

**PARENTAL ADHERENCE
IN COMPLYING
WITH THE VACCINE
SCHEDULE FOR
CHILDREN FROM 0
TO 2 YEARS OF AGE:
INTEGRATIVE REVIEW**

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Abstract: Immunization is a public health intervention activity that contributes to reducing child morbidity and mortality; It is a low-cost intervention and helps with economic and social development. It is known that the health vaccination system is the best way to prevent deaths from diseases and increase life expectancy, especially when it comes to cost and effectiveness. However, population resistance to vaccines is known. Therefore, the study aimed to identify the main difficulties faced by parents and guardians in complying with vaccinations for children aged 0 to 2 years. This is an integrative literature review in the Medline, Lilacs, Bdenf databases, published between 2011 and 2021, resulting in 15 articles after applying the inclusion and exclusion criteria. After systematic analysis of the articles, it was necessary to include three thematic axes: Factors related to tutors; Factors related to professionals and delay variables. It is concluded, from the studies analyzed, that failures in immunization occur due to several factors involving philosophical, cultural, political issues, organization of services, lack of training in professionals, creating a deficit of knowledge and little qualification than is known, favoring myths and fake news. In this sense, it is necessary to reconstruct the dissemination of information in vaccination rooms, with a view to articulating technical knowledge and practical knowledge.

Keywords: immunization programs, child health, vaccination.

INTRODUCTION

The National Immunization Program (PNI), created in 1973, aims to standardize immunization at a national level with the aim of contributing to the control or eradication of infectious and vaccine-predictable diseases, including being an international reference for public health policy. It is reinforced that vaccination goes far beyond individual

prevention (CAMPOS JÚNIOR; BURNS; LOPEZ, 2014).

The PNI serves the entire Brazilian population from birth to senility, with a wide range of vaccines, however it is necessary for the patient to go to the nearest vaccination room to comply and protect themselves. It is known that adherence to Brazil's Basic Vaccination Calendar reduces mortality and hospital admission rates as it includes 19 vaccines that protect against more than 20 pathologies, being considered one of the most complete in the world (BRAZIL, 2021).

Vaccination is the application of laboratory-processed antigens to a person and aims to provoke immunity reactions in the body, preventing possible invasion by pathogenic microorganisms. deaths (MOLINA et al., 2005).

For Santos (2014), immunization is a public health intervention activity that contributes to reducing child morbidity and mortality; It is a low-cost intervention and helps with economic and social development. In Brazil, the National Immunization Program (PNI) coordinates all vaccination actions, including the standardization of calendars in the different life cycles, aiming at the control, elimination and eradication of infectious and vaccine-preventable diseases.

With the evolution and spread of vaccines, it was found that vaccine-preventable diseases can be eradicated or reduced through the use of the vaccine, as a vehicle for preventing, controlling and eliminating diseases, therefore being the best option in terms of cost-benefit. (BRAZIL, 2017).

It is known that the health vaccination system is the best way to prevent deaths from diseases and increase life expectancy, especially when it comes to cost and effectiveness. However, population resistance to vaccines is known (ZORZETTO, 2018).

Although vaccination coverage is currently

satisfactory, the occurrence of some vaccine-preventable diseases still persists, due to several factors, such as: absence or delay in the administration of different doses of vaccine; possible growth of population groups susceptible to such diseases, increasing the risk of transmission and epidemic outbreaks. For the PNI to be successful, it depends not only on health services, but also on the social condition of the family, especially maternal education (MOLINA et al., 2007).

For Barros et al. (2015), there are several factors that hinder the scope of vaccination coverage, such as the precarious physical structure of primary health care units, difficulties in managing the service offered and in establishing fixed days for vaccination, in addition to the negligence of professionals when not previously observing the vaccination card and vaccination status during beneficiaries' visits to the UBS, in order to correctly schedule appointments.

Several factors contribute to non-compliance with the basic vaccination schedule: fear of side effects, lack of vaccines in Basic Health Units (UBS), lack of information, difficulty in access. Such factors are brought to light in order to minimize the rates of vaccination delays, solving possible problems inherent to vaccination compliance. Therefore, once vulnerabilities have been identified, both for those responsible and for the immunobiological network, it becomes possible to outline strategies that enable the improvement of public access and physical structure (BARROS et al., 2015).

Faced with this scenario, it is essential to identify problems related to compliance with the vaccination schedule, as well as detect the factors that make it difficult for parents and guardians to comply, thus presenting solutions to the health team in order to remedy and resolve such difficulties.

