

## Non-compliance causes with the vaccination schedule in children under 5 years of age

Causas de incumprimento do esquema vacinal em crianças com menos de 5 anos

Causas de incumplimiento del esquema de vacunación en niños menores de 5 años

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### ABSTRACT

**Background:** The immunization is a very important process for the organism of the human body, since in this process the body becomes resistant to various pathologies caused by viruses and bacteria. Vaccines are administered from the first days of life to acquire defenses in the body and fight diseases successfully. **Objective:** Analyze the causes of non-compliance with the vaccination schedule of children under 5 years in San Bartolomé de Pinillo. **Methods:** A quantitative approach of descriptive scope of cross-sectional design was used, with a sample of 45 parents or caretakers of children. A questionnaire consisting of 15 questions was used with a Cronbach's alpha reliability of 0.99%. **Results:** The incomplete vaccination schedule in children under 5 years in San Bartolomé de Pinillo was determined due to sociodemographic, institutional, and cognitive causes. **Conclusions:** This investigation allowed us to determine the percentage of children under 5 years who have an incomplete vaccination schedule and the reasons for non-compliance. However, it is necessary to provide information to the children's caretakers about the importance of vaccinations.

**Keywords:** vaccine; immunization schedule; public health; disease prevention; immunization.

### RESUMO

**Introdução:** A imunização é um processo muito importante para o organismo do corpo humano, pois neste processo o corpo se torna resistente a diversas patologias causadas por vírus e bactérias. As vacinas são administradas desde os primeiros dias de vida para adquirir defesas no corpo e combater doenças com sucesso. **Objetivo:** Analisar as causas do descumprimento do esquema vacinal de menores de 5 anos em San Bartolomé de Pinillo. **Métodos:** Foi utilizada uma abordagem quantitativa de âmbito descritivo de delineamento transversal, com uma amostra de 45 pais ou cuidadores de crianças. Foi utilizado um questionário composto por 15 questões com alfa de Cronbach de 0,99%. **Resultados:** O esquema vacinal incompleto em menores de 5 anos em San Bartolomé de Pinillo foi determinado por causas sociodemográficas, institucionais e cognitivas. **Conclusões:** Esta investigação permitiu determinar a percentagem de crianças menores de 5 anos que têm um esquema vacinal incompleto e as razões do incumprimento. No entanto, é necessário informar aos responsáveis pelas crianças sobre a importância da vacinação.

**Palabras-chave:** vacina; calendário de imunização; saúde pública; prevenção de doença; imunização.

### RESUMEN

**Antecedentes:** La inmunización es un proceso muy importante para el organismo del cuerpo humano, ya que en este proceso el organismo se vuelve resistente a diversas patologías provocadas por virus y bacterias. Las vacunas se administran desde los primeros días de vida para adquirir defensas en el organismo y combatir con éxito las enfermedades. **Objetivo:** Analizar las causas del incumplimiento del calendario vacunal de los menores de 5 años en San Bartolomé de Pinillo. **Métodos:** Se utilizó un enfoque cuantitativo de alcance descriptivo de diseño transversal, con una muestra de 45 padres o cuidadores de niños. Se utilizó un cuestionario de 15 preguntas con una confiabilidad alfa de Cronbach de 0.99%. **Resultados:** Se determinó el calendario vacunal incompleto en menores de 5 años de San Bartolomé de Pinillo por causas sociodemográficas, institucionales y cognitivas. **Conclusiones:** Esta investigación permitió determinar el porcentaje de niños menores de 5 años que tienen un calendario de vacunación incompleto y los motivos del incumplimiento. Sin embargo, es necesario brindar información a los cuidadores de los niños sobre la importancia de las vacunas.

**Palabras-chave:** vacuna; calendario de vacunación; salud pública; la prevención de enfermedades; inmunización.

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Knowing the causes of non-compliance with the vaccination scheme in children under 5 years of age.

