ORIGINAL ARTICLE

Family Health Strategy and prevalence of anemia in women in an urban region of high Human Development Index

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Manuscript received: September 2018
Manuscript accepted: August 2019
Version of record online: October 2019

Abstract

Introduction: Iron deficiency anemia is a major public health problem.

Objective: To analyze the hemoglobin value and the prevalence of anemia in women in reproductive age, mothers of children enrolled in municipal day care centers in a municipality with a high Human Development Index, in the Southeast region of Brazil, and related factors, including being attended by the Family Health Strategy.

Method: This is a cross-sectional study with a sample of 230 women between 15 and 49 years old. Data collection was performed through a form, addressing socioeconomic variables and maternal health. It was verified: weight, height and hemoglobin concentration dosage. Results: The prevalence of anemia in women was 9.6%, with an average hemoglobin concentration of 14.6 g / dL. In the bivariate analysis, the following variables were associated with anemia: age, having a disease, obstetric complications in the pregnancy of the studied child and, as a protective factor, being in the Family Health Strategy program. In the binary logistic analysis, only being met by the Family Health Strategy proved to be a significant protective effect against anemia (OR = 0.391, p <0.05).

Conclusion: Although there is a slight prevalence of anemia, according to World Health Organization criteria, in urban areas with a high Human Development Index, well-conducted health care policies, the Family Health Strategy in particular can contribute to further reduce plus the prevalence of this condition in the health of women of reproductive age.

Keywords: iron deficiency anemia, woman, prevalence, family health strategy

Authors summary

Why was this study done?
This study was conducted to analyze the hemoglobin rate and the prevalence of iron deficiency anemia in mothers with children under five years of age in a municipality with a high Human Development Index.

What did the researchers do and find?
The researchers conducted a cross-sectional analytical study of 230 reproductive-age biological mothers (ages 15-49) by collecting anthropometric measurements, blood samples, and sociodemographic data.
The prevalence of anemia in women was 9.6%, with a mean hemoglobin concentration of 14.6 g/dL. In the bivariate analysis, the following variables were associated with anemia: age, having a disease, obstetric complications in the pregnancy of the studied child and, as a protective factor, being in the Family Health Strategy program. In the binary logistic analysis, only being met by the Family Health Strategy proved to be a significant protective effect against anemia (OR = 0.391, p <0.05).

What do these findings mean?
Although there is a slight prevalence, by WHO criteria, of anemia in an urban area of high HDI, well-conducted health care policies, the Family Health Strategy in particular, can contribute to further reduce the prevalence of this health problem in women of reproductive age.

INTRODUCTION

Anemia is defined as hemoglobin concentration [Hb] below a standard value that considers age, gender and physiological status[1,2]. Although many causes may lead to anemia, the United Nations[3] has estimated that iron deficiency may account for 90% of the cases in which it occurs. Thus, in 1977[4], in population studies, it became synonymous with iron deficiency anemia[3].

Anemia may occur due to poor intake and or low nutrient absorption potential, as well as increased iron requirements and excess losses[5].

Anemia often affects a large part of the population[1], and its prevalence varies greatly worldwide[6]. The estimated worldwide prevalence of anemia in the period 1993-2005 was 24.8% for the general population and 30.2% for non-pregnant women[7].

The population groups most affected by iron deficiency are: pregnant women, infants, preschool children and non-pregnant women of reproductive age, between 15 and 49 years old[1,5,8].

According to the World Health Organization (WHO), the severity of anemia in a country or region should be classified according to its population prevalence. WHO classifies as normal or acceptable a prevalence below ≤4.9; as mild, from 5 to 19.9%; moderate, from 20 to 39.9%; and severe >40%[1].

Although anemia affects populations worldwide, the numbers are higher in developing countries, where deficient dietary patterns and adverse environmental factors predominate, which favors the high prevalence of infectious and parasitic processes, due to the economic and social situation.

The prevalence of anemia in women in reproductive age is indicative of the status of familial iron deficiency, as it is up to women to choose and prepare daily food, common to all residents, which is arguably the determining factor. of anemia. In turn, food consumption is mediated by socioeconomic and health factors.

In addition to these factors, anemia in women can also occur due to chronic inflammatory diseases, gynecological problems and hemoglobinopathies that, according to Kassebaum *et al*.[9], in Latin America would account for about 1/3 of the cases.

On the other hand, women's hemoglobin concentration indicates adverse risks that may occur in the reproductive process, as they are more visible and deleterious during this period, which identifies pregnant women as the vulnerable group indicating anemia. Low birth weight and risk of premature birth are two examples related to the severity of anemia[10].

