

Anemia in Cameroon: A Social Approach

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Abstract

Viewed as hidden hunger, anemia is an indicator of poor nutrition and health status, especially for African pre-school children. Several actions are being carried out to combat anemia in Africa, without success. The fundamental step to improve this situation is to determine 1) mothers' knowledge regarding anemia (symptoms/signs and etiologies), and 2) their attitudes towards anemia. The present effort was to determine 1) and 2) on mothers (n = 152) with children (1 - 5 years) through questionnaire. Data showed that the less educated the mother was, the more she gave the wrong definition of anemia. When these mothers have anemic children, 129 go to the hospital, 34 give grenadine (sweet soda), 14 go to the traditional healer, and 6 give the various decoctions. Our results showed that less-educated mothers had wrong anemia management, such as attachment to a visual logic that assimilates blood to food with red coloring. The actions must directly involve these mothers and the traditional healers to improve this situation.

Keywords

Anemia, Knowledge, Attitude, Child's Mother, Traditional Healers

1. Introduction

Anemia is defined as a decrease in the concentration of hemoglobin below threshold values related to age, sex and physiological status [1]. It is a major global public health problem with negative consequences on both human health and socio-economic development [2]. Anemia is considered a hidden hunger and is an indicator of poor nutrition and health status [3]. The most common cause of anemia is martial deficiency caused by prolonged iron deficiency due to inadequate food intake, increased needs during growth or pregnancy and losses due to menstruation or helminthiasis [4]. In Africa, in addition to martial deficiency, malaria is one of the main causes of anemia [4] [5]. Among pre-school infants, the

global prevalence of anemia is 47.4%, with 293 million children affected worldwide. The rate is about 17% in Europe, 40% in South America and 64.6% in Africa, representing more than 90 million children [6]. Anemia and martial deficiency lead to reduced well-being and a state of fatigue and lethargy, reduced performance and impaired physical and intellectual work capacity [7]. Children with anemia have a 4.3 times greater risk of death than children without anemia [8].

According to the 2018 Demographic Health Survey in Cameroon, the prevalence of anemia in children aged 6 - 59 months varies irregularly by age, from a high percentage of 77% in the 9 - 11-month age group to a low percentage of 47% in children aged 48 - 59 months [9]. In the Adamawa region of Cameroon, one of the most affected regions, anemia is the deadliest pathology of infants; 820 cases of anemia in 2018 with 566 blood transfusions were recorded in the pediatric department of the Ngaoundere Regional Hospital. These rates are still high and disturbing as efforts are being made in Cameroon to prevent anemia. These efforts include the fight against malnutrition to promote and support good infant and young child feeding; the promotion of breastfeeding; the fight against nutritional deficiencies through iron fortification of commonly used foods and spices, systematic deworming and the fight against malaria through the distribution of long-lasting insecticidal nets (LLINs). We found it wise to see what is happening at the first level of anemia management in children. According to Link *et al*, the nature and extent of the social inequalities that affect child mortality must be studied if we are to continue to reduce child mortality [10]. That is why we conducted this study, the objective of which was to assess the knowledge of mothers of children aged 0 to 5 years on the definition of anemia, its signs, etiologies, treatment, and to determine their attitudes towards anemia.

2. Method

2.1. Framework of the Study

Our study was carried out in the consultation, hospitalization, and vaccination wards of the pediatrics department of the regional hospital of Ngaoundere. This is the first reference hospital in the Adamawa region of Cameroon.

2.2. The Target Population

All mothers who met our inclusion criteria and who were present in the pediatric ward during the study period were selected.

2.2.1. Ethical Consideration

This study was conducted after obtaining the approval of the Ethics Committee of the Ngaoundere Regional Hospital. The consent of each mother was obtained before completing the questionnaire and confidentiality was respected.

2.2.2. Inclusion Criteria

We included in our study mothers with one or more children fewer than 5 years old, who were hospitalized or who came for consultation and those who were

seen in the vaccination room with a child aged between 0 and 5 years during our study period and who agreed to answer our questionnaire after informed consent.

2.2.3. Exclusion Criteria

We excluded mothers who did not give their consent and mothers who did not know the ages or the child's background.

2.3. Sample Size

A total of 152 mothers freely agreed to participate in this study.

2.4. Type and Period of Study

This was a prospective cross-sectional study based on a Knowledge, Attitude and Practice type survey of interviewing mothers of children aged 0 to 5 years.

Our study took place from December 2018 to May 2019, *i.e.* 6 months.

2.5. Description of the Data Collection Instrument

A questionnaire was used for data collection. It was given to mothers who were in school. For those who were out of school, we translated the questions into their language, and ticked and wrote down the answers they gave us.

