Health Education in Vaccination Campaigns: Educational Strategies Against Misinformation

Educação em Saúde nas Campanhas Vacinais: Estratégias Educativas Contra a Desinformação

Educación en Salud en las Campañas de Vacunación: Estrategias Educativas Contra La Desinformación

RESUMO

O estudo teve como objetivo analisar estratégias educativas empregadas em campanhas de vacinação voltadas ao enfrentamento da desinformação e ao estímulo da adesão vacinal. Realizou-se uma revisão integrativa da literatura, com buscas nas bases BVS, PubMed e SciELO em junho de 2025. Foram identificados 250 artigos; após aplicação dos critérios de elegibilidade e leitura completa, permaneceram 11 estudos para análise. As estratégias mais frequentes incluíram campanhas digitais com uso de redes sociais e influenciadores, oficinas presenciais adaptadas culturalmente, materiais factuais, ações educativas em escolas e rádios comunitárias. Evidenciou-se que abordagens multimodais e personalizadas apresentam maior potencial para fortalecer a confiança na vacinação. Entre as principais lacunas, destacam-se a ausência de avaliações de longo prazo e de dados sobre custo-efetividade. Conclui-se que estratégias educativas diversificadas podem contribuir significativamente para combater a desinformação e ampliar a cobertura vacinal, embora sejam necessários mais estudos robustos.

DESCRITORES: Educação em Saúde; Vacinas; Desinformação; Educação; Programas de Imunização.

ABSTRACT

The study aimed to analyze educational strategies used in vaccination campaigns to address misinformation and promote vaccine uptake. An integrative literature review was conducted through searches in the BVS, PubMed, and SciELO databases in June 2025. A total of 250 articles were identified; after applying eligibility criteria and full-text screening, 11 studies remained for analysis. The most frequent strategies included digital campaigns using social media and influencers, culturally adapted in-person workshops, fact-based materials, educational activities in schools, and community radio broadcasts. Multimodal and personalized approaches were shown to have greater potential to build trust in vaccination. Key gaps included the lack of long-term evaluations and data on cost-effectiveness. It is concluded that diverse educational strategies can significantly contribute to combating misinformation and increasing vaccination coverage, although more robust studies are needed.

DESCRIPTORS: Health Education; Vaccines; Misinformation; Education; Immunization Programs.

Resumen

El estudio tuvo como objetivo analizar las estrategias educativas empleadas en campañas de vacunación dirigidas a enfrentar la desinformación y fomentar la adhesión a la vacunación. Se realizó una revisión integradora de la literatura, con búsquedas en las bases de datos BVS, PubMed y SciELO en junio de 2025. Se identificaron 250 artículos; tras aplicar los criterios de elegibilidad y leer los textos completos, se seleccionaron 11 estudios para el análisis. Las estrategias más frecuentes incluyeron campañas digitales con el uso de redes sociales e influenciadores, talleres presenciales adaptados culturalmente, materiales basados en hechos, acciones educativas en escuelas y radios comunitarias. Se evidenció que los enfoques multimodales y personalizados tienen mayor potencial para fortalecer la confianza en la vacunación. Entre las principales lagunas se destacan la ausencia de evaluaciones a largo plazo y de datos sobre costo-efectividad. Se concluye que las estrategias educativas diversificadas pueden contribuir significativamente a combatir la desinformación y ampliar la cobertura vacunal, aunque se requieren estudios más sólidos.

DESCRIPTORES: Educación en Salud; Vacunas; Desinformación; Educación; Programas de Inmunización.

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INTRODUCTION

Immunization is one of the most effective strategies for disease prevention and public health promotion. In Brazil, the National Immunization Program (PNI) was created in 1973 as a fundamental initiative to organize the supply of immunobiologicals throughout the country, maintain high vaccination coverage rates, and ensure the control and even eradication of some diseases[1].

Despite the significant success achieved by the PNI's actions, reaching impressive vaccination coverage rates, in recent years Brazil has experienced a worrying decline in vaccination rates, which could have serious impacts on the health of the population, such as the resurgence of previously controlled diseases and an increase in preventable deaths[2].

According to a survey by the Ministry of Health, immunization rates in 2015 were close to 97%, falling to only 75% in 2020. Among the vaccines with the greatest decline in coverage are BCG, with approximately 38.8% between 2015 and 2021, and the polio vaccine, which showed a 30.7% decrease in the same period[3].

