

Factors that interfere vacinal coverage in SUS: integrative review

Fatores que interferem na cobertura vacinal no SUS: uma revisão integrativa

Factores que interfieren en la cobertura vacunal en SUS: una revisión integradora

RESUMO

Objetivo: Identificar na literatura científica os fatores que interferem na cobertura vacinal no Sistema Único de Saúde. Método: Trata-se de uma revisão integrativa da literatura realizada nas bibliotecas SciELO e BVS com ênfase nos artigos indexados nas bases de dados BDNF, LILACS, MEDLINE, entre os anos de 2016 a 2021. Resultados: A amostra resultou num total de 22 artigos, através dos quais foi possível identificar uma totalidade de 21 fatores com predominância de hesitação vacinal, baixa escolaridade, Fake News, déficit de insumos, dificuldade com o sistema de informação, dentre outros. Considerações finais: Conclui-se que esses obstáculos podem desencadear desfechos desfavoráveis quanto à eficácia do Programa Nacional de Imunizações e exige análises constantes de como esses fatores interferem na eficácia da cobertura vacinal conforme a peculiaridade situacional do campo envolvido e seus possíveis condicionantes.

PALAVRAS-CHAVES: Imunização. Cobertura Vacinal. Programas de Imunização.

ABSTRACT

Objective: To identify in the scientific literature the factors that interfere with vaccination coverage in the Unified Health System. Method: This is an integrative literature review carried out in the SciELO and BVS libraries with emphasis on articles indexed in the BDNF, LILACS, MEDLINE databases, between the years 2016 to 2021. Results: The sample resulted in a total of 22 articles, through which it was possible to identify a total of 21 factors with a predominance of vaccine hesitation, low education, Fake News, shortage of inputs, difficulty with information system, among others. Final considerations: It is concluded that these obstacles can trigger unfavorable outcomes regarding the effectiveness of the National Immunization Program and requires constant analysis of how these factors interfere in the effectiveness of vaccine coverage according to the situational peculiarity of the field involved and its possible conditions.

KEYWORDS: Immunization. Vaccine Coverage. Immunization Programs.

RESUMEN

Objetivo: Identificar en la literatura científica los factores que interfieren en la cobertura de vacunación en el Sistema Único de Salud. Método: Se trata de una revisión bibliográfica integradora realizada en las bibliotecas SciELO y BVS con énfasis en artículos indexados en las bases de datos BDNF, LILACS y MEDLINE entre 2016 y 2021. Resultados: La muestra resultó en un total de 22 artículos, a través de los cuales fue posible identificar un total de 21 factores con predominio de indecisión vacunal, baja escolaridad, Fake News, déficit de insumos, dificultad con el sistema de información, entre otros. Consideraciones finales: Se puede concluir que estos obstáculos pueden conducir a resultados desfavorables en términos de la eficacia del Programa Nacional de Inmunización y requieren un análisis constante de cómo estos factores interfieren en la eficacia de la cobertura de vacunación de acuerdo con la situación específica del campo involucrado y sus posibles factores condicionantes.

PALABRAS CLAVE: Inmunización. Cobertura de Vacunación. Programas de Inmunización.

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Revisão de Literatura EN

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INTRODUCTION

Immunization is one of the health interventions that allows the control and eradication of several vaccine-preventable diseases, which contributes to the reduction of morbidity and mortality due to specific diseases, and its use is very cost-effective¹. Being vaccinated confers that you are immunized, this requires a process that involves immunization activities and completeness in the procedures².

The National Immunization Program (PNI) was created by the Ministry of Health (MS) in 1973, with the purpose of planning and coordinating, in a shared manner with the state and municipal health departments, actions aimed at immunizing the population, to eradicate diseases such as smallpox, polio, diphtheria, pertussis, tetanus, yellow fever, among others^{3,4}.

Regarding the organizational principle of decentralization, the PNI acts in the articulation of the network, ensuring hierarchization and integration when it demands permanent discussion on standards, goals, and results in the joint operation of the three spheres of management⁴. Therefore, the PNI, as a public policy, aims to make

health services more efficient, with the provision of more resolute and qualified care in the field of immunization, aiming at solving the prevalent health problems of the individual, family and community³.

