

## CONCEPTS OF ANEMIA AMONG LOW INCOME NICARAGUAN WOMEN

Rita L. Aillinger<sup>1</sup>

Jean B. Moore<sup>2</sup>

Lisa Pawloski<sup>3</sup>

Lidya Ruth Zamora Cortés<sup>4</sup>

Aillinger RL, Moore JB, Pawloski L, Cortés LRZ. Concepts of anemia among low income nicaraguan women. Rev Latino-am Enfermagem 2009 março-abril; 17(2):147-52.

*Anemia is a common health problem among women throughout the world, however, there has been minimal research on women's concepts of anemia. The purpose of this study was to examine concepts of anemia in low income Nicaraguan women. A qualitative design was used. Audio-taped open-ended interviews in Spanish with 14 women were used to obtain data. Tapes were transcribed and content analyzed. The findings indicate that few of the women had biomedically accurate concepts of anemia, such as that it was due to lack of iron from poor eating. Others held folk medical beliefs including home remedies, for example drinking the milk of a mare or beet juice and eating certain foods such as bean soup. Most of the women did not know any symptoms of anemia and a few reported that it can develop into leukemia. These concepts of anemia are instructive for nurses working with patients from Nicaragua and will be useful in developing nursing interventions to alleviate this public health problem.*

DESCRIPTORS: anemia; Nicaragua; Latin America

## CONCEPTOS DE ANEMIA ENTRE MUJERES NICARAGÜENSES DE BAJA RENTA

*La anemia es un problema de salud común entre las mujeres alrededor del mundo, sin embargo, se han realizado pocas investigaciones sobre los conceptos de anemia entre las mujeres. El propósito de este estudio fue examinar los conceptos de anemia en mujeres Nicaragüenses de bajos ingresos económicos. La investigación fue de orden cualitativa. Para la recolección de datos, se realizaron entrevistas semiestructuradas, grabadas en castellano, con 14 mujeres. Las cintas grabadas fueron transcritas y se realizó un análisis de contenido. Los resultados indican que pocas mujeres poseen conocimientos biomédicos sobre anemia, por ejemplo, la ingestión de alimentos pobres en hierro. Otras expresaron creencias populares, como remedios caseros, ingestión de leche de yegua o jugo de remolacha y ciertos alimentos como sopa de judías. La mayoría de las mujeres no conocía ningún síntoma de anemia y pocas relataron que creían que esta enfermedad podría transformarse en leucemia. Estos conceptos de anemia son instructivos para las enfermeras que trabajan con pacientes en Nicaragua y será de mucha utilidad para desarrollar intervenciones de enfermería para aliviar este problema de salud pública.*

DESCRIPTORES: anemia, Nicaragua, América Latina

## CONCEITOS DE ANEMIA ENTRE MULHERES NICARAGÜENSES DE BAIXA RENDA

*A anemia é um problema de saúde comum entre as mulheres de todo o mundo inteiro, mas tem havido um mínimo de investigação sobre os conceitos de anemia entre as mulheres. O objetivo deste estudo foi o de analisar os conceitos de anemia em mulheres nicaragüenses com baixos rendimentos. Foi utilizado um desenho qualitativo. Para a coleta de dados, entrevistas semi-estruturadas foram conduzidas, áudio gravadas em espanhol para 14 mulheres. As fitas foram transcritas e tornou-se uma análise conteúdo. Os resultados indicam que poucas mulheres possuem conhecimento biomédico preciso sobre anemia, tal como ingestão de alimentos pobre em ferro. Outras mantiveram outras crenças populares incluindo remédios caseiros, ingestão de leite de égua ou suco de beterraba e certos alimentos como sopa de feijão. A maioria das mulheres não conhecia nenhum sintoma de anemia e poucas relataram que pode progredir para leucemia. Estes conceitos de anemia são esclarecedores para os enfermeiros que trabalham com doentes na Nicarágua e que será muito útil para desenvolver intervenções de enfermagem para minorar o problema de saúde pública.*

DESCRIPTORES: anemia; Nicarágua; América Latina

<sup>1</sup>RN, Ph.D., Professor, School of Nursing & Health Studies, Georgetown University, United States, e-mail: rla22@georgetown.edu; <sup>2</sup>RN, Ph.D., Professor, School of Nursing, George Mason University, United States, e-mail: jmoore@gmu.edu; <sup>3</sup>PhD, Associate Professor, College of Health & Human Studies, George Mason University, United States, e-mail: lpawlosk@gmu.edu; <sup>4</sup>PhD, RN, Vice Rector, Universidad de Politécnica de Nicaragua, Nicaragua, e-mail: fefema157@hotmail.com.