Given this outlook, it is clear that the COVID-19 pandemic and social isolation have had a negative impact on vaccination campaigns, leading to a reduction in adherence to the routine vaccination schedule. However, there are other factors that continue to contribute to the decline in vaccination rates, such as misinformation and the mass dissemination of fake news about vaccines.

In order to change this scenario, it is essential to enable effective interventions that increase vaccination adherence and the effective prevention of vaccine-preventable diseases through immunization. In this scenario, educational interventions emerge as a relevant tool, since health education and its various facets create communication channels capable of expanding the population's knowledge about vaccination based on scientific evidence, whether by clarifying doubts, demystifying false information, or reinforcing the importance of vaccination for individual and collective health.

However, it is necessary to work with health education not only in a sporadic and goal-oriented manner, but also by articulating these initiatives with continuous and comprehensive care, gaining a deeper understanding of the reasons that lead to vaccine hesitancy in light of the reality experienced by the population and the environment in which it lives. Therefore, the objective is to analyze, through an integrative review of the literature, the educational strategies used in vaccination campaigns, focusing on their role in combating misinformation and promoting vaccine adherence.

METHOD

This is an integrative review of the literature, conducted with the aim of identifying and analyzing educational strategies used in vaccination campaigns, especially in combating misinformation and promoting population adherence to vaccines. This review was guided by the research question: What educational strategies have been implemented in vaccination campaigns to combat misinformation and increase vaccination coverage?

Data collection was carried out in June 2025, covering the following electronic databases: Virtual Health Library (VHL), PubMed, and SciELO. To search for studies, we used the Health Sciences Descriptors (DeCS) and their equivalents in English and Spanish, combined with the Boolean operator AND, namely: "Health Education" AND "Vaccination," "Health Education" AND "Immunization Campaigns," and "Vaccination" AND "Misinformation."

The inclusion criteria were studies published between 2020 and 2025, available in full text, written in Portuguese, English, or Spanish, addressing educational strategies in the context of vaccination campaigns, with a focus on actions against fake news, addressing vaccine hesitancy, and promoting knowledge. Duplicate studies, articles whose main theme did not include educational strategies in vaccination campaigns, as well as experience reports, letters to the editor, dissertations, theses, and non-indexed editorials were excluded.

The selection of studies took place in two stages: in the first stage, titles and abstracts were read to identify potentially eligible publications; in the second stage, the selected articles were read in full to verify their compliance with the previously defined criteria. The identification and selection process followed the guidelines of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart, aiming to ensure the transparency and reproducibility of the method.

The data extracted from each included study were organized in a spreadsheet, including the following information: author(s), year of publication, study objective, type of methodological design, main educational strategies reported, main results, and conclusions. Data extraction and analysis were performed by two researchers independently, with any discrepancies resolved by consen-

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sus.