For this, the public health network throughout the country guarantees about 19 types of vaccines, whose protection extends from newborns throughout life. A total of 300 million doses of the vaccines included in the National Vaccination Calendar (CNV) are made available through various strategies, including routine vaccination, campaigns, vaccine blocks and extramural actions. In addition to vaccines, sera and immunoglobulins are offered at the Reference Centers for Special Immunobiologicals (CRIE), which serve individuals with special clinical conditions⁵.

The actions of the NIP, together with other health surveillance actions, have resulted in the control or even eradication of vaccine-preventable diseases in recent decades, such as smallpox. Paradoxically, there are many challenges to be overcome in the search for satisfactory vaccination coverage, such as the misleading perception of the population that it is not necessary to vaccinate due to the disappearance of some diseases⁶.

Thus, there is a need to know the factors that interfere with vaccination coverage in the SUS, subsidizing the decision-making of managers and health professionals in the process of monitoring, planning, and evaluating interventions in the area. In this way, it will be possible to strengthen the bond and the trust of society in publicly distributed vaccines, as well as to increase the population's adherence to vaccination and raise vaccination coverage.

Immunization is the only guarantee that eradicated diseases will not return, and the population's adherence is fundamental in this context⁷. Therefore, from this scenario, the following guiding question arises: What factors interfere with vaccination coverage in the SUS? To identify in the scientific literature the factors that interfere with vaccination coverage in the Unified Health System.

METHOD

This is an integrative literature review, which includes the analysis of relevant research from previous studies, providing support for decision-making and improving clinical practice, as well as identi-

fying gaps that direct the development of future research. To carry out the review, it was necessary to follow standards of methodological rigor following the steps of identifying the research question, establishing criteria for inclusion and exclusion, defining the information to be extracted, evaluating the included studies, interpreting the results and, finally, presenting the review⁸.

To elaborate the guiding question of this research, the PICO strategy was used, represented by SUS users as the patient, immunization actions as the intervention, the search for factors that interfere in the fall of the ICV as the control, and the integration of these factors to show the possible outcomes, such as improvement of immunization practice in Brazil. Therefore, from this scenario, the following guiding question arises: What factors interfere with vaccination coverage in the SUS?

The search took place in March 2021 through the libraries: Scientific Electronic Library Online (SciELO) and Virtual Health Library (VHL) with emphasis on the databases Latin American and Caribbean Literature in Health Sciences (LILACS), Medical Literature Analysis and Retrieval System online (MEDLINE) and the Nursing Database (BDENF). Combinations of health descriptors were used with the help of the Boolean operator AND as follows: "Immunization AND Vaccination Coverage AND Immunization Programs" and "Vaccination Coverage AND Immunization".

The inclusion criteria for the sample were: articles available free of charge and in full text (free full text), in Portuguese, published between 2016 and 2021 and that addressed contributions to the objective proposed in this study. Theses, dissertations, and monographs were excluded from the search, as well as articles that were not freely available in full and those that were repeated in the databases consulted.

Data collection, interpretation and synthesis were performed as recommended by the Preferred Reporting Items for Systematic Reviews and MetaAnalyses (PRISMA) checklist, which consists of a

27-item checklist and a four-phase flow diagram. The checklist includes items considered essential for the transparent reporting of a systematic review of other types of research to assess the benefits and harms of a health intervention⁹.

As it is an integrative literature review, this research did not require prior approval by the Research Ethics Committee (CEP), according to Resolution No. 466/12 (CNS/MS), since all data will be available for free access by the population, not requiring ethical confidentiality¹⁰.

RESULTS AND DISCUSSION

The path to obtain data and organize the review was based on two combinations of descriptors. The combination of "Immunization AND Vaccination Coverage AND Immunization Programs" generated a total of 863 findings in the VHL and 35 in SciELO. After applying filters, inclusion, and exclusion criteria, eliminating repeated articles between li-

