Rev. Fac. Med. Hum. 2022; 22(4):689-696.
DOI: 10.25176/RFMH.v22i4.4614
ORIGINAL PAPER

ISSN Versión Online: 2308-0531
Facultad de Medicina Humana URP

NONCOMPLIANCE WITH THE NATIONAL VACCINATION SCHEME IN CHILDREN IN THE PERUVIAN JUNGLE, YEAR 2019

NO CUMPLIMIENTO DEL ESQUEMA NACIONAL DE VACUNACIÓN EN NIÑOS DE LA SELVA PERUANA, AÑO 2019

Kaway Caceda Luis Takeshi[1,a], Roldán-Arbieto, Luis[1,2], Vela-Ruiz José M[1,c], Loo-Valverde, María[1,b], Rocio Guillen Ponce[1,d], Luna-Muñoz Consuelo[1,3,b], Lloclla Delgado Sussan[1,a]

ORIGINAL PAPER

ABSTRACT

Introduction: In the past decade, levels of coverage on children vaccination had been decreasing nationwide, even more in the Peruvian jungle, reason why is an important public health's subject to attend. **Objective:** The purpose of this investigation was to analyze maternal and social factors that are associated with incomplete vaccination schedules on children under 5 years old on the Peruvian jungle. **Methods:** It is an observational, analytic investigation, using a secondary source from the Demographic and Family survey (ENDES) from 2019, where is found the information of all the under 5 years old with the healthcare card of oral information given by the mother. Then after selecting the chosen variables, we used the SPSS statistic program for the posterior analysis. Of the 4373 surveys studied; it was shown that 57.5% of children under 5 years have the incomplete vaccination schedule. The multivariate analysis found that non-compliance with the vaccination schedule associated with maternal and social factors such as not having health insurance (ORa 1.72; p<0.01, IC95% 1.39-2,13), poverty (ORa-1,427, p<0.01, IC95% 1.89-1.71), native mother tongue (ORa-1.50, p<0.01, IC-1.13-2,0), problems attending the health center (ORa-1,213, p=0.02, IC95% 1.02-1.44), live outside the city (ORa-1.31, p<0.01, IC95% 1.09- 1.58), age under the age of 24 as a mother/guardian (ORa-1.38, p<0.01, IC95% 1,186-1,619). **Conclusion:** Not having health insurance, living in poverty, having trouble going to the health center, living outside the city, having a different mother tongue than Spanish and age under 24 are factors associated with non-compliance with the vaccination schedule.

Keywords: Vaccination Schedule; Associated variables; Immunization. (Source: MESH-NLM)

RESUMEN

Introducción: Se ha visto un decaimiento de la cobertura de vacunas en niños residentes de Perú, menores de cinco años; siendo la región selva la más afectada. **Objetivo:** Analizar los factores sociales y maternos asociados al no cumplimiento del esquema nacional de vacunación en menores de cinco años en la selva peruana, año 2019. **Métodos:** Estudio observacional, analítico y retrospectivo. Se utilizó la base de la Encuesta Demográfica y de Salud Familiar (ENDES) Perú, 2019. Se seleccionaron las variables de estudio y se utilizó el programa SPSS 26,0 para el análisis. De 4 373 encuestas seleccionadas se evidenció que el 57,5% de niños menores de cinco años de la selva peruana no cumplieron con el esquema nacional de vacunación (ENV); los factores asociados fueron pobreza (RPa=1,18, p<0,001, IC95% 1,08-1,29), lengua materna nativa (RPa=1,17, p<0,001. IC95% 1,07-1,30), problemas para acudir al centro de salud (RPa=1,09, p=0,036, IC95% 1,04-1,21), edad menor a 24 años de madre/apoderado (RPa=0,78, p<0,001, IC95% 0,68-0,89) y no tener seguro de salud (RPa 1,2; p<0,000, IC95% 1,11-1,29). **Conclusión:** Los factores de riesgo sociales, pobreza (RPa=1,18, p<0,001, IC95% 1,08-1,29) y lengua materna nativa (RPa=1,17, p<0,001. IC95% 1,07-1,30); y los factores de riesgo maternos, problemas para acudir al centro de salud (RPa=1,09, p=0,036, IC95% 1,04-1,21), edad menor a 24 años de madre/apoderado (RPa=0,78, p<0,001, IC95% 0,68-0,89) y no tener seguro de salud (RPa 1,2; p<0,000, IC95% 1,11-1,29), se asociaron a no cumplimiento del ENV.