## INTRODUCTION

The World Health Organization (WHO) estimates that anemia affects over 2 billion people worldwide<sup>(1)</sup>. Anemia is a general term referring to the condition characterized by abnormally low levels of healthy red blood cells or hemoglobin. There are multiple causes of anemia including genetic and dietary factors. The most common inherited form of anemia is thalassemia. These forms of anemia primarily affect those of African, Southeast Asian, and Mediterranean heritage. Sickle cell anemia is another more serious inherited form of anemia which affects those of African and Mediterranean heritage and can lead to chronic fatigue and potentially life threatening sickle cell crises. Regarding dietary causes of anemia, the most common kind of anemia includes iron deficiency anemia, however, deficiencies of folic acid, B12, and Vitamin C can also lead to low levels of hemoglobin<sup>(2)</sup>. These data reflect anemia as measured by hemoglobin status, of which the WHO estimates that 50% are caused by iron deficiency anemia (hereafter referred to as anemia). Women, particularly pregnant women, and children are most at risk of anemia worldwide, and the WHO suggests that 52% of pregnant women, 42.3% of all women, and 48% of children are anemic in developing countries. In Latin America, anemia is a huge problem affecting 19% of the entire population, with the majority of cases affecting children and women<sup>(3)</sup>. Anemia caused by dietary factors is a disease that is readily preventable and treatable.

Concepts of disease are influenced by education, economics and most importantly by culture. How people think about disease comes from their cultural experience with the disease. When the concept of a disease is different for the nurse and for the patient, due to varying cultural beliefs, the incongruity may lead to misunderstandings, problems in goal setting and non-adherence to prescribed regimens. The purpose of this study was to explore the concept of anemia in low income Nicaraguan women in order to provide a more culturally sensitive approach to anemia prevention and treatment by nurses and other health care providers.

## BACKGROUND

In the past five years, few studies have explored differing concepts of anemia and none have

targeted Nicaraguan women. In a major eight-country qualitative study that was conducted in Bolivia, Burkina Faso, Guatemala, Honduras, India, Indonesia, Malawi and Pakistan, women's perceptions of anemia were explored. The purpose of that study was to identify the barriers and facilitators of iron supplementation for pregnant women. The authors found that the women did not know the term anemia although they were aware of the symptoms. They described headache, dizziness, paleness, "thin blood", or "weak blood". About 50% of the women studied thought that the symptoms of anemia were a health priority, while the rest did not. The women attributed the symptoms to poor diet and half of them linked the symptoms to hard work. In Honduras, anemia was linked to sleeping in excess. In the Latin American countries of Guatemala, Honduras and Bolivia, women knew that anemia could have serious outcomes for the mother and baby. Perceptions about treatment of anemia included nutritious food, vitamins and medication. Home remedies utilizing herbs and plants were used in Honduras and Bolivia. Beliefs about taking iron included fears that the iron "may cause too much blood or a big baby" or spots on the baby's face or other harm to the baby<sup>(4)</sup>.

In her study of 23 pregnant women in Lagos, Nigeria, the author<sup>(5)</sup> posited that maternal anemia was not seen as a priority for the pregnant women and their knowledge of anemia was limited. Also in Africa, in an investigation of Kenyan school children, the authors reported that there were cultural barriers to iron intake. They found that culturally defined child feeding by gender included the concept that girls benefit from "soft foods" such as rice, porridge, and maize, whereas boys were fed "hard foods", such as meat and beans<sup>(6)</sup>. In their ethnographic study of mothers in Zanzibar, the researchers found that there were folk medical beliefs, such as drinking red water that results from boiling avocado leaves and biomedical beliefs e.g., eating spinach and taking iron supplements<sup>(7)</sup>. Researchers in the United Arab Emirates reported that, of mothers whose children had anemia, less than 20% had satisfactory knowledge of anemia and that women who mentioned their anemia symptoms were looked upon adversely. The women did not consider anemia a major concern<sup>(8)</sup>. In their quantitative study of Jordanian women' perceptions of anemia, the authors found that there were no differences in perceptions based on education<sup>(9)</sup>.