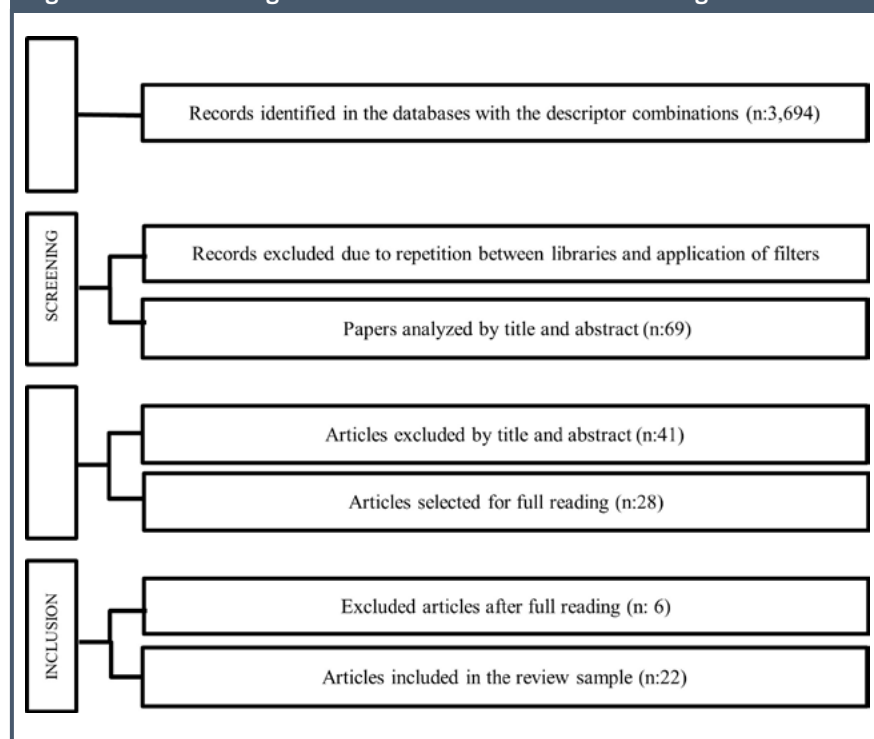
braries, and reading the title and abstract, 19 articles remained for full reading.

Regarding the second combination, which was "Vaccination Coverage AND Immunization", 2,697 results were obtained in the VHL and 99 in SciELO, where they were submitted to the screening criteria previously listed, resulting in 9 articles for full reading. Based on the interpretation and synthesis of data from the 28 articles read in full, the sample collection of this research resulted in the inclusion of a total of 22 articles, as presented in Figure 1.

Once the selection of the study sample was finalized, it was characterized according to the database of the 22 articles listed, their respective authors, title, journal, year of publication and research methodology, as described in Table 1.

In view of the analysis of the sample and its characteristics, it was observed that in relation to the database, eleven articles predominated in the SCIELO database and six articles in LILACS. As for

Figure 1 - PRISMA diagram of the studies included in the integrative review:



Source: Survey data, 2021.

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the journal, *Cadernos de Saúde Pública* stood out, where it presented a frequency of four articles in this review. Regarding the years of such publications, the years 2017 and 2021 stood out with five and four articles, respectively.

Most studies had nurses as authors and, regarding the delimitation of the research, there was a predominance of cross-sectional studies with mixed approaches. In this sense, it was found that the methodology of the articles was well varied, something that is expected from an integrative review due to its broad approach, providing a more complete understanding of the topic of interest.

The vaccination coverage indicator as-

sesses the vulnerability of individuals to acquiring vaccine-preventable diseases. As a factor that interferes with vaccination coverage, the increase in the spread of false news on social networks, known as fake news, also stands out. The mass dissemination of often erroneous information increases vaccine-related resistance. This problem is aggravated when the information is accessed by adolescent mothers, since it is an audience with more access to the predominant information vehicles today, such as social networks, characterized by high information content with low level of evidence or campaigns against vaccination^{16,17,18}.

In addition, the increase in incorrectly

shared health information has strengthened the anti-vaccine movement, since this is not a new practice, being as old as vaccination itself. The consequences of this movement are the return of epidemics of vaccine-preventable diseases and the threat of recrudescence of already eradicated diseases^{19,20,21}.

Regarding the administration of the vaccine, there is a fear on the part of the population that the high number of immunizers applied concomitantly will overload the immune system, especially in child^{22,23}. However, the simultaneity of schemes allows the child to be vaccinated with a greater number of vaccines at the same time and, consequently, to be pro-

Table 1 - Summary of articles according to database, author, title, journal, year of publication and research methodology, João Pessoa, Paraíba, Brazil, 2021. (n = 22):

