achieve adequate vaccination coverage.

Source: Authors, 2023.

Based on a full reading of the scientific articles by the authors, three main thematic categories were identified: 1) vaccine hesitancy among parents and/or guardians; 2) the role of parents and health care workers in the context of vaccination; and 3) vaccination coverage and the return of eradicated diseases. Previous[5,6,8,12,16,17,18] research provided additional information related to the subject throughout the article to enhance the discussion of the reviewed studies.

DISCUSSION

Vaccine hesitancy among parents and/or guardians

We must understand the value of vaccines at both the individual and community levels as they are essential for creating a positive immunization environment, which is crucial for reducing vaccine hesitancy. Nobre[11] and Sato[23] listed several points that may be related to vaccine hesitancy, namely: 1) the perception of the importance of vaccination (or lack thereof); 2) moral convictions; 3) disagreement with or disbelief in vaccines in general; 4) previous vaccination experience related to the accessibility and convenience of vaccination services (i.e., prior experiences with vaccination and its services); 5) previous experiences with adverse events following vaccination, especially in cases reported as moderate or severe; and 6) the low educational levels of both the mother and the father. Both authors emphasized the importance of clear and assertive communication with the public to maintain trust in the health system.

Among the main reasons highlighted by Carolina[12] and Procianoy[13] for parents and/or guardians not vaccinating their children are negligence, lack of information, fear of severe vaccine side effects, and distrust in medical science. These issues are compounded by the influence of anti-vaccination movements and exposure to fake news disseminated by anti-vaccine groups that are gaining more prominence in Brazil. Additionally, frequent vaccine shortages hinder the achievement of the vaccination coverage targets recommended by the Brazilian Ministry of Health[12,13].

According to Nobre[11], the need for clear and assertive communication becomes even more apparent to ensure that the public maintains its trust in the local health system. In addition, the importance of government policies and attitudes toward vaccination, as well as the need to combat disinformation on social media that threatens public health, must be emphasized.

Besides vaccine refusal, the increased circulation of fake news is another significant factor that can help explain the decline in vaccination coverage, which is also linked to the low availability of shots in vaccination centers[12,13].

The role of parents and health care workers in vaccination

Immunization is a key strategy in significantly reducing morbidity and mortality rates, providing protection to the population either directly or indirectly. According to Corrêa[14], health care workers and health managers face considerable challenges that must be addressed together to overcome the current demands of vaccination in Brazil.

Martins[15] reports that failures in immunization occur due to insufficient training among professionals, which leads to a deficit in knowledge and qualification. Similarly, Nobre[11] identifies seven categories in his study on vaccine refusal in countries with universal health systems that link the reasons for refusal and non-adherence. Herein, we highlight the hesitancy among health care workers and the key factors influencing parents' decisions to vaccinate their children. Approximately 80% of health care workers were not vaccinated against seasonal influenza, which is particularly concerning because most of them work in critical care or management at the tertiary tier of health care.

As per Nobre[11], health professionals are still, or need to be, opinion leaders regarding vaccination. Encountering a professional who exhibits contradictory attitudes can completely change people's views or reinforce the idea that vaccination is unsafe, especially for those already resistant. Nobre[11] further states that trust and adherence to vaccines are closely linked to assertive communication with patients. Moraes[16] emphasizes that the nursing staff is responsible for all functions in the vaccination room, providing comprehensive support to the department. Thus, it is essential that, at this moment, the professional addresses any doubts and assures parents of the benefits of the vaccine for their child, while considering parental acceptance challenges, the level of knowledge about adverse events, cultural issues, religious taboos, and their health practices.

In terms of the factors influencing parents' decisions to vaccinate, trust is the most important indicator, according to Nobre[11], and may explain vaccination performance and behaviors. In the same study, parental knowledge about immunization and trust in health care workers were highlighted as potential obstacles to parental participation in the vaccination process.

Couto[17] reports that parents are the primary decision-makers regarding vaccination, believing that vaccines may pose risks to their children's health and cause undesirable side effects. Nobre[11] emphasizes that parents expect

immunobiologics to offer 100% protection for their children. One of the first steps to prevent vaccine refusal and the resurgence of eradicated diseases is to reinforce, among health care workers, the importance of health education and the media as tools for raising public awareness.

For Abdul[18], the attitude of health care workers is a factor that can help achieve the targets set by the Ministry of Health. This is because health care workers, particularly those in the nursing staff, have the authority to administer immunobiologics and play a key role in promoting child health and preventing diseases.

Vaccination coverage and the resurgence of eradicated diseases

The study by Slendak[19] identified variations in socioeconomic and educational factors among the public, which corresponded to higher or lower vaccination rates. The study shows that these variations are linked to the low level of vaccination coverage, and that despite being informed of the numerous benefits, parents are choosing not to vaccinate their children. Although the results from Slendak's interviews indicate that parents do not oppose vaccination and consider it an important preventive measure for their children's health as well as for preventing other diseases, examination of vaccination records revealed delays in vaccine administration.

