

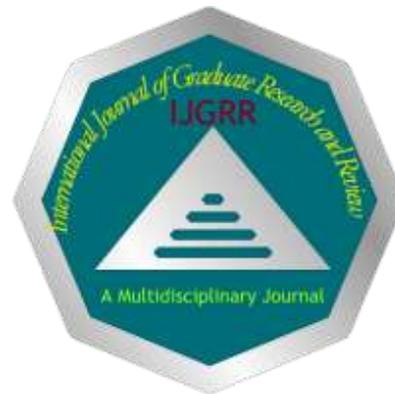


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## Anaemia and Its Associated Factors among Children Under-Five in Rural Area of Lahore

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### Abstract

**Introduction:** Anemia is major public health problems in all over the world but mostly in developing countries. Globally evaluation of childhood anemia indicates that 293.1 million (approximately 43%) of children under five years of age are anemic worldwide. Anemia is a condition having lower number of red blood cell or quantity of hemoglobin than normal. Anemia reduces the ability of the blood to carry oxygen. **Methods:** A cross-sectional descriptive study design was used to identify the risk factor of anemia in children under-five year children. Children between ages of 6 to 59 months were included in the current study. Children whose age was less than 6 months and more than 59 months were excluded from the current study. Participants were selected through convenient sampling technique. Sample size was calculated by using "Proportion formula" which was 132. A well-constructed close ended questionnaire was distributed among people of Hussain Abad Community, Lahore. Ethical principle was performed during research study. Permission was taken from the Ethical committee of LSN department in University of Lahore. Data is analyzed in the form of tables and graphs through SPSS version 20. Statistical computer software for data analysis. **Results:** Finding of the study show that most of mother in that particular area have poor education and do not know the advantages of breastfeeding. Decreased anemia prevalence in preschool children in rural community over the study period could be a result of enhanced maternal-child health interventions, such as antenatal care for pregnant women (aimed at reducing low birth weight and anemia during pregnancy), breastfeeding promotion education. **Conclusions:** Strategies for anemia prevention and control have had a beneficial effect in the area studied. Associated factors of anemia have steadily decreased, but it is still classified as a moderate public health problem, with greatest impact in children aged 6–59 months. Moreover, it is classified as a severe problem for the group aged 6–23 months in this region and more common in females as compared to male.

**Keywords:** Breast feeding; birth weight; risk factors.

### Introduction

Anemia is serious public health issue in all over the world but mostly in developing countries. Assessment of anemia shows that 293.1 million (around 43%) of children under five years of age are anemic world widely. According to World health organization estimate in 1980 worldwide 700 million people suffer from anemia and more than two billion people have been affected by it and 50 % of anemia cases are caused due to iron deficiency (Schellenberg, 2015).

Anemia is a condition having reduction in number of red blood cell or quantity of hemoglobin than normal. Anemia reduces the blood ability to carry oxygen. Anemic patients feel tired or weak, appear pale, shortness of breath and develop palpation because body does not get enough oxygen-rich blood. Children with chronic anemia are more prone to infections and health problems. Main factors of anemia are excessive demolition of red cells in blood, below production of red blood cells (Clement, 2014).

Factors causing anemia vary according to area, including malaria, HIV infection, intestinal parasites, dietary deficits

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and practice of taking meals, hematological malignancies and chronic diseases like sickle cell disease. In infantile anemia may outcomes from elements such as poor socioeconomic status and mother health position including existence of iron insufficiency anemia (Magalhaes, 2011). Another factors due to which anemia frequently develop as breast milk is replaced by other foods which are deficient in iron and other nutrients including folic acid and vitamin B12 due to which brain tissues receive limited amount of oxygen which may led to diminished cognitive function, growth and psychomotor developments especially in children (Walter, 2013).