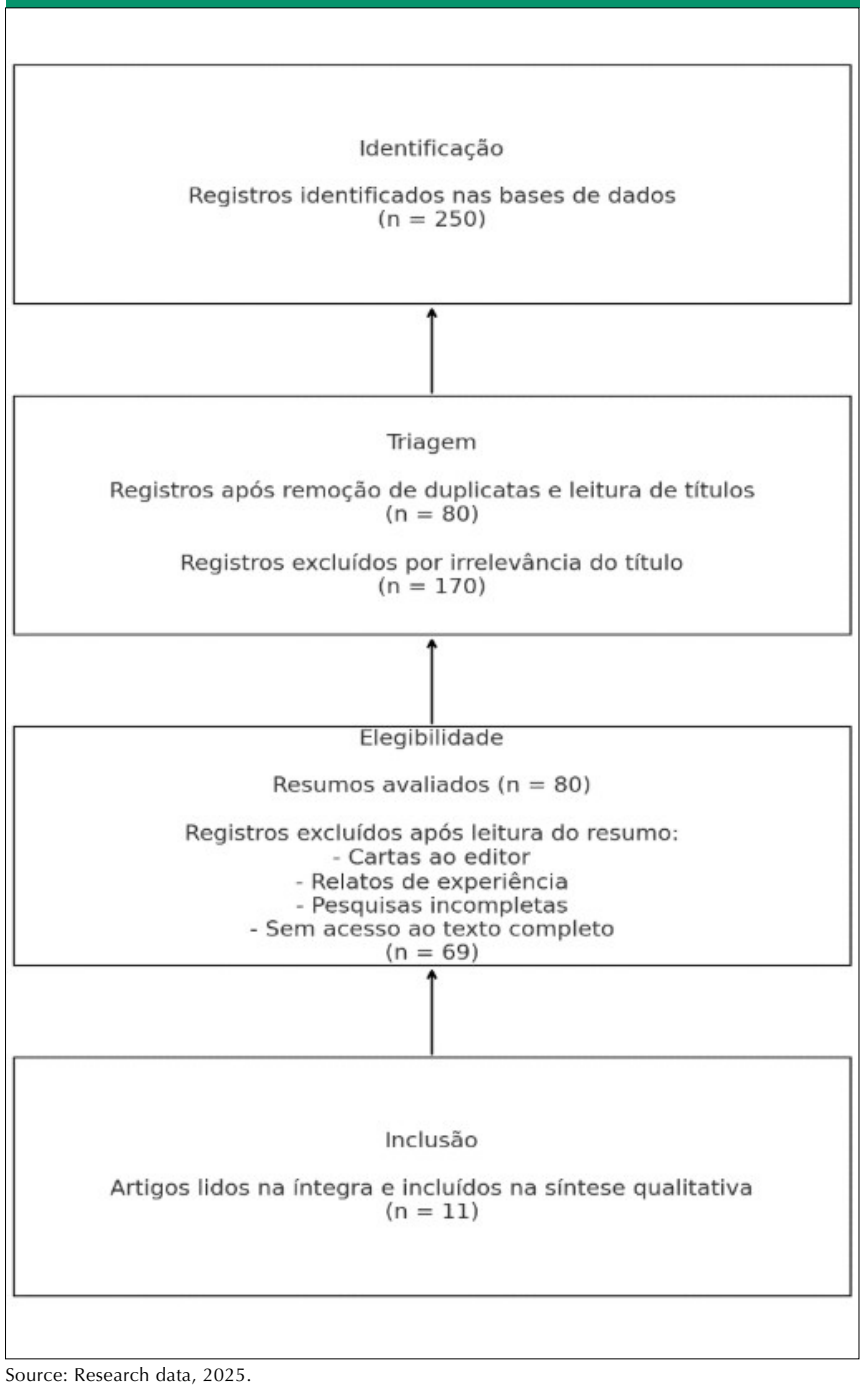
The results were summarized through a qualitative and categorical analysis, allowing the identification of recurrences, potentialities, and gaps in the available evidence on the educational strategies used in vaccination campaigns. The findings were grouped into thematic categories, constructed from a critical and reflective reading of the selected articles, with the aim of supporting reflections and proposals for educational actions that can contribute to combating misinformation and strengthening confidence in vaccines.

RESULTS

The studies included in the integrative review totaled 11 articles, with publication years ranging from 2009 to 2025. It is noteworthy that 2024 and 2025 concentrate the most recent articles, with four studies published in this interval. The most frequently cited databases and journals were international impact journals, such as Nature Human Behaviour, PLOS ONE, BMC Public Health, and Journal of Health Communication, in addition to Brazilian public health and communication journals, such as Cadernos de Saúde Pública, Animus, and Colóquio. Libraries such as Google Scholar and SciElo were also used. This diversity reflects the multidisciplinary nature of scientific production on health education and immunization.

In the analysis, 250 studies on the topic were identified in the first search. After reading the titles, 170 were excluded because they did not meet the objective of this research. Eighty abstracts were read. When analyzing the studies partially in their abstracts, letters to the editor, experience reports, incomplete research, and those that were not fully available were excluded, leaving 11 articles for final evaluation. The 11 articles were read in full and their inclusion in the results of this research was confirmed.

FIGURE 1 – Flowchart adapted from PRISMA:



Source: Research data, 2025.

Regarding the content of the studies, it was possible to observe that the main educational strategies identified involve digital campaigns using social media, videos, and influencers; culturally adapted in-person workshops; factual informational materials; educational programs in schools; and community actions such as conversation circles and local radio. The studies consistently pointed out that multimodal and per-

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sonalized interventions have greater potential for a positive impact on vaccine uptake, although challenges remain in measuring sustained effects and assessing cost-effectiveness.

Among the main gaps observed are the lack of longitudinal studies proving long-term results, the difficulty in assessing the cost-benefit of strategies, and the risk of a reverse effect in approaches that use only isolated factual information. These aspects indicate the need for investment in research to deepen understanding of the effectiveness and operational feasibility of these educational actions in different population contexts.