Thus, the objective is to estimate the prevalence of anemia in women of reproductive age and its associated factors, which are met by the Family Health Strategy (FHS) of a municipality with a high Human Development Index (HDI).

METHODS

This is a cross-sectional analytical study11 involving women of reproductive age (between 15 and 49 years old), mothers of children aged 20 to 53 months enrolled in Taubaté day care centers in 2014.

The municipality of Taubaté had an HDI in 2010 of 0.800, which represents the 40th place among Brazilian municipalities, and was classified by the United Nations Development Program (UNDP) in terms of quality of life[12].

Data collection took place from November 2014 to March 2015, after the participants signed their agreement to the Informed Consent Term. The women filled out a standardized form that addressed sociodemographic and health issues and then anthropometric measurements were taken and blood drawn.

The capillary blood sample was obtained by puncture with a disposable lancet and then read directly on an Agabe® portable hemoglobinometer[13].

Sample size was calculated from an estimated anemia prevalence of 15%, assuming a standard error of 2 percentage points for a 95% confidence interval, resulting in an estimate of a minimum required sample of 207%. women.

Cluster sampling was probabilistic and randomized based on the list of day care centers provided by the municipality's Department of Education. The sample unit was the day care center and, among the 56 existing day care centers, the first 13 drawn completed the sample lot, making a total of 230 women.

The dependent variable was hemoglobin concentration, and the independent variables were: age,

education, marital status, number of pregnancies, obstetric complications, history of morbidity, nutritional status, work status, family income, receiving the Bolsa Família social benefit, care Family Health Strategy and place of residence.

The classification as vulnerable or at risk for the housing region was based on data from the municipality's own income and education survey, which divided the city into two regions: vulnerable, with an average household income of up to 1.35 minimum wage, and wealthy, with income above that value[14].

Comparisons of relative frequencies between anemic and non-anemic women were performed by Chi Square or Fischer's Exact tests. Confidence interval of 95% for anemia prevalence and mean hemoglobin concentration was also calculated.

After the bivariate analysis, multiple variables were analyzed by inserting in the StepWise binary logistic regression model, Wald's backward variable, the dependent variable presence or absence of anemia, according to the WHO defined criteria of 12.0g/L for non pregnant women[15].

Logistic binary analysis included variables that, in the bivariate analysis, presented $p \leq 0.20$, and also those that, clinically or epidemiologically, had a very plausible association with the presence of anemia. The significance level adopted was $p \leq 0.05$.

The research project was approved by the Research Ethics Committee of the School of Public Health, University of São Paulo, under nº 773.287, and had the formal agreement of the participants.

■ RESULTS

Among the 230 women evaluated, anemia was found in 9.6% of them and the average hemoglobin concentration was 14.6 g/dL (95% CI: 14.3 to 14.9).

The bivariate analysis showed an association with the presence of anemia with $p < 0.20$: if the woman had any disease, presented obstetric complications during the pregnancy of the child present in the daycare center, was part of the FHS and was over 30 years old. They did not reveal any association: living in a vulnerable region, being working, education, marital status, family income, receiving Bolsa Familia, number of pregnancies and number of people living in the household.

Nevertheless, it was decided to include in the binary multivariate logistic analysis (Table 1), the Body Mass Index (BMI), education, family income and to receive Bolsa Familia, since previous studies already evidenced the plausibility of its association. with anemia in women of reproductive age[16-20].

Table 1: Odds Ratio estimated by binary logistic multiple variable analysis – Taubaté, São Paulo, Brazil, 2015.

Variable	B	P	OR (Exp β)	95%CI Exp β
Age	0.021	0.559	1.022	0.951 a 1.097
Education	-0.060	0.507	0.942	0.789 a 1.124
Per capita income	-0.001	0.366	0.999	0.997 a 1.001
Bolsa Família	-0.580	0.324	0.560	0.177 a 1.772
Nutritional status (BMI)	-0.498	0.291	0.607	0.241 a 1.533
Obstetric complications	0.772	0.178	2.163	0.705 a 6.639
Previous disease	0.774	0.156	2.104	0.752 a 5.886
Family Health Strategy	-1.233	0.031	0.391	0.095 a 0.891
Constant	-1.880	-	-	-

OR: Odds Ratio

As shown in Table 1, in the final result of the binary logistic regression analysis, only receiving attention by the FHS proved to be statistically significant as a protective factor OR: 0.391 (95% CI: 0.095 to 0.891).

