FACTORS ASSOCIATED WITH POSTPARTUM COMPLICATIONS ACCORDING TO A DEMOGRAPHIC AND FAMILY HEALTH SURVEY IN PERU 2019-2020

FACTORES ASOCIADOS A COMPLICACIONES POST PARTO SEGÚN LA ENCUESTA DEMOGRÁFICA Y DE SALUD FAMILIAR EN PERÚ 2019-2020

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ORIGINAL PAPER

ABSTRACT

Introduction: Postpartum complications are important health problems in Peru, therefore it is necessary to determine their associated factors. **Objectives:** Determine the factors associated with postpartum complications in Peru during the years 2019 and 2020. **Methods:** Cross-sectional, analytical study, carried out from the analysis of the Demographic and Family Health Survey (ENDES) 2019-2020, of Peru. The unit of analysis was women between the ages of 12 and 49 residing in Peru in the years 2019-2020. Multivariate analysis was performed using Poisson regression with robust variance. **Results:** It is evidenced that the age of 20 to 35 years has a prevalence ratio of 1.12 of ending in complications after childbirth (PRa: 1.12, 95% CI: 1.07 to 1.18) compared to women who have 36 years and over. Having complications during childbirth has a 2.75 times higher prevalence of complications after childbirth (APR: 2.75, 95% CI: 2.64 to 2866). Having a degree of primary (RPa: 0.90, 95% CI: 0.84 to 0.96), secondary (RPa: 0.94, 95% CI: 0.89 to 0.98) education decreases the probability of having complications after childbirth compared to women with a higher level of education. and having a single marital status (APR 0.85, 95% CI: 0.76 to 0.94) decreases the probability of having complications after childbirth, compared to cohabitants. **Conclusion.** The prevalence of postpartum complications is regular. The factors associated with postpartum complications are: age, educational level, marital status and complications during childbirth.

Keywords: Puerperal Disorders; Postpartum Period; Postpartum Hemorrhage; Puerperal Infection. (Source: MESH-NLM)

RESUMEN

Introducción: Las complicaciones post parto son problemas de salud importante en el Perú, por lo tanto, es necesario determinar sus factores asociados. **Objetivos:** Determinar los factores asociados a las complicaciones post parto en Perú durante los años 2019 y 2020. **Métodos:** Estudio transversal, analítico, realizado a partir del análisis de la Encuesta Demográfica y de Salud Familiar (ENDES) 2019-2020, del Perú. La unidad de análisis fueron las mujeres de 12 a 49 años de edad residentes en el Perú en los años 2019-2020. Se realizó el análisis multivariado mediante regresión de Poisson con varianza robusta para hallar las razones de prevalencia crudas y ajustadas con sus respectivos intervalos de confianza al 95%. **Resultados:** La prevalencia de complicaciones post parto fue 37,7%. Se observó que la edad de 20 a 35 aumentó en 1,12 veces la prevalencia de terminar en complicaciones después del parto en comparación a las mujeres que tienen 36 años a más (RPa: 1,12, IC95%: 1,07 a 1,18). Tener complicaciones durante el parto aumenta en 2,75 veces la prevalencia de complicaciones en el post parto (RPa: 2,75, IC95%: 2,64 a 2866). Tener grado de instrucción primaria (RPa: 0,90, IC95%: 0,84 a 0,96) y secundaria (RPa: 0,94, IC95%: 0,89 a 0,98) disminuyen la prevalencia de tener complicaciones post parto en comparación al grado de instrucción superior; tener estado civil soltera disminuye la prevalencia (RPa 0,85, IC95%: 0,76 a 0,94) de tener complicaciones después del parto, frente al grupo de convivientes. **Conclusión.** La prevalencia de las complicaciones post parto es regular. Los factores asociados a las complicaciones post parto son: la edad, grado de instrucción, estado civil y complicaciones durante el parto.