We assessed: their knowledge of anemia, (definition, ability to recognize anemia and causes) their attitudes (use of medication or home management) towards anemia.

The data analysis was done manually. The results were expressed as percentages and presented in tables and figures. We used:

- Sphinx V5 2017 to create the questionnaire;
- Excel 2016 to enter data, create tables and graphs;
- Word 2016 for inputting, interpreting tables and graphs created in Sphinx and Excel respectively.

3. Result

3.1. Socio-Demographic Characteristics of Mothers

- Age of mothers: Of the 152 mothers of children surveyed, 29% were in the under-18 age group, 55% were between 18 and 35 years old, and 16% were over 35 years old.
- Marital status of mothers: 67% of mothers were married, 28% were single, 4% were divorced and 1% were widowed.
- Occupation of mothers: 53% of the mothers were housewives, 12% traders 12% civil servants 11% Pupils or students.
- Mother's level of education: 28% were out of school, 34% had primary education, 16% secondary education and 22% higher education.

3.2. Knowledge of Children's Mothers about the Anemia

- Information on anemia Of the 152 mothers interviewed, 124 had heard of

anemia.

- Definition of anemia: Eighty-seven (87) mothers defined anemia as a decrease in the amount of blood, 53 as a condition in which the child's body heats up, and 12 as an evil spell related to witchcraft. The less educated the mother was, the more she gave the wrong definition. All mothers with a higher level of education gave a good definition of anemia (**Table 1**).

- **The signs that allowed mothers to recognize an anemic child**

Most mothers 67% cited "pallor" as a sign of anemia: The child's eyes turn white (40%) the child becomes pale (27%).

The others cited: fatigue (19%) fever (18%) headache (2%).

In this study, 19 mothers cited witchcraft as a cause of anemia. The less education the mothers were, the more they believed witchcraft was a cause of anemia. Eighty-one mothers acknowledged the involvement of malaria in the development of anemia.

- **Anemia prevention measures according to mothers**

152 mothers were asked about the preventive measures regularly applied to prevent anemia; 83% or 36% think that vaccination protects their children against anemia, 78% or 34% cited the fact of making the child sleep under an impregnated mosquito net, and 48% or 21% think having a balanced diet, and 15% or 7% think avoiding diseases such as diarrhea, cough, vomiting is a solution.

- The consequences of anemia according to mothers

Thirty-four percent of mothers think that anemia can cause death 6% of these mothers had already had a child who died from anemia, as other consequences 10%, if school difficulties 23% stunted growth, 29% cited weight loss.

3.3. Practices of Children's Mothers in the Face of the Anemia

- Anemia prevention

To prevent anemia, our study shows that out of 152 mothers surveyed, 74 gave fruits and vegetables, after 69 gave meat, fish; 59 gave cereals and tubers, 53 gave legumes and 32 gave milk and milk products.

Table 1. Definition of anemia according to the mother's School level.

School level	Definition of anemia according to the mothers				Total
	When is it the child gets hot	It's a spell cast on the child	It is the decrease in the amount of blood	Others	
No schooling	28	8	7	0	43
Primary	18	3	30	0	51
Secondary	7	1	16	0	24
Superior	0	0	34	0	34
TOTAL	53	12	87	0	152

- Mothers' attitudes when dealing with an anemic child

When the mothers in our study population have anemic children 129 go to hospital. But they also practice inappropriate therapies as 34 give grenadine (sweetened soda water and dye) 14 go to traditional healers and 6 give concentrated tomato or various decoctions to their children. The wrong practice was found more among poorly educated mothers (**Table 2**).

4. Discussion

4.1. Socio-Demographic Characteristics of Mothers

Marital status of mothers: We found that 67% of mothers were married. Marriage is often considered a protective factor because some studies show higher rates of infant mortality and morbidity in the population of unmarried mothers [11]. When faced with a child's affection, the union of action of father and mother gives a better result than that of a single mother.

Occupation of mothers: Fifty-three percent (53%) of mothers were housewives, 12% traders, 12% civil servants and 11% pupils or students. We have more mothers with no financial income (housewives and pupils or students). Factors that may delay, or limit child care. But the advantage with the group of housewives is that they have more contact time with their children which will facilitate the rapid identification of the signs of anemia.

Mothers' level of schooling: Twenty-eight percent (28%) were out of school and 34% had a primary school education. The combination of these two groups gives us 62% of mothers with less than 10 years of schooling. Chen's study in Quebec shows that as the mother's education increases, the infant mortality rate decreases, and excess infant mortality is abnormally high among mothers with less than 12 years of education [11]. A low level of education is a handicap in the fight against the disease. The level of understanding during education sessions is not always good. Behavioral change is generally faster in the most educated population classes [12].