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Original empirical evidence on causes of non-compliance with the vaccination scheme in children under 5 years.

## INTRODUCTION

Non-compliance of vaccination is a problem at international scale for which the World Health Organization, Pan American Health Organization and United Nations Children's Fund are forming strategies to reduce morbidity and mortality in children, vaccines prevent 50,000 deaths per year worldwide (Aquino - Sosa, Bryan et al., 2019). However, UNICEF reported that one in 10 children do not have access to the first vaccine that is given at birth, because there is no health unit near their home, there is too much poverty or because their traditions or beliefs do not allow the use of vaccines. (Valenzuela, 2020).

Vaccines are biological preparations that allow us protect ourselves from certain infections that can lead to mortality, these biologicals emerge from the same virus that causes the disease (Holguín Quiroz; Macías Naranjo Silvana, 2022). These pathogens are treated in laboratories and converted into drugs that when administered will alert the immune system; which activates the defenses that identify and attack these malignant agents, this reaction caused by vaccines is called immunity. Vaccines are the key instrument to prevent and combat various diseases such as yellow fever, hepatitis, diphtheria, chicken pox, and rubella, ailments that throughout history have affected human health. (Porras & Báguena, 2020).

Ecuador has the national immunization strategy (ENI), a totally free program designed for the entire Ecuadorian population, especially children under 5 years old, so that they can lead a healthy life without diseases caused by the spread of certain viruses and bacteria. (Luis Díaz-Ortega et al., 2018) Other strategy was to place health facilities in the different communities of the country, so that mothers and caregivers of children approach their corresponding checkups. (Jimbo, Sotomayor, Sanchez Choes & Ghisays, 2018) Non-compliance in the vaccination scheme is also based on the age of the parents, socioeconomic and education level (Al Servicio Del Pueblo & De Enfermería, n.d., 2020).

This investigation will help us to know the factors why children under 5 years in San Bartolomé de Pinllo have an incomplete vaccination schedule, through a survey that will be provided to the child's mothers or caretakers (Meredith et al., 2019).

## METHODS

It is a quantitative approach study, field because it allows to study the problem in concrete collects, analyzes and interprets the causes of non-compliance data collection that have been analyzed by statistical procedures using applications such as: Excel, SPSS version 25, descriptive in scope since it describes the characteristics and causes to be addressed, cross-sectional study because it was applied in a given period. (Villalobos Zamora, LR, 2019)

The investigated population is 50 caretakers or parents of children under 5 years of age belonging to San Bartolomé de Pinllo taking into account the inclusion criteria: to be caretakers or mothers of children under 5 years of age; to belong to San Bartolomé de Pinllo, to be caretakers who agree to participate in the research and who sign the informed agreement.

The total sample for the study was 50 people. The type of sample was non-probabilistic by convenience, since 5 people were excluded from the selected population because they did not meet the aforementioned inclusion factors. The method used to obtain data was the questionnaire, with the necessary information to fulfill the objectives planted, using as an instrument the questionnaire made up of 15 questions consisting of sociodemographic causes, institutional causes, cause and cognitive reason for vaccines, age of the child and incomplete scheme, which were validated by the Central University of Ecuador in a titration research with a Crombach's alpha reliability of 0.99%.

## RESULTS

Table 1. Sociodemographic Factors

Age	Frequency	Percentage
15 - 25 years	13	28,9%
26 - 36 years	24	53,3%
37 >	8	17,8%
Total	45	100,0%
Education Level	Frequency	Percentage
Basic	14	31,1%
Bachelor	22	48,9%
University	9	20,0%
Total	45	100,0%

Economic level	Frequency	Percentage
Low	25	55,6%
Medium	12	26,7%
High	8	17,8%
Total	45	100,0%
Relation	Frequency	Percentage
Mother	29	64,4%
Father	3	6,7%
Caretaker	13	28,9%
Total	45	100,0%

Source: Authors

Table N°1 shows that the age of the caregivers of the children is in the range of 26 to 36 years, which corresponds to 53.3% of the people surveyed, considering that 48.9% of the caregivers have only completed high school, with a low economic level of 55.6%, thus showing that 64.4% of the caretakers are mothers of families.