In their report on the understanding of anemia among Puerto Rican parents living in Hartford, Connecticut, the researchers found that parents associated anemia with diet, heredity and activity but were unsure about its gravity. They described the symptoms as weakness and lack of appetite. Some Puerto Rican parents noted that anemia could develop into leukemia if it was not treated and they treated it with egg mixed with grape juice or malts<sup>(10)</sup>.

In the only recent study on anemia in Nicaragua, the investigators found that 35% of the adolescent girls who had anemia were pregnant, had intestinal parasites or were smokers. However, the authors did not examine the concept of anemia<sup>(11)</sup>.

In summary, studies of women in both developing and developed countries showed that women held a variety of concepts about anemia and its treatment, including folk beliefs and biomedicine.

In this study, we describe the concepts of anemia from the emic perspective in low income women in the Nicaraguan capital of Managua. The research questions were: (1) How do low-income Nicaraguan women describe someone with anemia and (2) What remedies do they use to treat the problem?

## METHODS

### Design

This study used a qualitative design to examine the concepts of anemia in low income Nicaraguan women.

### Setting

The study was conducted in Nicaragua, which has a population of 5.4 million and is the second poorest countries in the Americas, with a per capita income of \$850 per year. The literacy rate is 68%. The infant mortality rate is 35.50 per 1,000 births<sup>(12)</sup>.

The setting for this research was a community that was previously a squatter settlement, made up of people fleeing earthquakes, hurricanes and war. Recently, many people who live there have had the land deeded to them by the state. Few homes have electricity. The houses are approximately 15 feet square and are constructed of scrap wood, cardboard and tin. For the last three years, there has been

potable water a couple of hours a day. The most common health problems are diarrhea, acute respiratory infections<sup>(13)</sup> and undernutrition in girls<sup>(14)</sup>.

The first author has worked for 13 years, two weeks a year, as a teacher of U.S. students doing their community health/vulnerable populations nursing clinical course in the community. As a nurse-anthropologist, fluent in Spanish, she had undertaken extensive participant-observation in the context that informed the present study. The second and third authors have done extensive research on anemia in Nicaraguan adolescent girls<sup>(15-16)</sup>. The fourth author is a native Nicaraguan nurse.

### Sample and Procedure

A purposive sample of fourteen women was invited to participate in the study. The women had been attending micro-credit meetings for the previous month. Like their neighbors, they were all low-income. The women's mean age was 35 ( $SD=8.6$ ) and their mean number of children was four ( $SD=1.6$ ). The first author had established rapport with the women over the years, they met the study criterion of low income, and they were willing to be interviewed. Individual interviews were conducted in a small room in the community's nursing clinic.

The women were first given an informed consent in Spanish, written at the fifth grade level, explaining the study's purpose and the confidential and voluntary nature of their participation. There were no refusals to participate. Approval to conduct the study was obtained from a United States university human subjects review board and the school of nursing in Managua that manages the clinic. Using an interview schedule with open-ended questions about anemia, the first author interviewed the women individually in Spanish, and tape recorded their responses. The questions included:

- How does anemia develop?
- What are the symptoms?
- What home remedies do you use for it?
- What other treatments are used?
- What can happen to someone with anemia?

Identification numbers were used on the tapes; no names were used. Transcription of the interviews was done by a native speaker.

The transcriptions were read while listening to the tapes to ensure accuracy and develop preliminary ideas about categories and contextual

relationships<sup>(17)</sup>. Subsequently, transcriptions were analyzed using latent content analysis. Categories emerged from the data as a result of this inductive process. The categories were abstracted into themes, "an abstract entity that brings meanings and identity to a recurrent experience"<sup>(18)</sup>. Qualitative analysis was assisted by the use of The Ethnograph (Version 5.0) software. Data were analyzed in Spanish to conserve the contextual language prior to translating the themes into English.

## RESULTS

### Development of Anemia

When the women were asked about how anemia develops, they responded with the themes of poor eating and lack of vitamins. For example, one woman reported *We have this habit in Nicaragua, also because of the poverty, that we dedicate ourselves to filling our stomachs, without looking at all the foods that make us well, we only fill our stomachs with beans and rice*. Another said *it is a lack of iron due to bad eating and instead of drinking juice, one drinks coffee and it's not good it takes away the vitamins*. Another woman said that *anemia develops because they don't get vitamins and iron that is primary to protect the blood*. One of the women offered that *anemia is due to the woman being deficient in iron, a human must look for foods that contain iron so they won't get anemia*. None of the women differentiated the various types of anemia.