Palabras clave: Trastornos Puerperales; Periodo Posparto; Hemorragia Posparto; Infección Puerperal. (Fuente: DeCS-BIREME)

INTRODUCTION

The Demographic and Family Health Survey - ENDES is a continuous statistical investigation that is carried out at the national level to obtain updated information about health indicators of the population. This survey is carried out by duly trained personnel, through direct interviews and through home visits to a representative sample of selected households to collect data on maternal and child health, use of health services, chronic non-communicable diseases, nutrition and other important aspects that can be used to follow up, propose health policies and programs. Likewise, this source of information, being freely accessible and having current and true information, can be used by the academic community for future research.

Obstetric complications are a cause of maternal morbidity and mortality worldwide, these can occur during pregnancy, childbirth, or the puerperium. Immediate, mediate and late postpartum complications are important events because it is a stage where physiological and emotional changes occur and the high mortality they produce [1]. In Peru, it was shown that in 2019 and 2020, the stage with the highest frequency of maternal mortality due to direct obstetric causes was the puerperium, with 59.7% and 63.3% respectively, with the leading causes being hemorrhage and sepsis with 55.7%. The highest amount of maternal mortality in 2020 was reported in the departments of Lima Metropolitan, Loreto, Ucayali, Lambayeque, La Libertad, Junín and Cusco[2,3].

Despite the fact that our country managed to reduce maternal mortality by 73%, it is still considered a great threat to pregnant women and constitutes an important public health problem. Therefore, it is essential to identify which complications can occur, and at what stage it can occur [4]. Although obstetric factors are the most studied, sociodemographic factors must also be taken into account, since they have been identified in some studies that are associated with higher maternal mortality, such as the prevalence in young people between 18 and 35 years old, with low socioeconomic status or low level of education, which make it difficult to access information and health services. Therefore, it is important to know the situation in which the Peruvian population finds itself in order to propose health policies that help to reduce morbidity and mortality[5].

The objective of this study is to determine the factors associated with postpartum complications, according to ENDES from 2019 to 2020, and thus contribute with results that help prevent and reduce maternal morbidity and mortality.

METHODS

Type and design

Quantitative, observational, retrospective, cross-sectional and analytical study, based on information from secondary sources contained in ENDES 2019-2020 public database.

Population and Sample

The study population is made up of all women between 12 and 49 years old residing in private homes in Peru in 2019-2020, who have presented complications after childbirth, and who answer the questions of the study variables found in the ENDES. Women who presented complications after 40 days of childbirth, women who answered "Don't know" in the questionnaire and who are residents in collective housing are excluded from the research. Due to the aforementioned criteria, a sample size of 18,115 women aged 12 to 49 years was obtained for the two years. The sample is characterized by being two-stage, probabilistic of a balanced, stratified and independent type, at the departmental level and by urban and rural area, according to the sample design of the Demographic and Family Health Survey(ENDES)2019-2020.

Variables and instruments

The study variables were established from the data present in the ENDES. For the dependent variable: postpartum complications, we included: heavy bleeding (hemorrhage), fainting or loss of consciousness, high fever and chills, breast infection (mastitis), painful urination (dysuria), vaginal discharge, and unintentional discharge of urine (urinary incontinence). For the independent variables, sociodemographic factors were included, which include age, ethnicity, level of education, marital status, type of place of residence, region and wealth index; obstetric factors, including postnatal checkups, cesarean delivery, delivery site, and postpartum complications; and the violence factor, both physical and emotional. Finally, the variables related to the sample design were taken into account, such as the weighting factor V005, conglomerate V001 and stratum V022.

Procedures

For data collection, the official website of the National Institute of Statistics and Informatics (INEI) of Peru was accessed https://www.inei.gob.pe/(6), then the microdata option was entered, consultation by surveys, and the ENDES options for the year 2019 and 2020 with a single period were selected. The files containing the necessary variables of the study were downloaded and a folder with the databases was created for its execution. The ENDES survey uses the survey as a technique and 3 questionnaires as an instrument.