DATA BASE	AUTHOR	TITLE	JORNAL	YEAR	RESEARCH METHODOLOGY
SCIELO	ARRELIAS, C. C. A. <i>et al.</i> ¹¹	Vaccination in patients with diabetes mellitus in primary health care: coverage and associated factors	Revista Gaúcha de Enfermagem	2017	Cross-sectional study
LILACS	MARTINS, J. R. T. <i>et al.</i> ¹²	Daily life in the vaccination room: experiences of nursing professionals	Advances in Nursing	2019	Holistic-qualitative multiple case study
BDENF	VIEGAS, S. M. S. <i>et al.</i> ¹³	Do I really need to get vaccinated? Information and knowledge of adolescents about vaccines	Advances in Nursing	2019	Cross-sectional and descriptive epidemiological study
BDENF	PEREIRA, G.F. <i>et al.</i> ¹⁴	Strategies for immunization continuity during the COVID-19 pandemic in Tucuruí, PA	Revista Nursing	2021	Descriptive study, type Experience report
SCIELO	SILVA, F. S. <i>et al.</i> ¹⁵	Childhood vaccination incompleteness of new and old vaccines and associated factors: a birth cohort BRISA, São Luís, Maranhão, Northeast Brazil	Cadernos de Saúde Pública	2018	Prospective cohort study

SCIELO	ARROYO, L. H. <i>et al.</i> ¹⁶	Areas with falling BCG, polio, and MMR vaccination coverage in Brazil (2006-2016): maps of regional heterogeneity	Cadernos de Saúde Pública	2020	Ecological study
SCIELO	DOMINGUES, C.M.A.S. <i>et al.</i> ¹⁷	46 years of the National Immunization Program: a history full of achievements and challenges and challenges to be overcome	Cadernos de Saúde Pública	2020	Descriptive study of the "case study" type
SCIELO	SATO, A.P.S. <i>et al.</i> ¹⁸	Vaccination coverage and factors associated with influenza vaccination in elderly people in the city of São Paulo, Brazil: Estudo SABE 2015	Cadernos de Saúde Pública	2020	Population-based cross-sectional study
SCIELO	FONSECA, K.R; BUENAFUENTE, S.M.F.	Analysis of vaccination coverage of children under one year of age in Roraima, 2013-2017	Epidemiology and Health Services	2021	Descriptive study
LILACS	MACIEL, J.A.P. <i>et al.</i> ²⁰	Analysis of the vaccination coverage status of children under three years of age in the municipality of Fortaleza in 2017	Revista Brasileira de Medicina da Família e Comunidade.	2019	Population-based cross-sectional survey
SCIELO	BRITO, W.J; SOUTO, F.J.D. ²¹	Universal vaccination against hepatitis A in Brazil: analysis of vaccination coverage and incidence five years after program implementation	Revista Brasileira de Epidemiologia	2020	Secondary data study
SCIELO	MOURA, L.L. <i>et al.</i> ²²	Human papillomavirus vaccine coverage (HPV) in Brazil: spatial heterogeneity and between age cohorts	Revista Brasileira de Epidemiologia	2021	Cohort study
SCIELO	BARCELOS, R.S. <i>et al.</i> ²³	Vaccination coverage in children up to two years of age benefiting from the Bolsa Família Program, Brazil	Epidemiology and Health Services	2021	Longitudinal study

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SCIELO	SANTOS, G.R.D. <i>et al.</i> ²⁴	Evaluation of rapid monitoring of vaccination coverage in the Expanded Health Region West of Minas Gerais, 2012	Epidemiology and Health Services	2016	Descriptive epidemiological study
LILACS	RODRIGUES, M.A.F. ²⁵	Surveillance of vaccination coverage in children under one year old in a municipality in Bahia: Experience Report	Revista Baiana de Saúde Pública	2016	Experience Report
BDEFN	AGUIAR, M.F. <i>et al.</i> ²⁶	Hepatitis B vaccination and associated factors among healthcare professionals nursing in a university hospital	Revista de enfermagem da UERJ	2017	Cross-sectional and analytical study with quantitative approach
BDEFN	IWAMOTO, K.O.F. <i>et al.</i> ²⁷	HPV vaccination strategy	Revista de enfermagem UFPE	2017	Quantitative, epidemiological, descriptive and population-based study
BDEFN	FERREIRA, A.V. <i>et al.</i> ²⁸	Access to the vaccine room of the Family Health Strategy: organizational aspects	Revista de Enfermagem UFPE	2017	Qualitative case study
LILACS	TEIXEIRA, V.B. <i>et al.</i> ²⁹	Nursing professionals' challenges for effective vaccination coverage	Revista Nursing	2019	Descriptive qualitative review
LILACS	SILVA, R.G.M.; NASCIMENTO, V.F. ³⁰	Vaccination coverage among nursing students	Journal of Health Sciences	2017	Cross-sectional, exploratory, and descriptive research
SCIELO	SILVA, A.T.P. <i>et al.</i> ³¹	Compliance with the vaccination schedule in children hospitalized for pneumonia and associated factors	Revista Baiana de Saúde Pública	2018	Cross-sectional, descriptive study with analytical component
LILACS	SATO, A.P.S. ³²	What is the importance of vaccine hesitancy? in the fall of vaccination coverage in Brazil?	Revista Baiana de Saúde Pública	2018	Reflection study