Palabras clave: Esquemas de Inmunización; Factores de riesgo; Inmunización; Disparidades en el Estado de Salud. (Fuente: DeCS- BIREME)

[1] Instituto de Investigación de Ciencias Biomédicas (INICIB), Facultad de Medicina Humana, Universidad Ricardo Palma. Lima, Perú.
[2] Escuela de Postgrado en Gestión Pública de la Universidad Tecnológica del Perú. Lima, Perú.
[3] Hospital Nacional Edgardo Rebagliati Martins.
[a] Medical.
[b] Pediatrician.
[c] Oncólogyst.
[d] Phd, Mg, MD.

Cite as: Kaway Caceda LT, Roldán-Arbieto, L, Vela-Ruiz J, Loo-Valverde, M, Guillen-Ponce R, Luna-Muñoz C, Lloclla Delgado S. Noncompliance with the national vaccination scheme in children in the peruvian jungle, year 2019. Rev Fac Med Hum. 2022;22(4):689-696 doi 10.25176/RFMH.v22i4.4614

Journal home page: http://revistas.urp.edu.pe/index.php/RFMH

INTRODUCTION

The prevention of vaccine-preventable diseases has been a great advance for public health, the most important benefit of the application of vaccines is the protection of the individual disease, and at systematic level is the control; elimination, and subsequent eradication of vaccine-preventable diseases[1].

Vaccines are substances whose function is to generate antibodies; These substances may be composed of an entire microorganism, a part of it, or modified products that make the receiving body "simulate" the disease with less or no risk[2].

There is an international and national tendency to reject vaccines, despite many studies that demonstrate the positive impact at the economic and social levels [3]. Peru has Law No. 28010 the General Law of Vaccines since 2003 in which vaccination activities for National Public Health are declared mandatory, from the date to the present multiple efforts have been made and actions have been implemented to expand coverage nationwide[4].

For the present study, the year 2019 was selected, where the panorama is worrying with only a population of boys and girls with complete vaccinations of 60.7%, with a gap in coverage of health services in the different natural regions of Peru, being the jungle the most affected region, with the lowest rates of compliance vaccination scheme, barely 50-58% [5].

Due to the aforementioned, the present investigation presents an association between maternal and social factors; and non-compliance with the national vaccination schedule in children under 60 months; Estimated based on a population survey.

METHODS

Type of investigation

Quantitative, observational, cross-sectional and analytical study based on the information contained in the public database of the Demographic Survey of Family Health (ENDES) 2019.

Population and Sample

The study population is composed of children under 5 years old residing in Peru during 2019 in the Peruvian jungle according to the information that is registered in the ENDES database. The sample size of the ENDES 2019 is 36,760 homes, corresponding: 14,780 homes in the headquarters area (department capitals and the 43 districts that make up the Province of Lima), 9,320 homes in the rest of the urban area, and 12,660 homes in the rural area. After making the selection with the inclusion and exclusion criteria, a sample of 4373 children under 5 years of age was obtained.

Research variable

The dependent variable was the vaccination schedule which includes compliance with the following vaccines: 1 dose of BCG, 3 doses of Pentavalent, 3 doses of the Polio vaccine, 2 doses of the Rotavirus vaccine, and 2 doses of the Pneumococcal vaccine. The independent variables were grouped into maternal variables, within which certain characteristics of the mother are found, such as the highest educational level achieved, whether she has health insurance, age, and problems in going to the health center, and social variables which refer to the region, place of residence, area of residence, level of wealth, language or mother tongue learned to speak in childhood, and ethnicity.