Statistical analysis

For the elaboration and processing of the database, the statistical software SPSS version 26.0 was used. Qualitative variables were analyzed in frequency and contingency tables. To evaluate the association between qualitative or categorical variables, the corrected F statistic was used. As a measure for the evaluation of the risk factors, the crude prevalence ratio (PRc) with its respective confidence interval was used. Finally, the adjusted prevalence ratio (APR) was calculated through a Poisson regression model with robust variance. For the inferential analysis, a confidence level of 95% was used, a statistical significance of $p < 0.05$ and the CSPLAN analysis was elaborated for complex samples according to the sample design and considering the weighting factor, the conglomerate and the stratum.

Ethical aspects

This study is based on the analysis of information extracted from the ENDES database for 2019-2020, which is publicly accessible and the confidentiality of the participants is respected. Likewise, the present study was approved by the Research Ethics Committee of the "Manuel Huamán Guerrero" Facultad de Medicina Humana- Universidad Ricardo Palma, allowing the continuation of the study.

RESULTS

The initial sample consisted of 19,248 records, which, considering the inclusion and exclusion criteria, a sample size of 18,115 women aged 12 to 49 years was obtained, interviewed in the 2019-2020 Demographic and Family Health Survey.

The prevalence of postpartum complications in 2019-2020 is 37.7% of the total. In 2019, 38.1% of the women aged 12 to 49 presented complications after childbirth. Likewise, in 2020, 37.2% of women presented complications after childbirth. When carrying out the analysis of the geographical distribution of postpartum complications, it was found that the departments San Martín, Cusco, Apurímac, Arequipa, Ayacucho, Huancavelica, Madre de Dios, Pasco, Amazonas and La Libertad present a higher prevalence of 38,8%-42.5% of postpartum complications, followed by the departments of Moquegua, Junín, Ancash, Huánuco, Lambayeque and Loreto with a prevalence of 35.4%-38.8%. (Figure 1).
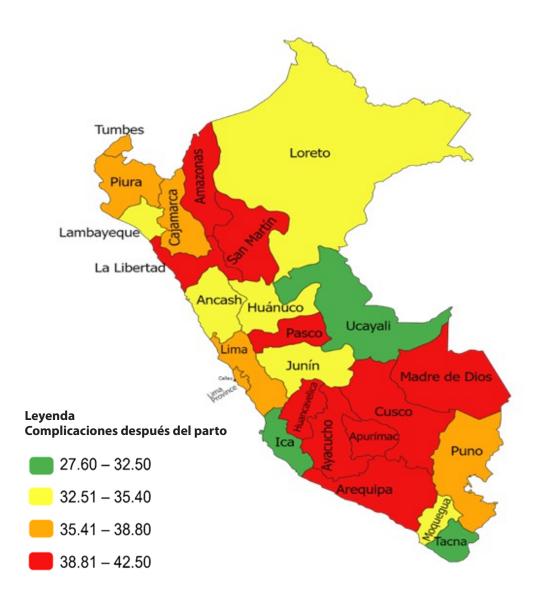
Leyenda
Complicaciones después del parto

- 27.60 – 32.50
- 32.51 – 35.40
- 35.41 – 38.80
- 38.81 – 42.50

Figure 1. Geographic distribution of complications after childbirth, in women aged 12 to 49 years, according to ENDES 2019-2020

Table 1. General characteristics of women aged 12 to 49, interviewed in the ENDES 2019-2020

Characteristic		n	%	Variation Coefficient (%)
Complications after delivery	No	11282	62.3	7.3
	Yes	6832	37.7	7.4
Age	12-19	774	4.3	8.5
	20-35	11810	65.2	7.3
	36 or more	5530	30.5	7.7