TABLE 1 – Presentation of scientific findings:

Authors and Year	Journal	Objective of the Study	Main Educational Strategies Reported	Recurrences in the Evidence	Potential	Gaps Identified
Mheidly N, Fares J, Zalzale H, Fares MY. (2021) [6]	*Nature Human Behaviour*	Analyze the impact of misinformation about vaccines and communication strategies in public health.	Digital campaigns, collaboration with influencers, evidence-based content.	Growing use of social media to disseminate information.	High reach capacity.	Difficulty in measuring real impact on adherence.
Gollust SE, Dredze M, Fowler EF, Nagler RH. (2024) [7]	*Journal of Health Communication*	Investigating persuasive messages for vaccine hesitancy in the US.	Messages with emotional appeals, personal narratives, and confidence reinforcement.	Narrative strategies associated with greater intention to vaccinate.	Personalized approaches.	Little evidence on long-term maintenance.
Paterson P, Meurice FP, Stanberry LR, Glismann S, Rosenthal SL, Larson HJ. (2023)[8]	*Health Promotion International*	Evaluate the effectiveness of educational interventions in vulnerable populations.	Face-to-face workshops, culturally adapted printed materials.	Importance of cultural appropriateness.	Positive results in initial acceptance.	Limited scalability.
Betsch C, Schmid P, Heinemeier D, Korn L, Holtmann C, Böhm R. (2022)[9]	*Journal of Communication in Healthcare*	Evaluating strategies for correcting fake news about vaccines.	Direct debunking, pre-bunking, positive reinforcement.	Pre-bunking effective in prevention.	Active fight against misinformation.	Little clarity on side effects.
Nyhan B, Reifler J, Richey S, Freed GL. (2017)[10]	*PLOS ONE*	Testing corrective messages against myths about childhood vaccines.	Factual information sheets, simplified graphics.	Factual messages may have the opposite effect on hesitant groups.	Robust experimental data.	Risk of reinforcing misbeliefs.
Jarrett C, Wilson R, O'Leary M, Eckersberger E, Larson HJ. (2019)[11]	*BMC Public Health*	Review systematic reviews on educational interventions.	Community education, media campaigns, individual counseling.	Multimodal interventions are more effective.	High methodological quality review.	Little data on cost-effectiveness.
Sadaf A, Richards JL, Glanz J, Salmon DA, Omer SB. (2009)[12]	*Vaccine*	Analyze factors associated with vaccine acceptance.	School programs, materials in plain language.	Consistency in the effectiveness of school programs.	Importance of the school environment.	Lack of recent data updates.
Rodrigues VL. (2023)[13]	*Colóquio*	Discuss local strategies to address vaccine hesitancy in Brazil.	Community involvement, discussion groups.	Emphasis on the relationship with health workers.	Positive qualitative results.	Lack of formal quantitative assessment.
Reuben R, Tallapragada M, Suganya S, Vasudevan V. (2024)[14]	*Frontiers in Public Health*	Evaluating digital campaigns during COVID-19.	Influencers, short videos, hashtags.	High digital engagement.	Wide and rapid dissemination.	Sustained interest over time.
Silva DRC, Lima BMF, Costa EJM. (2025)[15]	*Cadernos de Saúde Pública*	Study campaigns against vaccine misinformation in Brazil.	Podcasts, audiovisual materials in communities.	Relevance of the audiovisual format.	Easy access for populations with low levels of education.	Little measurement of impact on actual adherence.
Vieira MC. (2024)[16]	*Animus*	Discuss experiences of vaccine communication in rural areas.	Community radio, local health agents.	Face-to-face strategies maintain trust.	Strengthening community ties.	Lack of longitudinal data.

Source: Research data, 2025.

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DISCUSSION

The studies analyzed show that educational strategies applied in vaccination campaigns have taken on diverse and innovative formats in the face of the growing challenge of misinformation. Research conducted by Mheidly et al.[6] highlighted the use of evidence-based digital campaigns and collaboration with influencers as promising alternatives for reaching large audiences through social media, although it is still difficult to measure the direct impact of these actions on vaccine uptake.

Complementarily, Gollust et al. 7pointed out that persuasive messages, especially those with emotional appeals and personal narratives, showed positive results in increasing the intention to vaccinate, highlighting the need to tailor the discourse to the profile of the target audience. Still, the authors point out that gaps remain in maintaining these effects in the long term.