Source: Survey data, 2021.

tected against a greater number of diseases. To reverse this misunderstanding, it is necessary for professionals to base their practice on scientific evidence, providing health education to adherents of this thinking, clarifying that the practice does not interfere with the immunity of the vaccinated person and does not cause damage to health^{24,25}.

Another element that is tied to this reality is the fear of injection. From the results of their study, that the fear of injection still hinders the search for the vaccine, making the public more anxious about the practice of immunoprevention^{25,26,27}. Thus, it is necessary to make it clear to the target audience that physiological reactions to the fear of needle puncture is a psychological or emotional reaction as opposed to adverse effects after vaccination.

The opening hours of immunization services was also detected as an important aspect that may have influenced the reduction in vaccination coverage in Brazil. The available hours are not compatible with the working hours of users inserted in the formal labor market, especially with that of mothers in the condition of legal guardian, reflecting the high rate of women in the labor market²⁷. The study also brings the delay in service as an impeding factor in the search for vaccination. Other authors emphasize this difficulty, which leads to the understanding that it is something uniformly present in Brazilian regions.

Corroborating this, the lack of time and delay as the main obstacle to the effective immunization of the population. However, it is already noticeable the implementation of actions that can minimize the impact of this problem, such as the Health on Time Program²⁶. This program was instituted with the objective of implementing extended opening hours in services such as Family Health Units (USF) and Basic Health Units (UBS), seeking to expand access to health actions and services²⁷.

The barriers presented may contribute to the difficulty of access and

consequently the non-adherence of the population to vaccination initiatives, as well as the non-effectiveness due to the vulnerability of immunobiologicals in the face of poor management. Therefore, the absence of an adequate immunization service also favors the occurrence of low vaccination coverage. In view of this, factors such as the poor infrastructure of vaccine rooms and inadequate use of domestic refrigerators compromise the efficacy and protection of immunobiologicals and the effective immunization of the population^{25,26}.

In addition, there is little awareness and instruction of Community Health Agents (CHA) to actively search for unvaccinated children. In this study, less than half of children living in areas covered by CHWs have complete vaccination coverage. This result leads to the need for urgent sensitization and training of these professionals, as they are able to actively search for all unvaccinated children, since they work directly in the territory, through home visits^{21,22}.

Also, with regard to human resources training, the difficulty in handling information systems is a secondary challenge of the lack of preparation of professionals, and changes in this segment may have influenced the reduction in vaccination coverage in Brazil. The Information System of the National Immunization Program, in addition to equipment and organization, depends on trained personnel to carry out its proper feeding and organization for a record of the real vaccination situation²⁷.

With regard to the currently observed decreased vaccination uptake, social isolation measures directly influence the promotion of vaccination by the NIPP. Thus, it is essential to conduct research in order to analyze the impact of the COVID-19 pandemic on vaccination coverage in the SUS and to outline intervention strategies that can reverse its consequences. This is a reality already exposed in studies developed in other countries, where it was

possible to verify that social distancing can be added to the most common factor in the negative impact of current vaccination coverage, which is vaccine hesitancy^{22,23}.

FINAL CONSIDERATIONS

There are numerous challenges to be faced by the program for the effective systematization of a national vaccination policy that can reach the entire Brazilian population, ensuring greater adherence to vaccination, increasing vaccination coverage, and truly acting in the control and eradication of vaccine-preventable diseases.

Thus, it is expected that the study will bring significant contributions to the academic community, as well as to SUS managers, professionals and users, with the perspective of subsidizing evidence that can sensitize them about the need to transform the Brazilian reality regarding the factors that interfere with vaccination coverage and its impacts, understanding the role that each one has so that the real change of this scenario is possible and health care, through immunization, can be enhanced.

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