Ethnicity	Black	2212	12.2	9.2
	White	1493	8.2	9.9
	Mixed	9011	49.7	8.7
	Others	5399	29.8	7.5
Instruction level	Without education	233	1.3	12.9
	Elementary	3013	16.6	9.6
	Secondary	8388	46.3	7.6
	Superior	6481	35.8	9.0
Marital status	Single	902	5.0	7.9
	Married	4428	24.4	7.6
	Cohabitant	10731	59.2	7.5
	widow	17	0.1	27.1
	Divorced	24	0.1	28.2
	Separated	2012	11.1	7.9
Residency type of place	Urban	13607	75.1	8.7
	Rural	4507	24.9	13.0
	Total	18115	100,0	7,3
Region	Coast	10164	56.1	11.6
	Mountain	4793	26.5	8.1
	Jungle	3157	17.4	10.4
Economic earning	Total little earning	12261	67.7	6.8
	Higher earnings	5853	32.3	11.8
Postnatal checkups	No	386	2.1	22.7
	Yes	17729	97.9	7.3
Cesarean birth	Yes	6548	36.1	8.2
	No	11567	63.9	7.2
Place of birth	Public sector	12285	67.8	6.9
	Private sector	5830	32.2	9.9
Complications during childbirth	Yes	6018	33.2	7.5
	No	12097	66.8	7.3
Physical and emotional violence	Yes	12313	67.9	4.1
	No	5802	32.1	14.1
	Total	18115	100.0	7.3

The bivariate analysis of sociodemographic factors such as age, ethnicity, marital status and wealth index are statistically significantly associated with postpartum complications, with a p-value less than 0.050. There is evidence that being between 20 and 35 years of age (PR: 1.20, 95% CI: 0.99 to 1.21) increases the prevalence of postpartum complications. Regarding the wealth index variable: Low income (PR: 1.06, 95% CI: 1.01 to 1.10); being of black ethnicity (PR: 0.93, 95% CI: 0.87 to 0.99), mix race (PR 0.91, 95% CI 0.87 to 0.95) and marital status: single (PR: 0.8, 95% CI: 0.79 to 0.95) decreases the probability of having complications after childbirth. Analyzing the level of education: without education (PRc: 1.02, CI95%: 0.87 to 1.21), primary (PRc: 0.97, CI95%: 0.91 to 1.02) and secondary (PRc : 1.01, 95% CI: 0.97 to 1.06), type of place of residence: urban (PRc: 0.99, 95% CI: 0.95 to 1.03) and region: Coast (PRc: 1 .01, 95% CI: 0.96 to 1.07) and mountain (PRc: 1.04, 95% CI: 0.98 to 1.11) no statistical association was found because the confidence interval of the PR contains the unit. (Table No. 2).

Table 2. Bivariate analysis of sociodemographic factors associated with postpartum complications in women aged 12 to 49 years, according to ENDES 2019-2020.

Sociodemographic factors		Complications after childbirth						
		Yes		No		RPc	Ci95%	P-value
		Abs	%	Abs	%			
Age	12-19	283	4.1	491	4.4	1.10	0.99-1.21	
	20-35	4712	69.0	7099	62.9	1.20	1.14-1.25	<0.001
	36 or more	1838	26.9	3692	32.7	Ref.		
Ethnicity	Black	825	12.1	1387	12.3	0.93	0.87-0.99	
	White	578	8.5	914	8.1	0.97	0.90-1.04	
	Mixed	3277	48.0	5734	50.8	0.91	0.87-0.95	<0.001
	Others	2153	31.5	3246	28.8	Ref.		
Instruction level	Without education	90	1.3	143	1.3	1.02	0.87-1.21	
	Elementary	1098	16.1	1915	17.0	0.97	0.91-1.02	0.232
	Secondary	3210	47.0	5177	45.9	1.01	0.97-1.06	
	Superior	2434	35.6	4047	35.9	Ref.		
Marital status	Single	302	4.4	600	5.3	0.87	0.79-0.95	
	Married	1642	24.0	2787	24.7	0.96	0.9-1.008	
	Widow	8	0.1	9	0.1	1.22	0.73-2.02	0.025
	Divorced	6	0.1	18	0.2	0.65	0.32-1.30	
	Separated	746	10.9	1266	11.2	0.96	0.90-1.02	
	Cohabitant	4129	60.4	6602	58.5	Ref.		