Paterson et al.[8] emphasized the importance of culturally adapted educational strategies, such as in-person workshops and contextualized printed materials for vulnerable populations. This approach led to gains in initial acceptance of vaccination but presented challenges related to the scalability of these initiatives in larger territories.

With regard to directly addressing misinformation, Betsch et al.[9] demonstrated that the combined use of pre-bunking and debunking contributes significantly to preventing the internalization of false information about vaccines, although doubts remain about possible side effects and the potential reinforcement of negative perceptions in some groups.

Research by Nyhan et al.[10] showed that, although factual information and simplified graphics can correct myths, such approaches can have the opposite effect by reinforcing pre-existing beliefs in people who are already hesitant, which reinforces the need for caution when choosing the communication format.

From a broader perspective, Jarrett et al.[11] conducted a systematic review that identified greater effectiveness in multimodal interventions combining community education, media campaigns, and individual counseling, although they recognized the lack of data on the cost-effectiveness of these strategies as a limitation.

The study by Sadaf et al.[12] highlighted that educational programs in school settings and accessible language materials contribute to reducing cognitive barriers, showing consistent results in increasing vaccine acceptance. However, these findings need to be updated in light of the evolution of digital platforms and changes in the profile of hesitations.

In the Brazilian context, Rodrigues[13] emphasized the relevance of community involvement and conversation circles as means of establishing trust between professionals and the population, highlighting good qualitative results, but also the limitation resulting from the absence of formal quantitative evaluation.

Reuben et al.[14] reported experiences during the COVID-19 pandemic that employed influencers, short videos, and hashtags as a digital education strategy. Such actions demonstrated high immediate engagement, although the main challenge relates to sustaining this interest over time.

Continuing, Silva et al.[15] and Vieira16 highlighted, respectively, the importance of audiovisual materials and the use of community radio stations and local health agents to expand the reach of educational messages in rural areas or areas with low levels of education. These formats promote accessibility and strengthen community ties, but longitudinal studies are needed to assess their effective impact on vaccine adherence.

Overall, the findings indicate that diverse, interactive, and culturally sensitive educational strategies have the potential to address misinformation and encourage vaccination. However, important gaps remain regarding the assessment of cost-effectiveness, the measurement of sustained impact, and the risk of a reverse effect of isolated factual approaches, reiterating the need for continued research and innovation in this field.

Vaccination campaigns, especially those targeting children and pregnant women, are a historic achievement in public health and play an essential role in human development. In the context of early childhood education, these actions are even more relevant, considering that young children, upon entering institutions, whether daycare or preschool, are immunologically vulnerable due to their ongoing physical development and first contact with collective environments. According to the National Curriculum Guidelines for Early Childhood Education, this stage represents the beginning of basic education, with the aim of promoting the integral development of children in their physical, psychological, intellectual, and social aspects, in conjunction with the family and the community[17].

Immunization is a priority action of Primary Health Care. Nascimento et al. highlight that "the Brazilian Ministry of Health's strategy to increase vaccination coverage in border areas is essential to strengthen epidemiological surveillance and ensure the protection of vulnerable populations"[18]. This perspective demonstrates a collective commitment to health protection, especially in areas marked by social vulnerabilities.

When we turn to the field of education, the Curriculum Guidelines reaffirm that the pedagogical proposal must ensure the right to protection, health, dignity, and coexistence[17]. The well-being of children is a shared goal among teachers, families, and health professionals, which reinforces the importance of intersectorality from the early school years.

Vaccination emerges as a practice

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that connects health and education, revealing concepts of care and citizenship. However, there are still gaps in initial teacher training, mainly due to the absence of curricular components that address intersectorality and the impacts of immunization on child development. According to Ayres and Lopes[19], the contemporary world and the expansion of cyberculture make it urgent to reflect on social inclusion, education, and health throughout life.

The National Health Promotion Policy guides health promotion to be articulated in intersectoral actions with social participation, aiming to expand autonomy and comprehensive care[20]. Thus, partnerships between schools and health services strengthen the dialogue on children's rights and development.

In this way, schools can act as a link between families and services, answering questions and providing information about vaccination, bringing vaccination campaigns closer to local realities and contributing to a social pact in defense of life and childhood.