Data Processing and Statistical Analysis

The data collection was obtained from the ENDES 2019 public database, then the databases that contained the pertinent and necessary variables for the execution of the analysis and to test the hypotheses were selected and downloaded. Each selected database was filtered, leaving only the variables of interest for statistical analysis and the key identification variables. The refined databases were joined and a new database was created, which contained all the variables necessary for the execution of the study. The database was downloaded from the website of the Instituto Nacional de Estadística e Informática (INEI) in SPSS format and the statistical analysis was performed with Stata software. To evaluate the association between qualitative or categorical variables, the Chi-square statistic of independence was used. As a measure for the evaluation of the risk factors, the ratio of crude odds (CO) and adjusted (AO) was used, the latter through a Poisson regression model with robust variances. For the inferential analysis, a confidence level of 95% and the associated expansion factor were used according to the sample design. It was submitted to the evaluation of the university ethics committee and, considering that a secondary source was used, no further ethical considerations were necessary.

RESULTS

Of the 4,373 children in the Peruvian jungle region, it was found a total of 2,513 (57.5%) kids had an incomplete vaccination schedule (Table 1). Regarding

the demographic variables, there is a higher percentage of kids residing in the urban area with 2731 minors (62.45%) and it is in the rural area where the highest percentage of children with incomplete vaccination schedule is found (59.62%). In the place of residence, we are shown that the study population is distributed mainly in the countryside with 1642 minors (37.55%); This area is where the highest percentage of children with incomplete vaccinations is found.

Table 1. Summary of the sample.

Compliance of vaccination schedule	Complete	1860	42,5%
	Incomplete	2513	57,5%
Residence area	Urban	2731	62.45%
	Rural	1642	37.55%
Place of residence	Small city	1551	35.47%
	Village	1180	26.98%
	Countryside	1642	37.55%
Wealth index	The poorest	1746	39.90%
	Poor Medium	1488	34.00%
	Rich	670	15.30%
		340	7.80%
	The richest	129	2.90%
Mother tongue	Native	700	16.00%
	Spanish	3673	84.00%
Customs	Of indigenous or native people	1560	35.70%
		2813	64.30%
Level of study	None or elementary	1199	27.40%
	High school or higher	3174	72.60%
Health insurance	have insurance	3736	85.40%
	Uninsured	637	14.60%
Region	Jungle	4373	100%

Source: ENDES 2019 database.

Table 2. Non-compliance with the basic vaccination schedule according to demographic variables.

		Complete		Incomplete		Total		P-value
		n	%	n	%	N	%	
Residence area	Urban	1 197	43.8%	1 534	56.2%	2 731	62.5%	0.069
	Rural	663	40.4%	979	59.6%	1 642	37.6%	
Place of residence	Small city	636	41.0%	915	59.0%	1 551	35.5%	0.036
	Village	561	47.5%	619	52.5%	1 180	27.0%	
	Countryside	663	40.4%	979	59.6%	1642	37.6%	
Wealth index	The poorest	671	38.4%	1 075	61.6%	1 746	39.9%	<0.01
	Poor	640	43.0%	848	57.0%	1 488	34.1%	
	Medium	314	46.9%	356	53.1%	670	15.3%	
	Rich	165	48.5%	175	51.5%	340	7.8%	
	The richest	70	54.3%	59	45.7%	129	2.9%	
Mother tongue	Native	229	35.4%	470	64.7%	700	16.0%	<0.01
Customs	Spanish	1 630	44.4%	2 043	55.6%	3 673	84.99%	0.248
	Of indigenous or native people	619	39.7%	941	60.3%	1 560	35.7%	
Level of study	Westerners	1 241	44.1%	1572	55.9%	2 813	64.3%	<0.01
	None or elementary	463	38.6%	736	61.4%	1199	27.4%	
	High school or higher	1 397	44.0%	1777	56.0%	3 174	72.6%	