THEORETICAL REFERENCE

Panorama in Brazil

According to Homma (2003), the National Immunization Program (PNI) was created on September 18, 1973, being responsible for the national immunization policy with guiding principles, such as: reducing morbidity and mortality from vaccine-preventable diseases, strengthening actions integrated health surveillance for health promotion, protection and prevention of the Brazilian population.

According to data released by the Information System of the National Immunization Program (SI-PNI), in Brazil in the 1970s, great success was achieved in the Vaccination Campaign against smallpox, achieving the eradication of the disease, until then the last case reported in the Brazil had been in 1971 and in the world in 1977 in Somalia. From this process, the PNI began to coordinate immunization activities in the service network, which is why it established guidelines at the Public Health Service Foundation (FSESP) providing these services in a comprehensive manner (BRAZIL, 2018).

With the support of the Ministry of Health given to the program, in 1980 the first national vaccination campaign against polio was carried out. The objective was to vaccinate all children under 5 years of age in a single day, resulting in the last reported case, which was in Paraíba in March 1989, achieving certification of the eradication of the disease together with countries in the Americas region in September 1994. by the International Commission. From then on, in 1990 to 2003, the PNI was part of the National Health Foundation, in 2003 it integrated with the Health Surveillance Secretariat, consolidating national strategies that included the eradication of measles and the elimination of neonatal tetanus, and the control of other vaccine-preventable diseases such as Diphtheria, Whooping Cough and Accidental Tetanus, Hepatitis B, Meningitis,

Yellow Fever, severe forms of Tuberculosis, Rubella and Mumps in some States, as well as maintaining the eradication of Poliomyelitis (BRAZIL, 2017).

According to the Ministry of Health (2018), after the relevant eradication of several diseases, resulting from national efforts to cover immunization for the child population, in August 2018 the Brazilian Ministry of Health announced that eleven states across the country are below of vaccination coverage in the fight against polio and measles, even after the intensification of strategic actions and a more focused vaccination campaign.

It remains to be admitted that it is one of the largest vaccination programs in the world, being recognized nationally and internationally, serving the entire Brazilian population and its implementation occurs through the commitment and dedication of health professionals, managers and the entire population, resulting in the country having the lowest number of notifications of infectious diseases in the history of public health (ZORZETTO, 2018).

Child's calendar

At birth, children receive a vaccination card, which must be filled out with each vaccine administered, throughout the individual's life. The PNI publishes vaccination tables that are always up to date on the website of the Brazilian Society of Immunization (SBIM) (NEGRI, 2016).

The benefits of immunization, associating it with prevention, care, protection, responsibility; despite the deprivation or absence due to economic obstacles of their social insertion; even the commitment regarding vaccination is not limited to health professionals and must not be restricted to the immunization service, and can extend to all occasions in which the child is assisted in the health center such as medical and nursing

consultations (GATTI, 2010).

The PNI defines vaccination schedules considering the epidemiological situation, risk, vulnerability and social specificities, with specific guidelines for children, adolescents, adults, pregnant women, the elderly and indigenous peoples. And, for the program to continue to represent a success in public health, more and more efforts must be expended. All diseases prevented by vaccines included in the vaccination calendar, if they are not the target of priority actions, may become recurrent (PUGLIESI, 2010).

MATERIALS AND METHODS

This is an integrative, descriptive literature review with a qualitative approach, whose theme was to identify the main difficulties faced by parents and guardians in complying with vaccinations for children aged 0 to 2 years.

The steps suggested by the literature were used to carry out an integrative review, divided into the following steps: establishment of the hypothesis and objectives; establishment of inclusion and exclusion criteria for articles (sample selection); definition of the information to be extracted from the selected articles; analysis of results; discussion and presentation of results and the last stage consisted of presenting the review.

The question proposed to support this article was: What are the difficulties faced by parents in relation to complying with the vaccination schedule for children aged 0 to 2 years?

To compose the sample, articles found in the Virtual Health Library (VHL) were used. The inclusion criteria were: articles that were in full and within the aforementioned database; in Portuguese, English and Spanish; published in the period between 2011 and 2021. The exclusion criteria were articles that were outside the thematic axis, repeated in the

database, that were not available and that did not answer the research problem.

After adding the filters with the inclusion criteria and carrying out an exhaustive reading of the works found, our final sample consisted of 15 articles. The script was prepared with the following variables: Article title, authors and considerations/theme.