The binary logistic regression analysis was later redone only with the four statistically significant variables in the bivariate analysis (having any disease, having obstetric complications during pregnancy, being part of the FHS and over 30 years old) and its result was identical to that of Table 1, remaining the significance of the FHS only as a protection factor.

■ DISCUSSION

The prevalence of anemia observed is classified as mild[1], well below the estimates of the National Child and Women's Demographic and Health Survey (PNDS)[8], which showed that 29.4% of Brazilian women in reproductive age were anemic. Specifically in the Southeast region, this prevalence was 28.5%.

Studies by Olinto *et al*.[15], Fabian *et al*.[16], Koury Filho[20], Lira[21], in Brazil, showed higher prevalence than those found in the municipality of Taubaté, which ranged from 18.6% to 30.7%[15,16,20,21]. In addition to the fact that Taubaté is a high HDI municipality, the relatively low prevalence observed there may be associated with access to public health and education services, which the municipality offers to the population.

In Maranhão, a study conducted with women assisted by the FHS program showed an average prevalence of anemia of 36% for the state and 55.1% for the capital, São Luís, values that are justified because they are related to the population served by the FHS, that is, the one with the lowest availability of social resources[22].

Studies have linked the high prevalence of anemia to socioeconomic and environmental factors[23] and possibly lies the justification for anemia to persist as a public health problem, despite efforts to control it.

In the National Policy of Primary Health Care,

one of the characteristics of the work process of Family Health Strategy teams is to develop actions that prioritize risk groups and clinical, behavioral, dietary and/or environmental risk factors, with prevent or prevent persistent diseases and damage[24]. Due to the fact that anemia is still a public health problem in Brazil, RDC No. 344, of December 2002, implemented the Wheat Flour Fortification and Corn, which must now be added iron and folic acid[25].

Following this policy, guidelines were published in 2016 for daily iron supplementation in adult and adolescent women[26] and for fortification of cornmeal with vitamins and minerals to combat micronutrient deficiencies[27].

Regarding the results of the initial bivariate analysis, only being attended by the FHS was significantly associated with anemia as an important protective factor in both logistic binary analyzes, which may be a consequence of the fact that the socioeconomic and environmental characteristics of the municipality produce relatively limited dispersion range of variables usually associated with anemia[14,15,28-30].

Thus, it is possible to estimate that if they produce any effect, it should be very small, not statistically significant, therefore little clinically or epidemiologically relevant.

In addition, it may be that the equality of public education, health and environmental services that both vulnerable and wealthy groups contribute to explain the similar occurrence of anemia in this population.

CONCLUSION

Although the prevalence of anemia in the studied population is not as expressive (mild according to WHO criteria), anemia is present even in the population of a high HDI municipality; This indicates that there is a need for focused attention to this health problem in women of reproductive age.

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Resumo

Introdução: Anemia ferropriva é um importante problema de saúde pública.

Objetivo: Analisar o valor de hemoglobina e a prevalência de anemia em mulheres em idade reprodutiva, mães de filhos inscritos em creches municipais de um município com alto Índice de Desenvolvimento Humano, na região Sudeste, além de fatores a elas relacionados, incluindo serem atendidas pela Estratégia de Saúde da Família.

Método: Trata-se de um estudo transversal com amostra constituída por 230 mulheres entre 15 e 49 anos de idade. A coleta de dados foi realizada por meio de formulário, abordando variáveis socioeconômicas e saúde materna. Verificaram-se: peso, estatura e dosagem da concentração da hemoglobina.

Resultados: A prevalência de anemia nas mulheres foi de 9,6%, com média de concentração da hemoglobina de 14,6g/dL. Na análise bivariada, mostraram associação com anemia as variáveis: idade, ter alguma doença, intercorrências obstétricas na gestação da criança estudada e, como fator de proteção, estar no programa Estratégia de Saúde da Família. Na análise binária logística, apenas ser atendida pela Estratégia de Saúde da Família demonstrou ser significante efeito protetor frente à anemia (OR=0,391, p<0,05).

Conclusão: Apesar de haver uma prevalência leve de anemia, pelo critério da Organização Mundial da Saúde, em área urbana de alto Índice de Desenvolvimento Humano, políticas de atenção à saúde e bem conduzidas, a Estratégia de Saúde da Família em particular, podem contribuir para reduzir ainda mais a prevalência desse agravo na saúde das mulheres em idade reprodutiva.

Palavras-chave: anemia ferropriva, mulher, prevalência, estratégia saúde da família.