		Yes Abs	Yes %	No Abs	No %	PRc	Ci95%	P-Value
Residency type of place	Urbano	5123	75.0	8485	75.2	0.99	0.95-1.03	0.738
	Rural	1710	25.0	2798	24.8	Ref.		
Region	Coast	3813	55.8	6352	56.3	1.01	0.96-1.07	0.189
	Mountain	1854	27.1	2939	26.1	1.04	0.98-1.11	
	Jungle	1166	17.1	1991	17.6	Ref.		
Economic earning	little earning	4710	68.9	7551	66.9	1.06	1.01-1.10	0.005
	Higher earnings	2122	31.1	3731	33.1	Ref.		
	Total	6832	100.0	1282	00.0			

*Significant
PRc: crude prevalence ratio
Ci95%: confidence interval at 95%
Ref: reference category

Obstetric factors such as postnatal checkups, place of delivery, complications during childbirth and violence factor, both physical and emotional, are associated in a statistically significant way with postpartum complications, with a p-value less than 0.050. It is evident that the following factors increase the prevalence of postpartum complications: Failure to present postnatal check-ups (PRc: 1.16, 95% CI: 1.03 to 1.30), place of delivery: public sector (PRc: 1.06 , 95% CI: 1.02 to 1.11) and having developed complications during childbirth. (PRc: 2.79, CI95%: 2.69 to 2.89), physical and emotional violence (PRc: 1.05, CI95%: 1.01 to 1.09). Regarding having a cesarean delivery (PRc: 0.96, 95% CI: 0.92 to 0.99), the probability of having complications after delivery decreases. (Table No. 3).

Table 3. Bivariate analysis of obstetric factors and the violence factor associated with postpartum complications in women aged 12 to 49 years, according to ENDES 2019-2020.

Obstetric factors and violence factor		Complications after childbirth				RPc	Ci95%	P-Value
		Yes		No				
		Abs	%	Abs	%			
Postnatal checkups	No	169	2.5	217	1.9	1.16	1.03-1.30	
	Yes	6663	97.5	11065	98.1	Ref.		0.001*
Cesarean birth	Yes	2407	35.2	4141	36.7	0.96	0.92-0.99	
	No	4426	64.8	7141	63.3	Ref.		0.029*
Place of birth	Public sector	4727	69.2	7558	67.0	1.06	1.02-1.11	
	Private sector	2106	30.8	3724	33.0	Ref.		0.003*

Complications during childbirth	Yes	3972	58.1	2045	18.1	2.79	2.69-2.89
	No	2860	41.9	9237	81.9	Ref.	0.000*
Violence physical and emotional	Yes	4720	69.1	7593	67.3	1.05	1.01-1.09
	No	2112	30.9	3689	32.7	Ref.	0.009*
	Total	6832	100.0	11282	100.0		

Prc: crude prevalence ratio

Ci95%: confidence interval at 95%

Ref: reference category

The results of the multivariate analysis show that the age of 20 to 35 years has a prevalence ratio of 1.12 of ending in complications after childbirth (PRa: 1.12, 95% CI: 1.07 to 1.18). Having complications during childbirth is 2.75 times more prevalent than complications after childbirth (PRa: 2.75, CI95%: 2.64 to 2866).

Have a primary education level (RPa: 0.90, 95% CI: 0.84 to 0.96), secondary education (RPa: 0.94, 95% CI: 0.89 to 0.98) and have a single marital status (RPa 0.852, 95% CI: 0.76 to 0.94) decrease the probability of having complications after childbirth. (Table No. 4).

Table 4. Multivariate analysis of the factors associated with postpartum complications in women aged 12 to 49 years, according to ENDES 2019-2020.