RESULTS AND DISCUSSION

After classifying all the material, the data was organized, facilitating visualization and understanding of the material selection process. Table 1 presents the specifications of each of the selected articles, describing the title of each article, the names of the authors and considerations/theme.

Therefore, after systematic analysis of the articles, it was necessary to include three thematic axes: Factors related to tutors; Factors related to professionals and delay variables.

FACTORS RELATED TO TUTORS

The studies showed that the profile of those responsible for children was predominantly made up of mothers, with the presence of significant statistics correlating maternal educational level and adherence to vaccines, so that mothers with complete secondary education had children with up-to-date vaccination cards, which could be Access to information was taken into account as a positive factor in immunization, with a better understanding of child health care, since knowledge about health problems, disease prevention and the importance of prevention increased compliance with the vaccination schedule. Evidence shows that families with a disadvantaged socioeconomic context have a 2.4 times higher risk of hospital admission, emphasizing that the socioeconomic level of the population influences health care, since access and search for information are more restricted (SILVA et al., 2018; SOUZA et al,

2012; RAMOS et al., 2010; MIZUTA et al., 2019).

Among the statistics presented by the researchers, it was observed that children who do not attend childcare are more likely to be late for vaccinations, as well as younger parents, aged <24 years, have a strong association with low adherence to childcare and low compliance. vaccination, corroborating that becoming pregnant in adolescence can be unfavorable to the health of children, given the adolescent's emotional immaturity and little experience in caring for their child. There was also a greater delay in vaccination in cases of unplanned pregnancies, mothers who started prenatal care in the third trimester, had fewer than six prenatal consultations, or did not have an appointment with the ESF during the entire pregnancy. This analysis reinvigorates the idea that ensuring the strengthening of primary care actions are essential tools to reduce delays and non-vaccination (FERNANDES et al., 2015).

Among maternal characteristics, an aspect little explored in studies is the smoking habit, which may indicate compromised self-care and less care for the child, including vaccination. Self-care is a conscious, voluntary and intentional activity for one's own benefit, with the purpose of maintaining life, health and well-being, in the same way, vaccination in relation to the child's health (SILVA et al, 2018).

Parents/guardians presented the main justifications for delays as lack of time, forgetfulness and lack of immunobiologicals at the UBS. Other reasons found in the studies were: accessibility of vaccination rooms, absence of services on night shifts and weekends, sick child, feeling of pity, greater number of children, extremes of maternal age, greater number of household residents, concern about in relation to possible adverse events, the devaluation of the importance of