Regarding the wealth index, the condition of greatest poverty is the one that registers the highest percentage of kids with incomplete vaccination scheme with 61.60%. Regarding the language or mother tongue that is registered, the main language learned was Spanish with 3673 people (84.00%); in the learned mother tongue "Achuar" 100% of incomplete schemes are recorded. Regarding customs, the majority consider themselves mestizas (51.40%); those who consider themselves to be from other native or indigenous people have the highest percentage of incomplete vaccination schedules with 76.90%. According to the educational level reached, there is a greater distribution in incomplete secondary education (943; 21.60%) complete secondary education (1141; 26.10%), and higher education (1090; 24.90%); there is a higher percentage at the incomplete primary education level with 64.00% (Table 2).

Table 3. Non-compliance with the Basic Vaccination Scheme according to maternal variables.

Variables		Complete n	%	Incomplete n	%	Total n	%	P-value p
Know which health center to go to	No problema	1 630	43.0%	2 161	57.0%	3 791	86.7%	0.002
	Big Problem	230	39.5%	352	60.5%	582	13.3%	
Get money for treatment	No problem	847	45.8%	1 002	54.2%	1 849	42.3%	0.002
	Big Problem	1 013	40.1%	1 511	59.9%	2 524	57.7%	
Distance from health services	No problem	1260	44.3%	1 584	55.7%	2 844	65.0%	0.002
	Big Problem	600	39.2%	929	60.8%	1 529	35.0%	
Get transportation	No problem	1 268	44.3%	1 597	55.7%	2 865	65.5%	0.002
	Big Problem	592	39.3%	916	60.7%	1 508	34.5%	
Maternal age	from 14 to 17 years old	19	20.9%	72	79.1%	91	2.1%	<0.01
	from 18 to 24 years old	436	36.6%	754	63.4%	1 190	27.2%	
	Older than 24 years old	1 405	45.4%	1 687	54.6%	3 092	70.7%	
Health insurance	have insurance	1 644	44.0%	2 092	56.0%	3736	85.4%	<0.01
	Uninsured	216	33.9%	421	66.1%	637	14.6%	

Source: ENDES 2019 database *n= number. the odds ratio (OR) was used with Poisson Regression with robust variables

Regarding the maternal variables (Table 3), multiple problems can be evidenced that are related to going to a health center; such as knowing which health center they should go to, in which 3791 mothers know which health center corresponds to them (86.70%) and this is where there is a higher percentage of incomplete vaccination schedules with 60.48%. The distance from health services is considered a major problem for 1,529 mothers (34.96%) and it is where there is a higher percentage of incomplete vaccination schedules with 60.76%; Getting transportation is not a big problem for 2865 mothers (65.04%), but in the group where there is a big problem, it is where there is a higher percentage of incomplete vaccination schedule with 60.76%. In the condition of being insured by a Health Service Provider Institution (IPRESS) they indicate that 3736 mothers have some type of health insurance (85.40%) and the highest percentage of non-compliance with the vaccination scheme is higher in those who do not have health insurance (66.09%).

Table 4. Analysis of maternal and social variables.

Variable	OR	95% confidence interval		OR	95% confidence interval	
		Inferior	Superior		Inferior	Superior
Lack of health insurance	1.21	1.11	1.31	1.2	1.11	1.29
Poverty	1.18	1.09	1.28	1.18	1.08	1.29
Customs of indigenous or native people	0.55	0.53	0.58	0.77	0.87	1.07
Live in a rural area	1.08	0.99	1.16	0.92	0.84	1.01
Native or original mother tongue	1.18	1.07	1.3	1.17	1.07	1.3
Problems to go to the health center	1.12	1.04	1.21	1.09	1.04	1.21
Live out of town	0.89	0.81	0.97	0.92	0.94	1.11
Mother's age less than 24 years	0.77	0.68	0.88	0.78	0.68	0.89
None or elementary studies	1.05	0.95	1.17	0.92	0.95	1.17