Table 2. Institutional factors

Arrive time to health center	Frequency	Percentage
0 a 30 min.	3	6,7%
1 a 2 h	10	22,2%
3 a 4 h	32	71,1%
Total	45	100,0%
Difficulty in opening hours	Frequency	Percentage
Yes	36	80,0%
No	9	20,0%
Total	45	100,0%
Staff attention	Frequency	Percentage
Very Good	2	4,4%
Good	8	17,8%
Regular	31	68,9%
Bad	4	8,9%
Total	45	100,0%
Explanation of the vaccines by the staff	Frequency	Percentage
Yes	12	26,7%
No	33	73,3%
Total	45	100,0%
Vaccine Availability	Frequency	Percentage
Yes	10	22,2%
No	35	77,8%
Total	45	100,0%

Source: Authors

Table N°2 shows that 71.1% of the caretakers take more than 3 hours to get to the vaccination center, presenting difficulty with the schedule of attention in 80% of the cases, in addition 68.9% of the respondents state that they receive regular attention, 73.3% do not receive an explanation from the nursing staff at the time of administering the vaccines to the children and 77.8% of the respondents mention that when they go to the health unit they do not have the vaccines.

Table 3. Causes and cognitive reasons

Vaccine importance	Frequency	Percentage
Yes	18	40,0%
No	27	60,0%
Total	45	100,0%
Reaction	Frequency	Percentage
Fever	13	28,9%
Puncture site pain	11	24,4%
General malaise	21	46,7%
Total	45	100,0%
Incomplete scheme reason	Frequency	Percentage
Gorget	3	9,7%
Lack of Time	11	35,5%
Child is sick	8	25,8%
Distance	9	29,0%
Total	31	100,0%

Source: Authors

Table N°3 shows that 60% of the caregivers do not give importance to the vaccinations their children need, 46.7% of the caregivers mentioned that the children presented discomfort after the vaccination and 35.5% of the respondents stated that their children have an incomplete vaccination schedule due to lack of time.

Table 4. CHILD AGE AND INCOMPLETE SCHEME

Child age	Frequency	Percentage
0 - 6 months	8	17,8%
7 - 12 months	15	33,3%
13 - 23 months	12	26,7%
2 - 3 years	6	13,3%
4 - 5 years	4	8,9%
Total	45	100,0%
Incomplete scheme according child age	Frequency	Percentage
Yes	14	31,1%
No	31	68,9%
Total	45	100,0%
Incomplete scheme	Frequency	Percentage
BCG	0	0,0%
Hepatitis B	0	0,0%
Rotavirus	5	16,1%
fipV	3	9,7%
Neumococo	5	16,1%
Pentavalente	5	16,1%
boPV	2	6,5%
DPT	6	19,4%
SRP	11	35,5%
Yellow fever	8	25,8%
Varicela	4	12,9%
Total	31	100,0%

Source: Authors

Table No. 5 shows that 68.9% of children have incomplete vaccination schedules, with the MMR vaccine, with a range of 35.5%, being most absent in children aged 7-12 months, representing 33.3% of the total number of children.

## DISCUSSION

At the end of the 1970s, the most significant and costly prevention coverage during childhood has been childhood immunization in developed countries and also in developing countries such as Ecuador. Globally, it is estimated that 25% have an incomplete traditional scheme (Nigenda-López et al., 2019). In the research conducted, 58.9% of children under 5 years of age have an incomplete immunization schedule. According to our study, 68.9% of children do not have a complete vaccination schedule, due to sociodemographic causes, institutional causes, cognitive causes being a reason for morbidity and mortality in children (Benavidez Luz, 2019) in his study mentions that 62.16% of his population have an incomplete schedule due to social, cultural, economic, institutional factors.