NUMBER	TITLE OF THE ARTICLE	AUTHOR	CONSIDERATIONS/TOPIC
1	Vaccination in Brazil: bioethical reflection on accessibility	Elisa Coutinho Moura, Camila Rezende dos Santos, Dênia Amélia Novato Castelli von Atzingen, Adriana Rodrigues dos Anjos Mendonça	Correlation between citizens' understanding of vaccination, economic factors and bioethical relationships on social vulnerability and accessibility.
2	Perceptions about the importance of vaccines and vaccine refusal in a medical school	Amanda Hayashida Mizuta, Guilherme de Menezes Succi, Victor Angelo Martins Montalli, Regina Célia de Menezes Succi	Medical students' considerations about PNI reliability, vaccine refusal factors, doubts, and training.
3	Compliance with the vaccination schedule in children hospitalized for pneumonia and associated factors	Amanda Tabosa Pereira da Silva, Eduardo Jorge da Fonseca Lima, Maria de Fátima Costa Caminha, Andresa Tabosa Pereira da Silva, Edil de Albuquerque Rodrigues Filho, Carmina Silva dos Santos	Study of children aged 1 month to under 5 years, hospitalized for pneumonia, with analysis of the vaccination card and adequate vaccination compliance and relationship with individual social factors.
4	Compliance with the vaccination schedule for children in a family health unit	Camilo Ferreira Ramos, José Gabriel Miranda da Paixão, Filipe Cunha de Sousa Donza, Anthony Mark Paiva da Silva, Danillo Feitosa Caçador, Victor Danilo Vale Dias, Évila Fernanda Lameira de Melo Sodré	Analyze compliance with the child vaccination schedule by users of the Água Cristal Family Health Unit, as well as possible reasons for possible non-compliance.
5	Compliance with the vaccination schedule and associated risk factors in children aged 7 to 23 months: a cross-section	Pedro Henrique Alves de Andrade, Lucas Miranda Castro, Pedro Jorge Serra da Fonseca Lima, Tatiana Callado Amorim Casa Nova, Carmina Silva dos Santos, Eduardo Jorge da Fonseca Lima	Assessment of the Vaccination Calendar and associated factors, including maternal education, breastfeeding, mother's age, existence of siblings, birth weight, among others.
6	The immunization of children in Brazil: legal overview and bioethical reflection	Thiago Pires Oliveira, Luzia Souza-Machado Oliveira	Analysis of the legal and bioethical aspects of mandatory vaccination of Brazilian children, both as a duty and as non-adherence.
7	Vaccination completion and delay in children before and after educational intervention with families	Priscila Costa, Nívia Figueiredo de Almeida Meneses, Carolina Jacomini do Carmo, Katherine Solís-Cordero, Claudia Nery Teixeira Palombo	Role of health education as a factor in adherence to vaccination compliance. Team intervention sending reminders and leaflets to families about the importance of vaccination brought more than 10% increase in children's vaccination completion.
8	Parents' understanding of the importance of childhood vaccination	Catrine de Jesus Sousa, Zaira de Lima Vigo, Cátia Suely Palmeira	Understanding parents' opinions about the importance of childhood vaccination, its risks and benefits.
9	Children missing vaccinations, family living conditions and conceptions about vaccines: a household survey	Márcia Aparecida Nuevo Gatti, Luiz Roberto Oliveira	Household survey of those who missed vaccinations, with the aim of identifying socio-family characteristics, level of knowledge about vaccines, actual vaccination status and alleged reasons that may be related to the delay in the immunization schedule.
10	Vaccines for the basic scheme for the first year of life are delayed in a municipality in northeastern Brazil	Conceição Ceanny Formiga Sinval Cavalcante, Maria do Carmo de Carvalho e Martins, Telma Maria Evangelista de Araújo, Benevina Maria Vilar Teixeira Nunes, Maria Eliete Batista Moura, José Machado Moita Neto	To evaluate compliance with the basic vaccination schedule of children in the first year of life assisted by Family Health Strategy teams in a municipality in northeastern Brazil.

11	Family experiences regarding vaccination of children under two years of age: subsidies for nursing care.	Glória Lúcia Alves Figueiredo	Interviews recorded in the homes of 19 families, to understand families' experiences with vaccinating children under two years of age, around four themes: daily child care; practical and scientific knowledge about vaccinating children; responsibility and obligation to vaccinate children; and expansion of child vaccination practices.
12	Childhood vaccination incompleteness of new and old vaccines and associated factors: BRISA birth cohort, São Luís, Maranhão, Northeast Brazil	Francelena de Sousa Silva, Yonna Costa Barbosa, Mônica Araújo Batalha, Marizélia Rodrigues Costa Ribeiro, Vanda Maria Ferreira Simões, Maria dos Remédios Freitas Carvalho Branco, Érika Bárbara Abreu Fonseca Thomaz, Rejane Christine de Sousa Queiroz, Waleska Regina Machado Araújo, Antônio Augusto Moura da Silva	Percentages of vaccination incompleteness and associated social factors.
13	Analysis of the vaccination status of preschool children in Teresina (PI)	Ana Catharina Nunes Fernandes, Keila Rejane Oliveira Gomes, Telma Maria Evangelista de Araújo, Regilda Saraiva dos Reis Moreira-Araújo	Analysis of vaccination records, compared with information on the caregiver's age group, degree of kinship, type of housing, caregiver's marital status, among other factors.
14	Vaccination coverage for children under one year of age in a health care unit of Nova Hartz-RS.	Tani Lise Bau	Analysis of childcare records, with percentage of children late.
15	Loss of vaccination opportunities: aspects related to the performance of primary care in Recife, Pernambuco, 2012	Marla Geórgia Monteiro Barros, Michelle Caroline da Silva Santos, Raphaella Patrícia Torres Bertolini, Valderlane Bezerra Pontes Netto, Maria Sandra Andrade	A total of 18 UBS was evaluated, 33 health professionals were interviewed and 300 health records of children under 1 year old were analyzed, using forms and face-to-face observation.