4.2. Knowledge of These Mothers about the Anemia

Of the 152 mothers interviewed, 124 had heard of anemia.

Table 2. Practices of anemic children's mothers.

Mother response	School level				Total
	No schooling	Primary	Secondary	Supérieur	
We take him to the hospital	28	45	22	34	129
We give the grenadine	14	16	4	0	34
We take him to the traditional healer	8	6	0	0	14
We give decoctions	3	0	0	3	6

Eighty-seven (87) or 57% of the mothers defined anemia as a decrease in the quantity of blood, 53 as a state where the child's body is overheated and 12 as a bad spell related to witchcraft. This rate of 57% which had a correct definition is higher than the 44% obtained by KoffiMawuse in Lomé [13]. The wrong definition was found more among poorly educated mothers because most of them think that anemia is a bad fate (Table 1).

Those with a higher level of education all gave a good definition of anemia. The majority (67%) recognized anemia by their pallor. Souganidis in her study in Indonesia found that 51.2% of mothers recognized anemia by palmar paleness [14].

As in the definition, 19 school fallout mothers cited witchcraft as a cause of anemia. However, 81 mothers had good knowledge about the involvement of malaria in the occurrence of anemia. This may help in the fight against malaria, which is one of the main etiological factors of anemia; 78 mothers cited sleeping under an impregnated mosquito net as a preventive measure against anemia. 34% of the mothers knew that anemia could progress to death 6% of these mothers had already had a child who died as a result of anemia. This may justify the practice of self-medication maintained in the home, especially in cases of lack of financial resources.

4.3. Practices of Anemic Children's Mothers

To prevent anemia, our study shows that out of 152 mothers surveyed, 74 gave fruits and vegetables, after 69 gave meat, fish; 59 gave cereals and tubers, 53 gave legumes and 32 gave milk and milk products. In Africa, the fight against malnutrition is an important pillar of public health. The notion of consuming varied foods is well known. But the customs which prevent the consumption of certain foods constitute a brake on a good dietary diversification hence the interest of fortifying the most consumed foods. Supplementation with a preparation accessible to all social strata can be a good strategy to fight against anemia.

When mothers have anemic children, 129 go to the hospital, but they also practice inappropriate therapies as 34 give "grenadine" juice which is a mixture of sweet soda water and red dye as a treatment. Some administer concentrated tomato alone or mixed with milk and cassava leaf etc. In giving these foods to anemic children the aim is not the nutritional value but the search for the rapid increase in the quantity of blood with these red colored decoctions. Considered as an alternative to blood transfusion, this practice often delays the hospital management of severe anemia and leads to the death of the children. We note that although we have the knowledge about the consequences of anemia, some mothers have practices that are not in line with good management. These erroneous beliefs are maintained in the underprivileged class with little schooling. Similar results were found by KoffiMawuse in Lomé; in his study population, 6% of mothers cited decoction-based treatment as a treatment for anemia. And red-colored products such as tomato, beetroot are considered to produce blood

rapidly [13]. In the community, there are mixtures recognized by mothers as alternatives to blood transfusion. A better understanding of mothers might help to give a better treatment to the children, adapted to the different causes of anemia. Ravelomanana *et al.* has shown that despite the fact that access to hospital care was respectful of a two-step process (85.3%); the number of patients with severe illness was high among families with low educational level. These results suggest educating in priority the mother with low education, in order to recognize the general signs of danger and facilitate early first health care [15]. This implies that mothers of children with a good level of education better understand the causes of the sick and seek the appropriate solution to this cause. For example, they understand better that blood is not a simple coloring of a liquid in red which is why they do not use the artificial red juice for a treatment of anemia but will turn to a health center for better care. In our study, 14 go to traditional healers in case of anemia. The branch of traditional medicine in Cameroon is not developed and the interaction between modern and traditional medicine is conflictual. Since a good part of the population turns to traditional healers, it is time to consider traditional medicine and give it a good orientation.

4.4. Conclusion

Our results present us with a population of dynamic young mothers, mostly married and housewives, with a minimum knowledge of anemia. This population offers first aid to children. But 62% of the mothers have less than 10 years of education and therefore have little education. They still maintain practices that do not conform to a good management of anemia such as resorting to traditional healers and attachment to a visual logic assimilating blood to food or drink with a red coloration. In order to overcome anemia, the actions carried out must directly involve these mothers. Because an action for a population without these mothers is an action doomed to failure. Concretely we propose: A national education program for mothers of children to combat anemia targeting the most disadvantaged classes; training of healers on the principles of anemia control and the recognition of danger signs related to this condition; using the logic of mothers in the principle of fighting anemia; such as creating a red food formula rich in iron at low cost to be introduced in children's diets as early as 6 months to prevent anemia.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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