Source: ENDES 2019

When performing the bivariate analysis, it was necessary to have no health insurance (CO=1.21, CI= 1.11-1.31), poverty (PR=1.18, CI= 1.09-1.28), native mother tongue (CO=1.18, CI=1.07 -1.30), problems going to the health center (CO=1.09, CI= 1.04-1.21), mother/guardian age under 24 years (CO=0.77, CI=0.68-0.88) presented a statistically significant association with noncompliance of the vaccination schedule. No statistically significant association was found with the customs of indigenous or native people, living in rural areas, living outside the city, and level of primary education or no education at all. Furthermore, a multivariate analysis was performed (Table 4), where it was found that not having health insurance (AO=1.2, CI= 1.11-1.29), poverty (RPa=1.18, CI= 1.08-1.29), mother tongue native (AO=1.17, CI=1.07-1.31), problems going to the health center (AO=1.09, CI= 1.01-1.18), presented a statistically significant association with non-compliance with the vaccination schedule. It was found that age under 24 years of mother/guardian (AO=0.77, CI=0.59-0.77) is a protective factor. No statistically significant association was found with the customs of indigenous or native people, living in rural areas, living outside the city, and level of primary education or no education at all.

DISCUSSION

In the 2014 ENDES survey, it was shown that children with complete vaccinations for their age were 61.1%, representing an improvement compared to 2009 with 53.7%; for that year in the jungle, a percentage of non-compliance with the vaccination schedule of 57.5% was shown, the lowest of the regions studied [1,6]. In the present study, the percentage of non-compliance is 57.5%, which was similar to what was found in 2013 in the same natural region. In these cases, the percentage of coverage, at the national and regional levels, has been similar and is far from the expected coverage of 95%[2,7].

The similarity in these cases may reflect the poor response to attempts to reduce the gaps in coverage.

ORIGINAL PAPER

health care to one of the regions most affected by poverty and inequality [2]. coverage of booster doses of some vaccines such as the DPT vaccine, polio vaccine, and measles[3,4] Villalobos, for his part, similarly obtained a 55.9% non-compliance with the vaccination schedule in a health center in the province and region of San Martin, a similarly low coverage in the Peruvian jungle region [5].

Likewise, Zevallos [8] found a much more worrying scenario with 78.1% of children under 2 years of age with an incomplete vaccination schedule [6]. As soon as the absence of health insurance was found, this is a risk factor associated with non-compliance with the vaccination schedule; It is a result that is consistent with the work of Ruiz-Rodríguez, et al, in which they found that the probability of having the complete scheme for age is 2.4 times more likely for those who are affiliated with the subsidized health system, in the case of this study[7]. It is consistent with the study by Allred, et al, in which higher percentages of coverage were found in insured minors compared to the uninsured; 83% vs 75% respectively [8]. This study has found a risk association between living in poverty and non-compliance with the vaccination schedule, and this is consistent with previous studies such as that of Chuquin[3] as well as that of Damacen, which found earnings of less than 500 soles monthly as a factor of association with non-compliance with the vaccination schedule[9]. Villalobos also found an association between low-income mothers (400 to 800 soles) and noncompliance with the vaccination schedule [5]. The condition of being considered a native people or having customs of this, has been found as not significant in terms of non-compliance with the vaccination scheme. The study by Carmona, et al. expresses religious and cultural reasons why the Awajun people (Peru's native Amazonian community) reject vaccination; as the main reason not having gotten sick before, nor past generations; attributing to the disease a magical or supernatural origin; treating the cases with traditional therapies and resources[10].