Table 1 – Description of article variables, final version of the study (n= 15).Source: prepared by the authors (2021)

immunization, the refusal of vaccination for philosophical and religious reasons or due to the influence of fake news and anti-vaccine movement campaigns disseminated via the Internet and social networks. Recently, two situations were publicized, highlighting the dissemination of fake news, where there was fanciful information about adverse events of the HPV (human papillomavirus) vaccine in Brazilian adolescents and the false association of the rubella vaccine and cases of microcephaly in babies of Brazilian women, possibly infected by the Zika virus. Although such information was refuted, the credibility of such vaccines has dropped after a long time. (BARROS et al., 2012; RAMOS et al., 2010; ANDRADE et al., 2019; BAU, 2012; MIZUTA et al., 2019).

In relation to the evolution of immunization with the implementation of new vaccines regularly, so that vaccines with a shorter implementation time have a lower percentage of adequacy, due to children taking it late or even not being able to take it, due to the age limit imposed for their vaccination administration. When comparing vaccines that have been implemented for a long time, such as BCG and monovalent measles, in relation to the more recent ones such as tetra viral and triple viral, higher suitability percentages are observed in those implemented previously, given that BCG has been available since the first implementation of the booklet of vaccination by the Ministry of Health (MS) in 1973, in the same way as the monovalent vaccine against measles. The tetravalent and triple viral conjugate vaccines were introduced into the calendar in 2002 and 2003, respectively (RAMOS et al., 2010; SILVA et al., 2018; MIZUTA et al., 2019).

FACTORS RELATED TO PROFESSIONALS

Non-vaccination was observed in situations

considered opportune – e.g. e.g., malnutrition, mild diarrhea, cough or runny nose, family history of seizures, accumulation of many vaccines when the professional mistakenly understands that there are too many vaccines to administer at the same time, among others, also known as false contraindications (BARROS et al., 2012; BAU, 2012).

Logistical problems, such as difficulties in personnel management and the lack of immunobiologicals in immunization rooms, represent an important failure in the management of the health unit where this product constitutes the main object of the service (BARROS et al., 2012; RAMOS et al., 2010).

The studies by Costa et al (2020) highlight the importance of the nurse's role as an educator, elucidated after an intervention in a children's educational center, where parents were warned about vaccine delays and information leaflets were distributed. The leaflet covered the concept of vaccines, the importance of immunizing the body against diseases, the vaccination schedule for children under five years of age and which diseases are prevented by each vaccine. Additionally, the leaflet contained information related to adverse events such as fever, pain, redness and swelling, as well as serious adverse events such as anaphylactic shock, seizures, fainting, shortness of breath and loss of consciousness, in which the family must seek immediate a health service. After 30 days of the intervention, verification was carried out, the educational action brought significant changes in vaccination completeness, which increased by 11.6%, increasing from 81.5% to 93.1%.

DELAY VARIABLES

The ages of 2 to 7 months had the highest number of cumulative delays, that is, in addition to not having all the vaccines in their

age group, they are late in previous vaccines (BAU, 2012).

The BCG vaccine presented a lower estimate of incompleteness in several articles, adherence to this vaccine is facilitated by the presence of BCG in maternity wards, administered in a single dose before hospital discharge after birth. Some studies consecutively brought the first dose of hepatitis B to newborns with a high rate of adherence, followed by oral polio. One fact analyzed was the low adherence to late vaccines, such as the 3rd dose of hepatitis B and yellow fever. Several factors may have contributed to the yellow fever vaccine being one of the most subject to delay, including the fact that the initial dose be administered only at nine months of age and in places where there are no outbreaks of the disease (SILVA et al., 2018; CAVALCANTE et al., 2015).

CONCLUSION

Initially, it is necessary to highlight that historically, the National Immunization Program has been successful, through high vaccination coverage and presenting considerable advances in the control and eradication of diseases. However, from the perspective of maintaining and sustaining high vaccination coverage rates, other aspects emerge to be taken into consideration, in the relationship with parents, children and professionals.

It must also be said that the study presents relevant contributions for health professionals, since these professionals are of paramount importance in this context, as they are responsible for reminding parents about the missed dose.

It is also appropriate to mention that it was possible to identify approaches related to political issues against the pharmaceutical industry and the questioning of the effectiveness of vaccines, philosophical questions that are based on thoughts and

lifestyle habits considered more natural and socioeconomic and cultural factors related to the degree of priority given to compliance with the calendar.

Therefore, it remains to be admitted that the results found allow health professionals to reflect on the importance of deepening knowledge of this topic, in order to develop more research on the same topic, contributing to the development of strategies that corroborate the improvement of adherence to the vaccination schedule.

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