Associated factors		Complications after childbirth		
		RPa	Ci95%	P Value
Sociodemographic				
Age	12-19	1.04	0.93-1.16	0.443
	20-35	1.12	1.07-1.18	0.000*
	36 or more	Ref.		
Ethnicity	Black	0.97	0.91-1.03	0.429
	White	1.01	0.94-1.08	0.686
	Others	0.95	0.91-1.00	0.082
	Mixed	Ref.		
Instruction level	Without education	0.93	0.79-1.08	0.354
	Elementary	0.90	0.84-0.96	0.004*
	Secundary	0.94	0.89-0.98	0.015*
	Superior	Ref.		

Associated factors		RPa	Ci95%	P- Value
Marital status	Soltera	0,85	0,76-0,94	0,003*
	Casada	0,96	0,91-1,01	0,128
	Viuda	1,28	0,784-2,091	0,324
	Divorciada	0,64	0,29-1,36	0,249
	Separada	0,98	0,91-1,05	0,595
	Conviviente	Ref.		
Residency type of place	Urbano	1,00	0,94-1,05	0,997
	Rural	Ref.		
Region	Costa	0,98	0,92-1,05	0,683
	Sierra	0,96	0,90-1,02	0,273
	Selva	Ref.		
Economic earning	Pocos ingresos	1,02	0,97-1,08	0,258
	Mayores ingresos	Ref.		

Associated factors	Complications after childbirth		
	RPa	Ci95%	P- Value

DISCUSSION

In the present manuscript, regarding the prevalence of postpartum complications in women aged 12 to 49 years, according to ENDES 2019 and 2020, it is evident that of the total sample (18,115), 37.70% did present complications after childbirth, and 62.30% did not present them. At national level, these figures are similar to those obtained by Méndez and Morales according to ENDES 2017 to 2019, where the prevalence of postpartum maternal obstetric complications in the total sample was 28.7%[7]. Pereira, in his research carried out at the Hospital Maria Auxiliadora Hospital, showed a prevalence of 33.3% of postpartum complications and Vargas found a prevalence of postpartum complications of 13.8% at the Hospital Nacional Arzobispo Loayza[8,9].

Regarding international studies, Villarreal, at the Historic Center Health Center in Quito, observed that 12% of women presented some complication during the puerperium [10]. Likewise, in the study by Páez and Romero in Bogotá-Colombia, it was shown that 6.3% of the pregnant women attended in the high complexity hospital presented puerperal complications[12].

The prevalence obtained in our study together with the obtained in other national studies, have a higher percentage of puerperal complications unlike international studies, this could be due to the fact that in our country no greater measures and health policies have been taken for adequate care during the stage of pregnancy, through an adequate diagnosis, stabilization and timely referral to an establishment with greater resolution capacity [13].

Age in the range of 20 to 35 years old is a sociodemographic factor associated with postpartum complications ($p < 0.05$). These results are similar to the study carried out at the national level by Vargas, who reported that the age group with the highest prevalence was between 18 and 35 years with 78.9%[10]. Zegarra, in his study, observes that the women who had the highest frequency of puerperal complications were in the group of 25 to 29 years, representing 25.1% of the population, but analyzing the 8 age groups used in his study, it is evident that 3 age groups that cover the ages between 20 to 34 years are the ones with the highest frequency of puerperal complications[14].

At the international level, Villarreal in his study, observed that 37% of women aged between 20 and 24 years had a higher percentage of complications after childbirth[11]. This could be explained due to the lack of information of the young women about the warning signs and postpartum care[14]. Our results differ from studies, like Paéz and Romero's study for example, where the group older than 35 years was the most frequent with postpartum complications with 9.5%[11].

Otherwise, Martínez and Brizuela, obtained a prevalence of 32% of complications in the puerperium in the age group between 15 and 19 years (14). Furthermore, Sikder et al, showed in their multivariate analysis that women under 18 years of age (relative risk ratio [RRR] 1.26; 95% CI: 1.14-1.39) and over 35 years of age (RRR 1.23 95% CI: 1.09-1.38), significantly increased the risk of having obstetric complications during the puerperium[16].