Among children young ones are more predisposed to anemia because of higher requirement of iron for growth, inadequate ingestion of iron from foods and recurrent episodes of infection. Breast feeding is significant because it contains relatively low levels of iron but it is absorbable and sufficient for infants and iron need increase from six month of age onward, either from supplements or complementary food (Maguire, 2013). Commonly in rural area and low cost, anemia sign by only hemoglobin (Hb) quantities which has been largely use as a substitute for identification of iron deficiency and iron deficiency anemia. While iron deficiency is a major cause of nutritional anemia in developing countries, inadequate intake of other nutrients like vitamin A, C, B9, B12, vitamin D and zinc as well as toxicity of lead may also be the source of anemia and hemoglobin alone is a poor result about iron status (Yoon et al., 2012).

Unemployment of parents significantly associated with severe anemia. Lack of education and job opportunities may also refer to low socio-economic status. This shows that a good socio-demographic condition raises access to better healthcare and nutrition and as a result decreases the risk of anemia. On the other hand, risk of anemia increased with low level of education. The link between education and anemia is due to the knowledge of care taker needed for adequate nutrition and health care for children (Netto, 2011). Mother health is also has an important role in prevention of anemia in infants less than 2 years of age because of the high occurrence among infants especially in rural area which is highly intended. Children born to malnourished mothers have poor concentration of vitamin A, B12, iron, zinc and foliate and so this this low concentration of iron in breast milk which may be insufficient to meet the daily iron requirements of the infants which lead to anemia in children (Core, 2012).

### **Research Questions**

*Research Question 1* – How many children of the Hussain Abad community are anaemic?

*Research Question 2* – Which risk factors are responsible for anaemia in children?

### **Aims of The Study**

The purpose of this research was to assess anaemia and its related influencing elements in children under-five years and also checked the relation between the contributing factors and anaemia in children in rural community, Lahore.

### **Significance of The Study**

The study was significant because it identified the risk factors of anemia in children like limited consumption of iron supplement, poor socio-economic status, low level of education and maternal health status in the rural area of Lahore. The current study is significant to nurses because through this study they know the risk factors associated to anemia in children and will be able to teach the people about risk factors which are associated to anemia. Current study was significant for community people especially for mothers because after completion of the study Health education session were arranged to enhance the knowledge of the people of the community about risk factors of anemia to reduce anemia related morbidity and mortality and promotion of health and prevention of disease.

### **Literature Review**

Anemia is a major public health issue affecting the children worldwide in developing countries. Globally evaluation of childhood anemia indicates that 293.1 million (approximately 43%) of children under five years of age are anemic worldwide. The prevalence of anemia children under five in Pakistan is between 40-70% which leads to reduced physical activity, impaired cognition and growth retardation (Balarajan, 2012).

A study conducted in Ghanaian, which revealed that childhood anemia in under-five children is very high (78 % - 95 %) showing a major health concern. They also observed that prevalence rate vary across different age and socio-demographic groups as well as different regions and sub-regions. Prevalence of anemia was high between age 1 and 2 years (98.7%), which means that almost every child between of 1 and 2 years in this region is affected by anemia. Prevalence for children of other age in this area was also high where 8 out of 10 children were found to be anemic (Joycelyne, 2014).

Another study conducted which highlighted the prevalence of iron deficiency anemia in children aged between 6-59 months was 32.2%, by WHO criteria it represent a moderate burden on any country and also found a high prevalence of low hemoglobin level, zinc deficiency, vitamin A deficiency, wasting, stunting, underweight and food insecurity among children age between 6-59 months living in Pakistan (WHO, 2013).

Prevalence of anemia significantly associated with children age, youngest children have more chance of anemia because this is a period of rapid growth with an increased iron requirements, so anemia risk increase in this age.



Furthermore factors like not availability of iron rich food, insufficient infant and young child feeding practices comprising prolong breast feeding and inappropriate weaning food, lack of exclusive breast feeding and prolong illness increase the chance of young children to anemia development (Latif, 2012).

A study conducted by Joseph which describe the factors associated to high prevalence rate of anemia which can attribute to malnutrition due to limited ingesting of foods rich in micronutrients as a result of poverty and low socioeconomic status, unavailability of pure drinking water and better sanitation facilities which can cause infections and disease and subsequently increase the chances of anemia. These findings confirm the hypothesis that prevalence among children having infections was significantly higher than those children who have none of the 3 infections diarrhea, fever and cough (Joseph, 2011).