Amoroz in his research mentions that in the communities of Kayants and Pajacusa (originally from the Peruvian jungle) they have the idea that vaccines negatively affect the development of children, causing them to lose weight, making them more prone to diseases and have less energy. (eleven). The results obtained reveal that being from a rural area has no significant relationship with non-compliance with the vaccination schedule, which is consistent with Zevallos' research; which also finds no significant relationship [6]; however, the Damacen investigation; in an area of the Peruvian jungle region (Chachapoyas) shows that there is a statistically significant relationship and 3.9 times more probability of non-compliance with the vaccination schedule in mothers who live in rural areas compared to those who do not live in rural areas[9].

Having a native language as mother tongue has resulted in a significant association in the study, part of the reasons why there is a non-compliance with the vaccination schedule may be explained by making a similarity with the Amoroz study; in which there may be discrimination by health personnel against indigenous people and the language they speak [11]; reinforced by the Nureña study in which he mentions that the vulnerable health situation of this population is exacerbated due to prejudice and discrimination of ethnic origin by health personnel [12]. The problems to go to health centers have had significant significance, the problems of knowing which health center to go to, getting money for treatments, distance from health services and getting transportation were grouped as great difficulties to go to health centers, which are shared in multiple investigations; Solis-Lino et. describes that one of every three parents who did not vaccinate their children was due to difficulty in reaching the vaccination site[13] ; also in agreement with the study of Evangelista; in which one of every 10 mothers fails to comply with the vaccination schedule due to living far from the health center [14]. Gutierrez's study mentions that the economic sphere is not essentially the greatest difficulty in going to the health center; since from 2004 to 2015 there was a percentage decrease from 24.6% to 6.9% of people who do not go to a health facility due to illness (15). This means that we must pay attention to different factors that can affect going to the health center; as example in the case of Amoroz; cases of maternal mortality were found, and one of the causes was due to the lack of transportation [16].

The area of residence resulted in the present study has a statistically significant association; which has a high correlation with the aforementioned factors; as stated in the Contreras investigation; In these geographically dispersed communities, there is inaccessibility to the services provided by the state [17]. In the present study, a significant association was found with mothers being under 24 years of age and non-compliance with the vaccination schedule as a protective factor; it stands in contrast to Damacen's research; which found an association of being under 20 years of age with non-compliance with the schedule[9], the investigations by Huané and Saavedra also found a significant relationship between age and non-compliance with the vaccination schedule[18,19].

In contrast, the studies by Zevallos, Chuquin, and Vásquez-Uriarte found no significant association between the age of the mother and non-compliance with the vaccination schedule[6,3,4]. As mentioned in the Maguiña report, multiple factors intervene in the youth population that affects the lack of health of this population, such as the lack of education and health, high prevalence of tobacco and alcohol consumption; job insecurity and absence of health insurance [2].

Regarding the educational level reached, no significant association was found; however, the study by Zevallos obtains a result that associates the degree of primary education as an associated risk factor [6]; Huané and Izquierdo's research also has a similar result, with a low or no educational level for non-compliance with the vaccination schedule [18,20]. A result that breaks this trend is the Barbacariu study, in which the majority of parents who are against immunizations were parents with university education; with the idea that they are not necessary or expressly do not work [21]. It can be concluded in the present study that there is an association between maternal and social factors with non-compliance with the national vaccination schedule in children under 5 years of age, there is also a statistically significant association between maternal variables and non-compliance with the vaccination schedule; such as absence of health insurance, age, but not with educational level, and there is a statistically significant association between social variables associated with non-compliance with the vaccination scheme; as residential area; wealth level; language or mother tongue that you learned to speak in your childhood and ethnicity; but not place of residence.

Authorship contributions: Luis Takeshi Kaway Caceda: participated in the genesis of the idea, project design, data collection and interpretation, analysis of results and preparation of the manuscript of this research work. Roldán-Arbieto Luis, Vela, Manuel, Loo María, Consuelo Luna and Susan Lloca participated in the analysis, critical review and writing of the article.

Funding sources: Self financed.

Correspondence: *Kaway Caceda Luis Takeshi*
Address: *Av. Alfredo Benavides 5440, Santiago de Surco 15039, Lima, Perú.*
Telephone number: *948 611 009*
E-mail: *takeshi.kaway@gmail.com*

Conflicts of interest: There was no conflict of interest.