Procianoy[13], Slendak[19], and Ramos[20] emphasized that despite all these positive factors, there have been inevitable cases of parents forgetting to vaccinate their children. Other related reasons include the child being sick, a shortage of immunobiologics, and issues related to pain, all of which negatively affect the timeliness of vaccination in this group. It is important to reflect on what type of information professionals are providing— or not providing—and whether they are still investing insufficiently in guidance, as the uncontrolled spread of false news creates insecurity among parents.

A study by Procianoy[13] covered the entire Brazilian territory from 2013 to 2020 regarding vaccination coverage for children up to 12 months old and showed a significant drop was observed in the number of unvaccinated children as well as in the achievement of the annual target. The study used the Brazilian Ministry of Health's National Vaccination Schedule and analyzed the population according to the System for Assessment of the Immunization Program. These findings align with studies presented by the Primary Health Care Observatory and the WHO, which noted a decline in the national average vaccination coverage and recommended reaching the targets for the control and eradication of diseases[5,6].

According to Procianoy[13], the main reasons for avoiding vaccination—even before COVID-19—were negligence, lack of information, and fear of severe side effects. These factors were compounded by the influence of anti-vaccination movements on social media and distrust in medical science.

Research by Silva[21] emphasizes that this decline had been occurring over the years; however, due to measles outbreaks (a disease that had been eradicated), there was greater visibility of the gradual reduction in vaccination coverage. As a result, the threat of other diseases that could be prevented by vaccines resurfaced, putting not only children but society as a whole at risk. The reasons reported in this study corroborate those already mentioned by Procianoy[13], such as the spread of fake news on digital media, which raises doubts about vaccine safety and results in refusal and hesitancy to vaccinate.

According to Procianoy[13] and Silva[21], COVID-19 also posed challenges for vaccination as it evoked feelings of fear and insecurity among the population. This was mainly due to social isolation and distancing as well as the constant pressure to take care of oneself and avoid contracting the disease. Consequently, health care facilities became more focused on combating COVID-19 as the disease demanded greater attention at that time[8].

According to Procianoy[13] and Silva[21], a number of strategies were employed by the Brazilian Ministry of Health to strengthen vaccination, including the expansion of multivaccination campaigns[6], the increase of access to and availability of immunobiologics, and the administration of them to a larger number of people to meet and improve targets. Araújo[22] suggested extending operating hours as well as taking advantage of service encounters to facilitate vaccination and clarify the numerous benefits of immunization.

Beyond what was previously mentioned by Silva[21] and Araujo[22,24] as a strategy to improve vaccination, the study suggested administering vaccines outside of health care facilities—during home visits—and monitoring hard-to-reach areas, ensuring that these populations are also included, in line with the principle of equity. Childhood vaccination should be considered a priority, as it is an action that will have an impact throughout childhood and adulthood, serving as an effective way to prevent, control, and minimize various diseases.

CONCLUSION

Vaccine provides individual protection as well as community and collective immunity by eradicating various potentially fatal diseases. The present integrative review provided insight into the reasons why parents and/or guardians hesitate to vaccinate their children, of which we underscore negligence, lack of information, and fear of severe side effects. Consequently, in addition to the influence of anti-vaccine movements on social media and distrust in medical science, there is also a sense of insecurity and fear, especially during and after the pandemic, as these feelings resonate with the population.

The involvement of health care workers in the vaccination process was significant, as they provided important guidance to parents, keeping them informed and reinforcing the idea that vaccination is reliable, especially for those who are uncertain about vaccinating their children. Furthermore, through their strong connection with the community, health care workers proved to be a factor that helped reduce vaccine hesitancy.

Thus, we must constantly prepare health care workers through ongoing education to update them on the vaccination schedule and to develop strategies for patient care management. By supporting and equipping health workers with information, we promote more effective health care, ensure care for the intended public, and achieve the goals of vaccination efforts.

Managers and health workers are believed to be able to develop strategies to guide and raise awareness in society, focusing on the importance of vaccination and promoting the PNI—a program recognized worldwide as a powerful tool for disease eradication. Similarly, public education is hoped to be able to dispel misconceptions about alleged adverse effects of vaccination.

Therefore, this review highlights the need for further research on this topic to systematically improve health care focused on vaccination. Through these studies, we can ensure an informed, more conscious population that understands the importance of vaccination, ultimately achieving the goal of permanently eliminating diseases that have already been eradicated.

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CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest throughout this study.

CONTRIBUTIONS

Suênia Évelyn Simplício Teixeira contributed to manuscript writing and its critical review. **Roberlandia Evangelista Lopes Ávila, Roberta Cavalcante Muniz Lira** e **Maristela Inês Osawa Vasconcelos** contributed to the approval of manuscript final version. **Juliana Solon Furtado** e **Anagelma Moreira Aguiar** contributed equally to the preparation and design of the study, acquisition, analysis and interpretation of data.

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