### Symptoms of Anemia

Most of the women did not know any symptoms of anemia. Several mentioned lack of appetite, one reported dizziness and weakness, and another said the eyes become yellow.

### Home Remedies

When the women were asked what home remedies they used for anemia, their responses evolved into the theme of eating certain foods. Almost half of the women mentioned bean soup as a remedy for anemia. Others mentioned drinking the milk of a mare, eating gourd seeds, beet juice, orange juice, carrot juice, eating fruit, *meat when you can and if you can't eat meat, drink milk because it is cheaper*. Several reported using *carao* whose scientific name is *Cassia grandis*.

The fruits of this tree have a kind of molasses that is also used to alleviate respiratory illnesses. Guapinol (scientific name *Hymenea courbari*) was also used, as well as Cuculmeca (scientific name *Similax spp*), which is a kind of liquor that has analgesic properties<sup>(18)</sup>.

### Other Treatments

Seeking care at the local public health clinic was another theme in the women's responses. *Go to the clinic and they give you medicine that comes from another country* was the response of one woman. A couple of other women said *when you go to the clinic they give you vitamins that are like iron*.

### Effects of anemia

Most of the women did not know what can happen to someone with anemia. However, two women reported that it can develop into leukemia.

## DISCUSSION

The findings of this study underscore the plurality of anemia concepts among these low income women. Some of the beliefs and remedies were from the folk system, while others were in line with the biomedical model, such as anemia developing from poor nutrition. The Nicaraguan women's concepts were not dissimilar from the perceptions of anemia held by women in the Latin American countries in the eight-country study or by the Puerto Rican parents in Hartford, CT. For example, symptoms of dizziness, weakness and eating poorly were mentioned in several studies of Latin American respondents and, although the home remedies sometimes differed, their use was prominent in the groups studied. Rice and beans were mentioned as a remedy in the Latino respondents; however, bean soup was more often noted by the Nicaraguan woman.

The themes identified by these impoverished women, such as poor eating and lack of vitamins, could be utilized by nurses when they are teaching Nicaraguans or, by extension, other Central or South American low income women in their home countries or in the U.S.. Iron deficiency anemia is preventable and treatable. By knowing the cultural concept that

these women have, nurses can adjust their communication to include the concept in health teaching.

For example, a number of the women thought that bean soup was good for anemia. In reality, bean soup is made from local beans that are soaked for several hours then boiled in the same water in which they are soaked. While beans are a significant source of iron, this cooking process may actually lead to increase in the risk for iron deficiency. The soaking process allows for tannins found in the skin of the beans to be released in the soaking water. Consuming tannins with iron limits the bioavailability of iron and ultimately decreases absorption of iron, thus increasing risk for iron deficiency anemia. When mothers were asked about discarding the soaking water and using new water for boiling, most felt that this would cause the soup to be less palatable and, in a community where water is scarce, much more difficult to prepare. Thus, a few women appeared to understand the connection between diet and iron deficiency anemia, but would also need additional health education concerning processing techniques. This education could be complicated by the issue of palatability, cost of ingredients, and personal eating preferences.

No one mentioned that drinking coffee with meals, a common practice in Nicaragua and other Latin American countries, interferes with iron absorption. This is not surprising given the educational level of the participants and the strong preference for coffee with all meals. However, this also presents an opportunity for education. There was no reference either to eating foods rich in Vitamin C to increase

iron absorption. All of these practices are vital considerations when doing health education with people in Latin America or with Latin American immigrants to the U.S.

Several Nicaraguan women mentioned going to the public health center to get a prescription for vitamins and iron to treat anemia, however, preventing the problem was not as readily noted. Developing leukemia as a consequence of untreated anemia was noted by several of the Nicaraguan women, just as it had been by the Puerto Rican parents in the Hartford study. The beliefs concerning greater consequences of long-term iron deficiency anemia were rooted in local belief systems or lack of health education concerning the causes and consequences of anemia.

This research identified some specific cultural beliefs that nurses need to be aware of when interacting with their Nicaraguan or Latin-American immigrant clients. Nurses can incorporate the cultural beliefs that may mitigate the anemia, such as eating foods rich in iron (e.g. beans, meat, and milk), while educating clients about anemia prevention and treatment. Clinicians must also be aware of local processing techniques, costs and availability of ingredients, and a general understanding about food preferences and accessibility to make useful and reasonable recommendations.