Received: may 19, 2022
Approved: september 22, 2022

ORIGINAL PAPER

REFERENCES

1. Instituto Nacional de Estadística e Informática (INEI). Encuesta Demográfica y de Salud Familiar 2019 - Nacional y Regional [Internet]. 2019 [citado 30 de agosto de 2022]. Disponible en: https://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales/Est/Endes2019/
2. Maguiña C, Galán-Rodas E. Situación de la salud en el Perú: la agenda pendiente. Rev Peru Med Exp Salud Pública [Internet]. 30 de septiembre de 2011 [citado 30 de agosto de 2022];28(3). Disponible en: https://rpmesp.ins.gob.pe/index.php/rpmesp/article/view/544
3. Chuquin Aguero EA. Variables sociodemográficas asociadas al incumplimiento del esquema básico de vacunación en menores de 5 años en Perú durante el año 2017. [Internet]. Universidad Ricardo Palma; 2019. Disponible en: https://repositorio.urp.edu.pe/handle/20.500.14138/2212
4. Vásquez-Uriarte K, Ortiz JAN, Romani F, Roque-Henriquez JC. Cobertura y factores asociados a la vacunación contra el sarampión en niños de 12 a 59 meses en Perú: estimación basada en la Encuesta Demográfica y de Salud Familiar 2017. Rev Peru Med Exp Salud Pública [Internet]. 28 de diciembre de 2019;36(4):610-9. Disponible en: https://rpmesp.ins.gob.pe/index.php/rpmesp/article/view/4456 doi:10.17843/rpmesp.2019.360.4456
5. Mesa de Concertación para la Lucha contra la Pobreza SG de T de "Inmunizaciones". Alerta N°1-2022-SC/GT Salud, MCLCP [Internet]. 2022. Disponible en: https://www.mesadeconcertacion.org.pe/storage/documentos/2022-05-23/mclcp-inmunizaciones-alerta-n01-2022-marzo-mclcp.pdf
6. Chavez Morillo Y. Factores que influyen en el abandono del calendario de vacunación en madres de niños menores de 5 años [Internet] [Trabajo de grado]. Universidad de San Martín de Porres; 2017 [citado 30 de agosto de 2022]. Disponible en: https://repositorio.usmp.edu.pe/handle/20.500.12727/2692
7. Organización Panamericana de la Salud. Herramientas para el monitoreo de coberturas de intervenciones integradas de salud pública. Vacunación y desparasitación para las geohelmintiasis [Internet]. PAHO; 2017 [citado 30 de agosto de 2022]. Disponible en: https://iris.paho.org/handle/10665.2/34511
8. Zevallos Souza JP. Factores Socioculturales que influyen en el cumplimiento del esquema de vacunación en niños menores de 2 Años IPRESS I-2 Fernando Lores Tenazoa, Iquitos-2020 [Internet] [Tesis de grado]. Universidad Privada de la Selva Peruana, Iquitos, Perú; 2020. Disponible en: https://renati.sunedu.gob.pe/handle/sunedu/2144013
9. Ruiz-Rodríguez M, Vera-Cala LM, López-Barbosa N. Seguro de Salud y Cobertura de Vacunación en Población Infantil con y sin Experiencia de Desplazamiento Forzado en Colombia. Rev Salud Pública [Internet]. enero de 2008 [citado 30 de agosto de 2022];10(1):49-61. Disponible en: http://www.scielo.org.co/scielo.php?script=sci_abstract&pid=S0124-00642008000100005&lng=en&nrm=iso&tlng=es
10. Allred NJ, Wooten KG, Kong Y. The association of health insurance and continuous primary care in the medical home on vaccination coverage for 19- to 35-month-old children. Pediatrics. febrero de 2007;119 Suppl 1:S4-11.