The education level is a sociodemographic factor associated with complications after childbirth. Having Primary (PRa: 0.90, CI95%: 0.84 to 0.96) and Complete Secondary (PRa: 0.94, CI95%: 0.89 to 0.98) decreases the probability of having complications after childbirth. This differs from Naula et al, who carried out their study at the Vicente Corral Moscoso hospital, in Cuenca-Ecuador, and observed that the complete secondary level predominated in the population of puerperal women who presented complications (47.2%), being these among the most frequent characteristics of your study[16].

At the national level, Delgado observed that postpartum women who had complications were characterized by having completed secondary education in 29.89%[18]. Méndez and Morales determined the education level of women in the puerperium; mothers with no studies or with primary education (PR= 0.84; 95% CI= 0.78 – 0.90) and women with secondary education (PR= 0.93; 95% CI= 0.89 – 0.98) are less likely to present complications during the puerperium[8]. These data are compatible with the results of our study. Quispe showed that the puerperal women with the lowest percentage of bleeding complications had only primary level, representing 1.7% of the total of the educational level variable[19].

Our results could be due to the fact that the group of women with primary and secondary level surveyed did not understand well the interviewer's question about the symptoms of complications, they may have underestimated the intensity of the symptoms and did not consider them as a complication.

Marital status is an associated sociodemographic factor (p value <0.05). Being single (OR: 0.87, 95% CI: 0.79 to 0.95) decreases the probability of having complications after childbirth. This result coincides with international studies by Páez and Romero, where they showed that women with single marital status were the ones who presented the lowest percentage of puerperal complications with 23.8%[12]. Unlike Villarreal, the group of women with single marital status obtained 37%, being the group with the highest percentage of complications after childbirth[11]. Likewise, Martinez and Brizuela in their study, observed that women with complications during the puerperium with single marital status reached 37.3%, being the second highest group within the marital status variable (14). Naula et al, report that women with postpartum complications with married marital status and free union predominated with 42.5% and 43% respectively[11]. Our result could be explained by the fact that many of the single mothers in Peru have family support in terms of education, food, maintenance and protection, so they can go to health centers for postnatal medical check-ups[20].

Regarding complications during childbirth, an association was found with complications after childbirth (p value <0.05). These include prolonged labor, excessive bleeding, fever with vaginal bleeding, seizures, and others. The Vargas study shows that 61% of patients with postpartum hemorrhage had a prolonged delivery. Likewise, it was recorded that 95.6% of women with postpartum complications presented excessive bleeding during childbirth[10]. Huvin concludes that having had complications during childbirth is significantly associated with puerperal complications in Peruvian women, this being one of the main risk factors in their study, since they have a 2.25-fold probability of presenting complications during the puerperium. (p= 0.001) (20). Montenegro and Arango analyzed the perinatal variables in their study, where significance was only obtained for the presence of complications during childbirth, with an OR of 6.98 and a value of p=0.000[21]. This is due to the fact that the main

puerperal pathologies that cause the highest mortality occur just after childbirth, in the immediate puerperium. Therefore, if complications occur during labor, they could influence the development of complications during the puerperium.

The main limitation of this research is that there was no access to hospital centers, so we worked with a source of secondary data, generating a limitation when choosing the study variables, such as postpartum complications, for this reason we did not could add more variables of importance. Furthermore, as it was a retrospective cross-sectional study, the association could be established, but not the causality between the

variables studied. It is recommended to carry out prospective studies that identify other associated factors, this will be very helpful to identify patients with a high risk and thus intervene effectively to reduce the epidemiological impact of these complications on maternal morbidity and mortality both nationally and internationally.

CONCLUSION

In conclusion, the factors associated with postpartum complications, according to the ENDES, Peru - 2019-2020, are age and complications during childbirth. The level of education and marital status were found to be protective factors.

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INDEXACIONES

INICIB PROMOVIENDO LA INVESTIGACIÓN DE CALIDAD

TALLERES DE CAPACITACIÓN
DEL REGISTRO PARA: