Original Article

Knowledge, attitudes and practices of pregnant mothers about anemia at the Centro de Salud San Luis - 2022, Lima

Conocimientos, actitudes y prácticas de madres gestantes sobre la anemia en el Centro de Salud San Luis - 2022, Lima

Rocío Alejo   Maria Paz Castro

rocioalejopinto.311@gmail.com

Universidad Le Cordon Bleu. Lima, Peru.

ABSTRACT

The objective of this study was to determine the level of knowledge, attitudes, and practices regarding anemia among pregnant women attending the San Luis Health Center. The research was quantitative, descriptive-correlational, and cross-sectional in design. A total of 77 pregnant women who attended prenatal checkups during January–February 2023 participated in the study. A validated questionnaire was administered, consisting of two sections: general information and dietary regimen. The results showed that hemoglobin levels among the pregnant women were distributed as follows: 61.1% (47) without anemia, 31.1% (24) with mild anemia, and 7.8% (6) with moderate anemia. Regarding knowledge, 58.4% (45) demonstrated good knowledge, 37.7% (29) regular knowledge, and 3.9% (3) poor knowledge. In terms of attitudes, 93.5% (72) showed positive attitudes and 6.5% (5) negative attitudes. Finally, with respect to practices, 97.4% (75) reported adequate practices and 2.6% (2) inadequate practices. Data were analyzed using Jamovi software version 2.6.22 through the chi-square test, which revealed a significant relationship between anemia level and knowledge, attitudes, and practices. Overall, the findings indicate that the pregnant women had good knowledge, positive attitudes, and adequate practices regarding anemia.

Keywords: Anemia, pregnant women, knowledge, attitudes, practices.

RESUMEN

El objetivo de este estudio es determinar el nivel de conocimiento, actitudes y prácticas sobre la anemia en las gestantes del Centro de Salud San Luis. La investigación fue de tipo cuantitativa, descriptiva orrelacional y con un enfoque transversal. El total de las participantes fueron 77 gestantes que acudían a sus controles prenatales en los meses de

enero-febrero (2023). Se les entregó un cuestionario validado distribuido en 2 partes, los datos generales y régimen dietario. Se obtuvo que los porcentajes de hemoglobina en las gestantes son 61,1 % (47) sin anemia, 31,1 % (24) anemia leve y 7,8 % (6) anemia moderada. En cuanto a sus conocimientos se obtuvo que el 58,4 % (45) fue bueno, 37,7 % (29) regular y 3,9 % (3) malo. Acerca de sus actitudes el 93,5 % (72) fue positiva y el 6,5 % (5) negativas. Por último, en sus prácticas el 97,4 % (75) adecuadas y 2,6 % (2) inadecuadas. Se analizaron los datos con el programa Jamovi versión 2.6.22 mediante la prueba del chi cuadrado y se encontró una relación significativa entre el nivel de anemia y los conocimientos, actitudes y prácticas. Además, se obtuvo como resultado que las gestantes tenían conocimientos buenos, actitudes positivas y prácticas adecuadas acerca de la anemia.

Palabra clave: Anemia, gestantes, conocimientos, actitudes, prácticas.

INTRODUCTION

In Peru, there is a high prevalence of anemia at different stages of life. One of the most vulnerable stages is pregnancy, since the expectant mother must maintain sufficient hemoglobin levels both for herself and for the developing fetus. For this reason, constant attention must be paid to the diet of pregnant women, in addition to reminding them of the importance of undergoing hemoglobin testing at the indicated times (Taipe, 2019). It is important to consider that there are different levels of anemia and that, during pregnancy, reference values differ from those of non-pregnant women, as the type of treatment required depends on these values. According to the World Health Organization (WHO), anemia in pregnant women is diagnosed when hemoglobin levels are < 11 g/dL. When anemia is mild (10–10.9 g/dL), in most cases it can be corrected solely through an adequate iron-rich diet; however, when anemia is moderate (9–9.9 g/dL) or severe (< 7 g/dL), dietary improvement must be complemented with supplementation and, in some cases, blood transfusions.There are also different types of anemia, among which iron-deficiency anemia is the most common and best known, as it is caused by iron deficiency.

When experienced during pregnancy, some of its consequences may include low birth weight, postpartum depression, increased risk of neonatal mortality, among others. According to the Demographic and Family Health Survey (ENDES, 2021), 18.8% of women aged 15 to 49 years suffered from anemia. This figure is particularly relevant, as it corresponds approximately to women of reproductive age. Likewise, according to the National Institute of Health (INS), of the 220,632 pregnant women who attended Ministry of Health (MINSA) health facilities between January and December 2021, 20.6% had anemia; of these cases, 12.1% corresponded to mild anemia, 8.2% to moderate anemia, and 0.3% to severe anemia. It is important to emphasize that all cases of anemia must be addressed promptly, regardless of whether they are mild, moderate, or severe.

For this reason, it was considered highly important to assess, through a survey conducted with prior informed consent, the knowledge, attitudes, and practices of pregnant women. This approach allows for a clearer understanding of how much they know about anemia, about iron-rich foods, and about compliance with pre-

natal nutritional care appointments at the indicated times (approximately six visits during pregnancy). In this way, anemia can be prevented or treated, thereby avoiding the aforementioned consequences for both the mother and the baby. The objective of this study was to determine the knowledge, attitudes, and practices regarding anemia among pregnant women attended at the "San Luis" Health Center during January and February 2023.

MATERIALS AND METHODS

For the development of this research, a questionnaire validated by Diez and Guerrero in 2011 was used. The instrument consists of two sections: the first addresses general data of the pregnant women, and the second corresponds to the dietary regimen questionnaire, which includes questions related to knowledge, attitudes, and practices. To initiate data collection, authorization was requested from the head of the San Luis Health Center, and all guidelines and protocols established in the Research Ethics Code of Universidad Le Cordon Bleu were followed (Resolution No. 078-CU-ULCB-2021).

After obtaining authorization, during January and February 2023, informed consent was requested from pregnant women receiving care at the "San Luis" Health Center to participate in the study. They were informed that the survey was being conducted by students from the Nutrition and Dietetics program at Universidad Le Cordon Bleu. Inclusion criteria required participants to agree to take part in the study, be in the second or third trimester of pregnancy, and receive care at the "San Luis" Health Center. Exclusion criteria included being in the first trimester of pregnancy, having any pathology, or having a multiple pregnancy. At the end of the data

collection period, information from 100 pregnant women was obtained, of which 77 met the inclusion and exclusion criteria.

For the construction of cross-tabulations, data obtained from the surveys were processed using Jamovi software version 2.6.22, applying the chi-square test.

RESULTS AND DISCUSSION

Figure 1 shows that 58.4% (45) of the surveyed pregnant women had a good level of knowledge, 37.7% (29) had a regular level, and 3.9% (3) had a poor level. In contrast, Aldana L. (2019) reported that 56.3% of pregnant women had a medium level of knowledge, 32.5% had a low level, and 11.2% had a high level. It is worth noting that the study by Aldana L. (2019) was conducted in Huancavelica, and according to the National Institute of Health (INS, 2023), this department ranked third nationwide in 2023 for the highest number of anemia cases among pregnant women, with a total prevalence of 27.16%. The lack of knowledge may be associated with insufficient guidance from health professionals.

Figure 2 shows that 93.5% (72) of the surveyed pregnant women had positive attitudes, while 6.5% (5) exhibited negative attitudes. In contrast, the study by Fernández and Huamán (2019) reported that 70% of pregnant women had an indifferent attitude, 18.3% a favorable attitude, and 11.7% an unfavorable attitude toward anemia prevention. Unlike the present study, the research conducted by Fernández and Huamán (2019) involved adolescents aged 14 to 19 years. This difference could indicate a lack of interest in that population and may also be related to insufficient knowledge about the consequences of gestational anemia, such as preterm birth, growth retardation, and cardiac problems, among others.
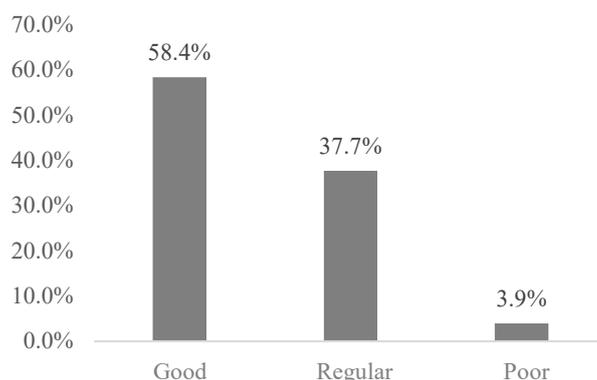
Figure 1. Classification of the Level of Knowledge of Pregnant Women Regarding Anemia
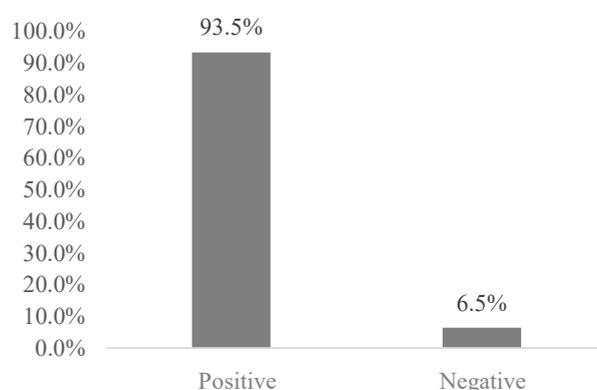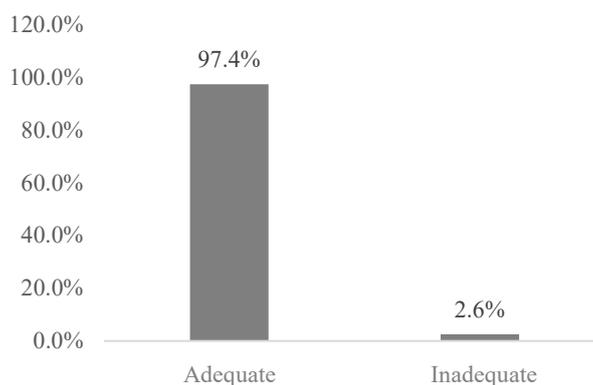

Figure 2. Classification Regarding the Attitudes of Pregnant Women Toward Anemia

Figure 3 shows that 97.4% (75) of the surveyed pregnant women demonstrate adequate practices for the prevention of anemia, while 2.6% (2) exhibit inadequate practices. In contrast, Huamán, T., and Contreras, E. (2022) reported that 73.4% of the pregnant women surveyed had poor practices and 26.6% had good practices. Poor practices may be associated with various factors, such as insufficient knowledge, limited access to food, low economic resources, among others.

Table 1 shows the relationship between knowledge levels and anemia status among pregnant women. Twenty-eight res-

pondents with good knowledge do not have anemia, 14 present mild anemia, and 3 have moderate anemia. It is also shown that 2 pregnant women with moderate anemia have a poor level of knowledge. According to the chi-square test performed (χ^2 = 15.6; p > 0.05), there is a significant relationship between the variables.

Table 2 shows the relationship between attitudes and anemia level. Among the surveyed pregnant women, 44 with positive attitudes do not have anemia, 24 have mild anemia, and 3 have moderate anemia. In turn, 3 pregnant women with negative attitudes present moderate anemia. Ac-

Figure 3. Classification Regarding Women's Practices Toward Anemia

Table 1.
Relationship Between Knowledge and Anemia Level

| KNOWLEDGE | ANEMIA LEVEL | | | | Chi-square test (X²) | | |
	NO ANEMIA	MILD ANEMIA	MODERATE ANEMIA	Total			
							p-value
					Valor	df	value
GOOD	28	14	3	45			
REGULAR	18	10	1	29			
POOR	1	0	2	3	X² 15.6	4	0.004
Total	47	24	6	77	N 77		

cording to the chi-square test ($\chi^2 = 17$; p > 0.05), there is a significant relationship between the variables.

Similarly, Godoy *et al.* (2019) reported a p-value of 0.000 when relating attitudes to anemia levels in pregnant women, indicating a significant association between the variables.

Table 3 presents the relationship between practices and anemia levels among the surveyed pregnant women. Of the par-

ticipants, 47 with adequate practices do not have anemia, 23 have mild anemia, and 4 have moderate anemia, while 2 pregnant women with inadequate practices present moderate anemia. According to the chi-square test ($\chi^2 = 15.8$; p > 0.05), the variables show a significant relationship. In contrast, Yurivilca (2024) reported a chi-square value of 5.689 and a p-value of 0.058 when analyzing the same variables, concluding that there was no significant relationship.

Table 2.

Relationship Between Attitudes and Level of Anemia

ATTITUDE	ANEMIA LEVEL			Total	Chi-square test (X^2)			
	NO ANEMIA	MILD ANEMIA	MODERATE ANEMIA			Valor	df	p-value
POSITIVE	44	24	3	71				
NEGATIVE	3	0	3	6	X^2	17	2	<.001
Total	47	24	6	77	N	77		

Table 3.

Relationship Between Practices and Level of Anemia

PRACTICES	ANEMIA LEVEL			Total	Chi-square test (X^2)			
	NO ANEMIA	MILD ANEMIA	MODERATE ANEMIA			Valor	df	p-value
ADEQUATE	47	23	4	74				
INADEQUATE	0	1	2	3	X^2	15.8	2	<.001
Total	47	24	6	77	N	77		

CONCLUSIONS

Most pregnant women demonstrate good knowledge, positive attitudes, and adequate practices regarding anemia. This is likely because they attended their prenatal checkups, consumed iron-rich foods, and prepared them taking into account factors that enhance or inhibit nutrient absorption.