Another study shows the estimate of anemia associated risk factors that 53.6% of anemia in children is due to food insecurity. Food insecurity is characterized by either unavailability of food or inability to procure and access food and has consequences in both macro and micronutrient deficiencies. In Pakistan the widespread food insecurity situation reflects the economic instability of many areas of the country. Furthermore, other factors such as limited access to iron rich food, inadequate infant and young child feeding practices including lack of exclusive breast feeding, prolonged breast feeding and inappropriate weaning food and recurrent illnesses increase the chance of young children developing anemia. Another important factor which leads to anemia in children is the lack of parental education because they do not that what supplements is necessary to children during their growth years (Charles, 2012).

Risk factors of anemia give more understanding to nature and types of policies that can be useful to fight against anemia. The study also finds out the demographics factors associated with anemia like child age and sex, mother education level and wealth quintile of the household. Education level of the mother was found to have a protective effect on the diagnosis of anemia in their children. A mother who had secondary and higher levels of education then their children was less likely to be anemic positive (Oscar, 2014)

### **Conceptual Framework**

According to Ngnie (2007) conceptual framework the risk factor associated to anemia in children. Anemia is condition in which the individual have low hemoglobin level. Society and environmental risk factors, community related risk factor like rural (Health services, water supply etc.), Domestic food production is not readable (wealth status, parent education, hygienic condition), Health and nutritional risk factors (inadequate micronutrients intake)

and causal factor of anemia (iron deficiency due to limited intake or blood loss) are the main factors due to which anemia can cause in children. These factors are directly and indirectly related to each other's. Mother education play a key role in preventing their child from anemia because if the mother have enough knowledge about the diet necessary for children in the growing age then the risk of anemia will be reduced and if the mother do not know about the proper diet and do not take care of their children they will be at risk to anemia. If the socioeconomic status is poor then the children do not take sufficient supplement which is necessary to fulfill the deficiency of iron and hence the children of poor socioeconomic status is more expose and vulnerable to anaemia as compare to those who have good socioeconomic status (Ngnie, 2007).

## **Methodology**

### **Setting**

The targeted population of this Study was the children under-five year of Hussain Abad Community, Lahore

### **Research Design**

A Descriptive cross sectional study has been carried out at rural community in Husain Abad of Lahore.

### **Population**

The targeted population of this Study was the children under-five year of Hussain Abad Community, Lahore.

### **Sampling**

Data was collected from convenient selected sample of 132 children under five year's residents of Husain Abad Lahore by using a predesigned questionnaire.

### **Research Instrument**

Data was collected by pre-designed well adopted questionnaire, interview technique on different variables anemia and its risk factors.

### **Data Gathering Procedure**

Convenience sample Technique has been used to collect data.

### **Methods Used to Analyse Data**

Data analysis was done using SPSS version 21 software. Descriptive statistics has been conducted to obtain frequencies and percentage, proportion tables, Charts, graphs and tables.

### **Study Timeline**

Study has been conducted in 4 months duration from Sep 2017 to Jan 2018.

### **Ethical Consideration**

Ethical approval was takes from Institutional Review board (IRB) University of Lahore. Approval was takes from stake holders of community. Informed Written consent was takes from people of community.



## Results

The above table shows the demographics and result of the research questions. In the demographic section there is 7 males and 21 females. Age of the participants is between 6 months to 50 months in which most of the children 16 (57.1%) are between 6-23 months and out 6 children age lies in 24-40 months and the same number of children have age between 41-50 months.

Education level of the mothers of the children is also identified which show that 7 (25 %) were illiterate, 12 (42.9 %) were matric pass and 9 (32.1%) were education level above matric level. Out of 28 participants 20 (71.4 %) were Muslims and 8 (28.6 %) were non-Muslims. Occupation status shows that most 15 (53.6 %) were unemployed and

13 (46.4 %) were employed. Most of the child including the study have normal body weight 16 (57.1 %), 7 (25 %) have low weight and 5 (17.9 %) were microsomal. Result of the question shows that most of the child ever been breastfed which 23 (82.1 %) and only 5 (17.9 %) of the child have not been breastfed. Out of 28, 22 (78.6 %) of the child exclusively breastfed for first 6 months and 6 (21.4 %) were not breastfed in the first six month. Finding of the study also show that 18 (64.3 %) of the mother have anemia during pregnancy which the alarming sign and 10 (35.7 %) have no anemia during pregnancy. Out of 28 participants 23 (82.1%) were take antenatal care but 5 (17.9 %) were not take antenatal care anemia during pregnancy. Out of 28 participants 23 (82.1%) were take antenatal care but 5 (17.9 %) were not take antenatal care.