Evidence from the study shows that 48.9% of caregivers have only completed high school. A study conducted in Mexico shows that parents who have a basic or intermediate level of education have a higher incidence of having an incomplete vaccination schedule for their children. It also mentions that the vaccination schedule in children improves when the parents' level of education increases (Sangoluisa Mariela; Carrión Marian; Rodríguez Jorge; Parcon Melyn, 2019).

A total of 71.1% of the caregivers take more than 3 hours to reach the health units since their homes are far away, in addition 55.6% of the respondents have a low socioeconomic level which makes it even more difficult for them to reach vaccination and they also do not have their own vehicle for mobilization. (Solis Humbria; Valencia Edma, 2018) Refers that in rural sectors there is non-compliance in the vaccination scheme due to the distance and lack of economic resources. A 35.5% of the interviewed people state that lack of time is one of the reasons why they do not go to the health units since most of the caregivers are dedicated to the care of the home, they have more children in their care, their place of work is far from their home, it is worth mentioning the importance of the follow-up of children with incomplete vaccination schedule by the nursing staff, taking up strategies to comply with the schedule. (Ledesma Rodríguez Karla, 2020) in her research mentions that the lack of time of the children's caregivers is one of the main factors that influence an incomplete vaccination schedule since the children's caregivers have jobs away from home.

Among those interviewed, 68.9% said that the attention at the health care unit is regular since the health personnel who attend them do not give them an adequate explanation of the vaccines to be given to the children, and 77.8% said that when they go to the health centers there is no vaccine that corresponds to the child on that day. A study carried out in the children's hospital in Mexico revealed that the lack of biologicals in the care units and confusion of the caregiver regarding vaccination dates are causes for the lack of vaccine application (Holguín Quiroz; Macías Naranjo Silvana, 2022).

According to (Sierra Gilberto; Castellanos Paola, 2019) the lack of knowledge in parents is a factor and they do not go to vaccinate children for such reason, in the study conducted 60% of respondents mentioned that vaccines are not important for children and also 46.7% of respondents expressed that children after vaccines presented malaise, 28.9% presented fever and 24.4% pain at the puncture site and for these reasons do not go to health centers.

## CONCLUSIONS

In San Bartolomé de Pinillo, through a quantitative research approach, a study was performed to determine the causes of non-compliance with the vaccination schedule in children under 5 years of age, in which it was found that there is greater non-compliance on the part of mothers who are between 26 and 36 years of age and who have only completed high school, most of whom have a low economic level of resources. In addition, the lack of time has become a considerable factor for non-compliance with the vaccination schedule, since mothers and their children are unable to travel to the health units; on the other hand, the children's caregivers report that when they go to the vaccination center they do not receive information about the vaccines provided to their children.

During the investigation, it became evident that most of the people who care for their children ignore the importance of vaccines for their immunization, either for fear of the reaction they may present after their application, or because they had a previous bad experience that affected the child's health, for these reasons is that the caregivers have decided not to take their children to the vaccination centers. In relation to this and through this study, it was identified that those caregivers who knew about the side effects of vaccines decided not to continue with the vaccination schedule.

In this investigation it was also determined that children with more lack of vaccines are in a range of 7 to 12 months of age in which the MMR vaccine prevails as the most absent, having a considerable average of children without complete immunization and that in the future leads to various pathologies that will affect their health directly.

The nursing staff should continue with strategies to follow up on the vaccination schedule of children under 5 years, especially mothers or caretakers who have an incomplete vaccination schedule, in addition to providing information about vaccines through educational presentations, meetings, visits to neighborhoods or communities that are located far from the city, and in this way raise public awareness about the vaccination importance.

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A. theoretical and conceptual foundations and problematization:	50%	50%
B. data research and statistical analysis:	40%	60%
C. elaboration of figures and tables:	50%	50%
D. drafting, reviewing and writing of the text:	60%	40%
E. selection of bibliographical references	50%	50%
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