Future research should focus on anemia prevention through education, especially education about nutrition and other factors contributing to anemia. Further studies on anemia perspectives of women in other countries would also be helpful to clinicians working in those countries or with immigrants from those countries.

## REFERENCES

1. WHO. Joint statement by the World Health Organization and the United Nations Children Fund 2004; available from: URL: [http://www.who.int/topics/anaemia/en/who\\_unicef\\_anaemiastatement.pdf](http://www.who.int/topics/anaemia/en/who_unicef_anaemiastatement.pdf)
2. Rolfes SR, Pina K, Whitney E. (2009). *Understanding normal and clinical nutrition*, 8<sup>th</sup> Edition, Wadsworth, Belmont, CA.
3. WHO/UNICEF/UNU. Iron deficiency anaemia: Assessment, prevention and control A guide for programme managers 2001, available from: URL: [http://www.who.int/vmins/anaemia/prevalence/anaemia\\_data\\_status\\_prevalence/en/index.html](http://www.who.int/vmins/anaemia/prevalence/anaemia_data_status_prevalence/en/index.html)
4. Galloway R, Dusch E, Elder L, Achadi E, Grajeda R, Hurtado E, et al. Women's perceptions of iron deficiency and anemia prevention and control in eight developing countries. *Social Science & Medicine* 2002; 55(4):529-44.
5. Ejidokun OO. Community attitudes to pregnancy, anaemia, iron and folate supplementation in urban and rural Lagos, south-western Nigeria. *Midwifery* 2000; 16(2):89-95.
6. Shell-Duncan B, McDade T. Cultural and environmental barriers to adequate iron intake among northern Kenyan schoolchildren. *Food & Nutrition Bulletin* 2005, 26(1):39-48.
7. Young SL, Ali SM. Linking traditional treatments of maternal anaemia to iron supplement use: an ethnographic case study from Pemba Island, Zanzibar. *Maternal & Child Nutrition* 2005, 1(1):51-8.
8. Hassan AE, Kamal MM, Fetohy EM, Turkey GM. Health education program for mothers of children suffering from iron deficiency anemia in United Arab Emirates. *Journal of the Egyptian Public Health Association* 2005, 80(5-6):525-45.
9. Jarrah SS, Halabi JO, Bond AE, Abeggien J. Iron deficiency anemia (IDA) perceptions and dietary intake among young women and pregnant women in Jordan. *Journal of Transcultural Nursing* 2007, 18(1):19-27.

10. Pierce MB, Crowell RE, Ferris AM. Differing perspectives of inner-city parents and pediatric clinicians impact management of iron-deficiency anemia. *Journal of Nutrition Education & Behavior* 2006, 38(3):169-76.
11. Moore JB, Pawloski L, Rodriguez C, Lumbi L, Ailinger RL. The effect of a nutrition education program on the nutritional knowledge, hemoglobin levels, and nutritional status of Nicaraguan adolescent girls. *Public Health Nursing*. In press 2008.
12. U.S. Department of State. Background note: Nicaragua 2007. Available from: URL: [www.state.gov/r/pa/ei/bgn/1850.htm](http://www.state.gov/r/pa/ei/bgn/1850.htm).
13. Universidad de Politecnica de Nicaragua. Encuesta de salud comunitaria del anexo 2000. Managua, Nicaragua.
14. Pawloski L, Moore JB, Lumbi L, Rodriguez CP. A cross-sectional analysis of growth indicators from Nicaraguan adolescent girls: A comparison of anthropometric data from their Guatemalan counterparts. *Annals of Human Biology* 2004, 31:647-59.
15. Moore JB, Pawloski L, Rodriguez C, Baghi H, Lumbi L, Zamora L. The effect of a nutrition education program on the self-care practices of Nicaraguan adolescent girls and the nutrition dependent-care practices of their mothers. *Self-Care, Dependent-Care, and Nursing: The Official Journal of the International Orem Society* 2007; 15(1):6-11.
16. Pawloski L, Moore JB The impact of a nutrition intervention program on the growth and nutritional status of Nicaraguan girls. *Collegium Antropologicum* 2007; 31(1):315-9.
17. Maxwell JA. *Qualitative Research Design* 2005, Thousand Oaks, CA: Sage.
17. DeSantis L, Ugarriza DN. The concept of theme as used in qualitative research. *Western Journal of Nursing Research* 2000, 22(3):351-72.
18. Arellano F. *Diccionario del Español de Nicaragua* 2007. Managua: PAVSA.