Furthermore, the chi-square test results revealed a significant relationship between anemia levels and knowledge, suggesting that pregnant women applied the knowledge they had acquired to prevent anemia. The relationship between anemia levels and attitudes may be explained by the women's interest and adherence to the recommendations provided by healthcare personnel during prenatal visits. Finally, the association between practices and anemia levels may be attributed to the frequent consumption of iron-rich foods, complemented with sources of vitamin C to ensure adequate iron absorption.

REFERENCES

Aldana, L. (2019). Conocimiento sobre anemia en gestantes atendidas en el Centro de Salud Concepción 2019. [Tesis para optar por el título de Especialista en Salud Familiar y Comunitaria, Universidad Nacional de Huancavelica] Repositorio institucional de la Universidad Nacional de Huancavelica. https://apirepositorio. unh.edu. pe/server/api/core/bitstreams/fa519e5e-c608-4c24-b31c-a9a c998ba111/ content

Ayala, F., and Ayala, D. (2019). Implicancias clínicas de la anemia durante la gestación. *Revista Peruana de Ginecología y Obstetricia, 65*(4), 487-488. https://doi.org/10.31403/rpgo.v65i2209

Diez K., and Guerrero, L. (2011). Conocimientos, actitudes y prácticas en puérperas sobre el régimen dietario con hierro y su relación con la anemia en la gestación, Instituto Nacional Materno Perinatal 2010. [Tesis para optar por el título de Licenciada en Obstetricia, Universidad Nacional Mayor de San Marcos, Perú] Repositorio institucional de la Universidad Nacional Mayor de San Marcos https://cybertesis. unmsm. edu.pe/item/88c10985-e1cb-4b7a-b925-2b1571fbf255

Fernández, K., and Huamán, B. (2019). Nivel de conocimiento, actitudes y prácticas preventivas sobre la anemia en gestantes adolescentes, Micro Red Trujillo Metropolitano 2019. [Tesis para optar el titulo profesional de Licenciada en Enfermería, Universidad César Vallejo, Perú.] Repositorio institucional de la Universidad Cesar Vallejo https://repositorio.ucv.edu.pe/bitstream/ handle/20.500.12692/40480/Fern%C3%A1ndez_YKC-Huam%C3%A1n_JBM. pdf?sequence=1&isAllowed=y

Godoy, E., Concori, G., Llanca, L., & Salazar, M. (2019). Relación entre el nivel de conocimientos y actitudes sobre la alimentación saludable y el nivel de anemia en gestantes en Tacna. *Revista médica Basadrina, 13*(2), 41-46 https://doi.org/10.33326/26176068.2019.2.880

Huamán, T., and Contreras, E. (2022). Prácticas sobre alimentación en el embarazo y su relación con la anemia ferropénica en gestantes a término en el Centro de Salud Las Moras Huanuco - 2020. [Tesis para optar por el título de Obstetra, Universidad Nacional Hermilio Valdizán, Perú] Repositorio institucional de la Universidad Nacional Hemilio Valdizán https://repositorio.unheval.edu.pe/item/da2405e1- 4dd8-4040-a307-e86fc2a864a1

Instituto Nacional de Estadísticas e Informática (INEI). (2022). Encuesta Demográfica y de Salud Familiar (ENDES), 2021.https://proyectos.inei.gob.pe/endes/2020/ INFORME_PRINCIPAL_2020/INFORME_PRINCIPAL_ENDES_2020.pdf

Instituto Nacional de Salud (INS). (2023). Perú: Anemia en gestantes que accedieron a los establecimientos de salud por niveles, según departamento, periodo: enero a diciembre 2023. https://www.gob.pe/institucion/ins/ buscador?term=anemia%2B-gestantes%2B2023&institucion=ins&topic_ id&contenido&sort_by=none

R Core Team (2024). R: A Language and environment for statistical computing. (Version 4.4) [Computer software]. Retrieved from https://cran.r-project.org. (R packages retrieved from https://cran.r-project.org/

Taipe, R. (2019). Anemia en el primer control de gestantes en un centro de salud de Lima, Perú y su relación con el estado nutricional pregestacional. http://dx.doi.org/10.24265/horizmed.2019.v19n2.02

The Jamovi Project (2024). jamovi. (Version 2.6) [Computer Software]. Retrieved from https://www.jamovi.org

Author Contribution Statement

• Alejo, R.: Conceptualization; writing; methodology; review and editing; statistical analysis; project administration.

• Castro, M.: Conceptualization; writing; methodology; review and editing; statistical analysis; project administration.

Funding / Acknowledgments