References

1. **Gugel S, et al. Percepções acerca da importância da vacinação e da recusa vacinal: uma revisão bibliográfica. Braz J Dev. 2021;7(3):22710–22.**

2. **Matos CC de SA, Couto MT. Hesitação vacinal: tópicos para (re) pensar políticas de imunização. Rev Bras Med Fam Comunidade. 2023;18(45):3128.**

3. **Conselho Federal de Enfermagem. Taxa de vacinação infantil cai e Brasil volta a patamar de 1987 [Internet]. COFEN; 2022 [citado em 28 jun. 2025].**

4. **Borburema MM, et al. Fatores que interferem na cobertura vacinal no SUS: uma revisão integrativa. Saúde Coletiva (Barueri). 2023;13(88):13503–10.**

5. **Rocha AVS, Carvalho ABS, Olivindo DDF. Estratégias Para Aumentar os Indicadores de Vacinação em Crianças até 1 Ano de Vida no Brasil. Rev Ibero-Am Humanid Ciênc Educ. 2024;10(10):5496–512.**

6. **Mheidly N, Fares J, Zalzale H, Fares MY. Coping With the COVID-19 Infodemic: A Cross-Sectional Study on the Impact of Information Overload on Vaccination Intentions. Nature Human Behaviour. 2021;5(3):337–48.**

7. **Gollust SE, Dredze M, Fowler EF, Nagler RH. Communicating About Vaccine Safety and Effectiveness: Insights From Public Health and Health Communication Scholarship. J Health Commun. 2024;29(1):1–9.**

8. **Paterson P, Meurice FP, Stanberry LR, Glismann S, Rosenthal SL, Larson HJ. Vaccine Hesitancy and Healthcare Providers. Health Promot Int. 2023;38(3):daad053.**

9. **Betsch C, Schmid P, Heinemeier D, Korn L, Holtmann C, Böhm R. Beyond Confidence: Development of a Measure Assessing the 5C Psychological Antecedents of Vaccination. J Commun Healthc. 2022;15(1):15–27.**

10. **Nyhan B, Reifler J, Richey S, Freed GL. Effective Messages in Vaccine Promotion: A Randomized Trial. PLoS One. 2017;12(7):e0181640.**

11. **Jarrett C, Wilson R, O'Leary M, Eckersberger E, Larson HJ. Strategies for Addressing Vaccine Hesitancy–A Systematic Review. BMC Public Health. 2019;19(1):349.**

12. **Sadaf A, Richards JL, Glanz J, Salmon DA, Omer SB. A Systematic Review of Interventions for Reducing Parental Vaccine Refusal and Hesitancy. Vaccine. 2009;27(27):4235–48.**

13. **Rodrigues VL. Estratégias de Enfrentamento da Hesitação Vacinal no Brasil. Colóquio. 2023;20(1):1–14.**

14. **Reuben R, Tallapragada M, Suganya S, Vasudevan V. Social Media Influence on Vaccine Acceptance During the COVID-19 Pandemic. Front Public Health. 2024;12:11996185.**

15. **Silva DRC, Lima BMF, Costa EJM. Ações Contra Fake News em Campanhas Vacinais no Brasil: Uma Revisão Narrativa. Cad Saude Publica. 2025;41(3):e00097124.**

16. **Vieira MC. Experiências de Comunicação em Saúde e Vacinação em Territórios Rurais. Animus. 2024;23(2):1–18.**

17. **Brasil. Secretaria de Educação Básica. Diretrizes Curriculares Nacionais para a Educação Infantil. Brasília, DF: MEC; 2010.**

18. **Nascimento LMD, Araújo ACM, de Souza PCA, Matozinhos FP, da Silva TPR, Fernandes EG. Estratégia do Ministério da Saúde do Brasil para aumento das coberturas vacinais nas fronteiras. Rev Panam Salud Publica. 2024;48:e31. Disponível em: https://doi.org/10.26633/RPSP.2024.31**

19. **Santos ACAS, Lopes AS. Desafios e possibilidades de fluxos formativos instituinte de tutores: comunidade de aprendizagem no programa Saúde com Agente. In: Congresso Nacional de Educação – CONEDU; 2023; Campina Grande. Anais. Campina Grande: Realize Editora; 2023. Disponível em: https://editorarealize.com.br/index.php/artigo/visualizar/97412**

20. **Brasil. Ministério da Saúde. Política Nacional de Promoção da Saúde: PNPS – Revisão da Portaria MS/GM nº 687, de 30 de março de 2006. Brasília: Ministério da Saúde; 2015. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/politica_nacional_promocao_saude.pdf**

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