11. Damacen Bravo DN. Factores de riesgo del incumplimiento al calendario de vacunación en madres con niños menores de 5 años, puesto de salud Pedro Castro Alva, Chachapoyas- 2018. [Internet] [Tesis de grado]. Universidad Nacional Toribio Rodríguez de Mendoza - UNTRM; 2019 [citado 30 de agosto de 2022]. Disponible en: http://repositorio.untrm.edu.pe/handle/20.500.14077/1922
12. Villalobos Vásquez D. Factores que influyen en el cumplimiento del esquema de vacunación en niños menores de 2 años del Centro de Salud de Morales, provincia y región de San Martín, periodo octubre 2017 a febrero 2018 [Internet] [Tesis de grado]. Universidad Nacional de San Martín - Tarapoto; 2019 [citado 30 de agosto de 2022]. Disponible en: http://repositorio.unsm.edu.pe/handle/11458/3226
13. Amoroz Solaegui I. El derecho a la salud en comunidades indígenas del Estado de Chiapas. Rev Pueblos Front Digit [Internet]. junio de 2011 [citado 30 de agosto de 2022];6(11):8-37. Disponible en: http://www.scielo.org.mx/scielo.php?script=sci_abstract&pid=S1870-41152011000100008&lng=es&nrm=iso&tlng=es
14. Nureña CR. Incorporación del enfoque intercultural en el sistema de salud peruano: la atención del parto vertical. Rev Panam Salud Pública [Internet]. octubre de 2009 [citado 30 de agosto de 2022];26:368-76. Disponible en: https://scielosp.org/article/rpsp/2009.v26n4/368-376/es/
15. Contreras-Pulache H, Torres-Llaque S, Arévalo-León C, Freyre-Adrianzén L, Black-Tam C, Huapaya-Huertas O, et al. La salud en las comunidades nativas amazónicas del Perú. Rev Peru Epidemiol [Internet]. 2014 [citado 30 de agosto de 2022];18(1):1-5. Disponible en: https://www.redalyc.org/articulo.oa?id=203131355012
16. Muñoz-Trinidad J, Villalobos-Navarro A, Gómez-Chávez JR, Loera-Díaz IND, Nieto-Aguilar A, Macías-Galaviz MT. Razones del incumplimiento del esquema básico de vacunación en una comunidad rural de Aguascalientes. Lux Médica [Internet]. 3 de mayo de 2021 [citado 31 de agosto de 2022];16(47). Disponible en: https://revistas.uaa.mx/index.php/luxmedica/article/view/3149
17. Huané Celmi CM. Factores socioeconómicos maternos e incumplimiento del esquema de vacunación en niños menores de un año de edad, puesto de salud San Miguel de Aco, Carhuaz, 2018 [Internet] [Tesis de grado]. Universidad Nacional Santiago Antúnez de Mayolo; 2018 [citado 30 de agosto de 2022]. Disponible en: http://repositorio.unasam.edu.pe/handle/UNASAM/3380
18. Saavedra Tocto SJ. Factores Socioculturales Relacionados Al Cumplimiento Oportuno Del Esquema De Vacunación En Niños Menores De Cinco Años En El Centro De Salud San Ignacio, 2016. Univ Nac Cajamarca [Internet]. 2018 [citado 30 de agosto de 2022]; Disponible en: http://repositorio.unc.edu.pe/handle/20.500.14074/2186
19. Izquierdo Orosco R de F. Conocimiento de madres de niños menores de un año sobre inmunizaciones y el cumplimiento del calendario vacunal [Internet] [Tesis de grado]. Universidad Ricardo Palma; 2014 [citado 30 de agosto de 2022]. Disponible en: https://repositorio.urp.edu.pe/handle/20.500.14138/342
20. Barbacariu CL. Parents' Refusal to Vaccinate their Children: An Increasing Social Phenomenon Which Threatens Public Health. 5 de septiembre de 2014 [citado 30 de agosto de 2022]; Disponible en: https://www.sciencedirect.com/science/article/pii/S1877042814048411