**Table 1.** Demographic Data of Participants (Gender, Age, Religion, Education, Occupation, Weight and Related Factors of Anaemia)

Variables	Numbers	Percentage
<b>Demographics</b>		
<b>Gender</b>		
Male	7	25.0%
Female	21	75.0%
<b>Age of the participants</b>		
6-23 months	16	57.1%
24-40 months	6	21.4%
41-50 months	6	21.4%
<b>Religious</b>		
Muslim	20	71.4%
Non-Muslim	8	28.6 %
<b>Education of the participant</b>		
Illiterate	7	25.0 %
Matric	12	42.9 %
above matric	9	32.1 %
<b>Occupation of the participants</b>		
Unemployed	15	53.6 %
Employed	13	46.4 %
<b>Weight of the child</b>		
Low	7	25.0 %
Normal	16	57.1 %
Microsomal	5	17.9 %
<b>Analysis of Research Question:</b>		
<b>Is child ever been breastfed?</b>		
Yes	23	82.1 %
No	5	17.9 %
<b>Is child exclusively breastfed for first 6 months?</b>		
Yes	22	78.6 %
No	6	21.4 %
<b>Is there any maternal anaemia during pregnancy?</b>		
Yes	18	64.3 %
No	10	35.7 %
<b>Did mother take antenatal care?</b>		
Yes	23	82.1 %
No	5	17.9 %



## Discussion

Declined anemia occurrence in children under five in rural community might be a effect of improved maternal-child health interferences, such as care of pregnant women (directed at decreasing low birth weight and anemia during pregnancy), breastfeeding promotion education. Educational activities were implemented in this as part of the plan. This study shows need for more researches on anemia causing factors, such as nutritious deficits, breast feeding, low birth weight and mother health status. Progressive decline in anemia occurrence in children under five might be because of the measures taken such as taking proper nutritional recommendations for children under five, which suggests additional supplementary food along with breastfeeding starting at 6 months. In spite of these progressive symbols, anemia occurrence in children less than five years in rural community stands in serious group. Causative elements might be: iron deficiency; mother anemia during pregnancy; insufficiency of balancing foods to children aged  $\geq 6$  months. Moreover, hemoglobin level must be checked of all preschool children, to get chance of early diagnose and maintain the child normal iron status. Low birth weight children are more intended due to lower iron storage and their postnatal growth which increases iron demand. Incidence of low birth weight was marginally greater than the other children. The link between anemia and low birth weight in children aged 6–23 months proposes that reduction in low birth weight could be helpful in preventing infant death rate and anemia occurrence at these ages. Equally exclusive breastfeeding is essential for the first six months of life, with addition of nutritional food starting at six months and breastfeeding ongoing up to two year.

## Limitation

Mostly people of that area were not aware of the problem due to lack of education, they do not know about the risk factors of anemia nor they know about the prevention of anemia in children due to Which they do not focus on iron rich supplement and mother feed as a result the iron deficiency lead to anemia in children Prevalence of anemia couldn't check due to shortage of time that has given for this research.

## Conclusion

Anemia prevention and control strategies have had positive effect in the research area. Related causes of anemia have progressive declined, but still categorized as a modest public health issue, by highest effect on children aged fewer than five. Furthermore, it is categorized as a serious problem for the 6–23 months age group in this area and more common in women than men. Suggestions contain persistence and reinforcement of anemia control measures for women of gestation, age like exclusive breastfeeding for first six months of life and passivity with complementary

feeding guidelines for  $\leq 2$  years children. Additional study is needed into the reasons of anemia in the preschool children.

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