PREVALENCE OF ANEMIA AMONG PATIENTS VISITING 'ADIGRAT' HEALTH CENTRE IN ADIGRAT TOWN, NORTHERN ETHIOPIA

Aragaw Zemene*, Gebrekidan Welegerima

Department of Biotechnology, College of Natural and Computational Sciences,

Adigrat University, Adigrat, Ethiopia

*Corresponding author: zemenearagaw@gmail.com

ABSTRACT

Anemia is a reduction in total numbers of erythrocyte in the circulating or decreased in the quality or quantity of hemoglobin. It is a common problem in developing countries; especially, among women and children. This study was aiming at assessing and evaluating the prevalence of *anemia* among patients attending 'Adigrat' Health Centre, Northern Ethiopia within the four years (2011-2014). The prevalence in the age group of >15 in the year 2013, 23 (95.83%) was more affected, while 5-14 age groups in this clinical year (2013), 1 (4.16%) was less affected. Thus the prevalence of *anemia* was increased slightly from time to time in both sexes. However, females were predominantly affected 113 (56.5%) than males 87 (43.5%). This might be because females loose blood and iron every time when they have monthly menstrual period. Therefore, it is better if females have a diet enriched with iron and other essential elements of food to replace back their blood and iron that wasted along with menstrual period and any other physical injury.

Keywords: *Anemia*, Erythrocyte, Prevalence, Hemoglobin.

INTRODUCTION

Anemia is a reduction in total number of erythrocyte in the circulating or decreases in the quality or quantity of hemoglobin below the level considered normalfor the person's age, sex and altitude (Alemayehu *et al*., 2007). *Anemia* is commonly resulting from impaired erythrocyte production, blood loss (acute or chronic), increased erythrocyte destruction or increased the combination of these factors (Meccance and Athryn, 2002).

Anemia is a disorder characterized by a decline in the concentration of hemoglobin or circulating erythrocyte and a concomitant impairment in the capacity of oxygen transpiration (Meclean e*t al.*, 1993-2005). Despite having diverse cause,

nutritional deficiency is the prominent origins of *anemia*. Iron deficiency alone contributes to half of its burden and other micro nutrients of the significance including vitamin A, vitamin B12, and foliate (Debenoist *et al.*, 1993- 2005).

Anemia is a global public health problem affecting to billion people worldwide. Many studies documented the adverse effects of maternal *anemia* (Allen, 2000). According to world health organization 12.8% and 3.7% of maternal mortality in Asia and Africa respectively are directly attributable to *anemia* (Badham *et al.*, 2007). In Ethiopia, reasonable number of national level survey determined the prevalence of *anemia* in women of reproductive age and come up with figure ranging from 1.66 to 30.4% (Measure, 2011).

In the developing world several studies attempted to identify risk factor of maternal *anemia* (Hinderaker *et al.,* 2001). *Anemia* is one of the most wide spread public health problem especially in developing countries. It impairs cognitive development, reduced physical work capacity and in severe cases increased risk of mortality particularly during prenatal period. During pregnancy, approximately 75% of all *anemia* diagnosed are due to iron deficiency. Therefore, WHO considers that women in developed countries may be pregnant for as much as one half of their reproductive lives and therefore are at increased risk of *anemia* during this time (Tadege, 2009).

Globally, *anemia* has been found to be the most common complication in pregnancy. The WHO estimates that more than 40% of non-pregnant and over 50% of pregnant women in developing countries are affected. The majority of the cases occur in Sub-Saharan Africa and South East Asia in 1993. A part from maternal morbidity, mortality is high among the babies' *anemic* mothers (Olufunpo *et al*., 2012).

MATERIALS AND METHODS
Study Area (Location)

The study was conducted from April to June 2015 in 'Adigrat' Health Centre of Adigrat Town, Eastern Zone of Tigray regional state, Ethiopia. The Health Centre is located at 14°16′N 39°27′E of latitude, 14°16′N 39°27′E longitude and 2457 m above sea level. Annual rain fall of the area ranges from 400-600 mm. Its average temperature is from $15\text{-}27^0$C during those months in which the study carried out.

Data Collection

The data was collected from health centre of Adigrat town four years' experiences secondary data in patient registration book.

Data Analysis

The collected data was analyzed by descriptive and statistically method through percentage tables and graphs. The data were entered and analyzed using tabular and graphic method of representations.

Ethical Consideration

Ethical approval from the Department of Biotechnology, Adigrat University was obtained to check and collect medical records of the Health Centre of Adigrat town. Permission to conduct the study was obtained from the Health Officer of the Centre. Verbal consent was obtained from study participants and anonymity was maintained to ensure confidentiality of the study group.

RESULTS

Based on the collected data, the outcome of
the study was described as follow:

Table 1. The prevalence of *anemia* disease in Adigrat health centre, Adigrat town from 2011-2014, with respect to difference in age.

Age group	Years (2011-2014)									
	2011		2012		2013		2014		Total	
	No	%	No	%	No	%	No	%	No	%
0-4	0	0%	0	0%	0	0%	0	0%	0	**0%**
5-14	35	27.34%	3	12%	1	4.16%	1	4.34%	40	**20%**
>15	93	72.65%	22	88%	23	95.83%	22	95.65%	160	**80%**
Total	**128**	**64%**	**25**	**12.5%**	**24**	**12%**	**23**	**11.5%**	**200**	**100%**

Table 1 shows the prevalence of *anemia* in four consecutive years. The prevalence showed that there is fluctuation from time to time that means in 2013 and 2014 there is lowest number of individual infected by *anemia* which is numerically 24 and 23 respectively. On the other hand, there were many number of individuals infected with the disease in 2011, which is numerically equals to 93.
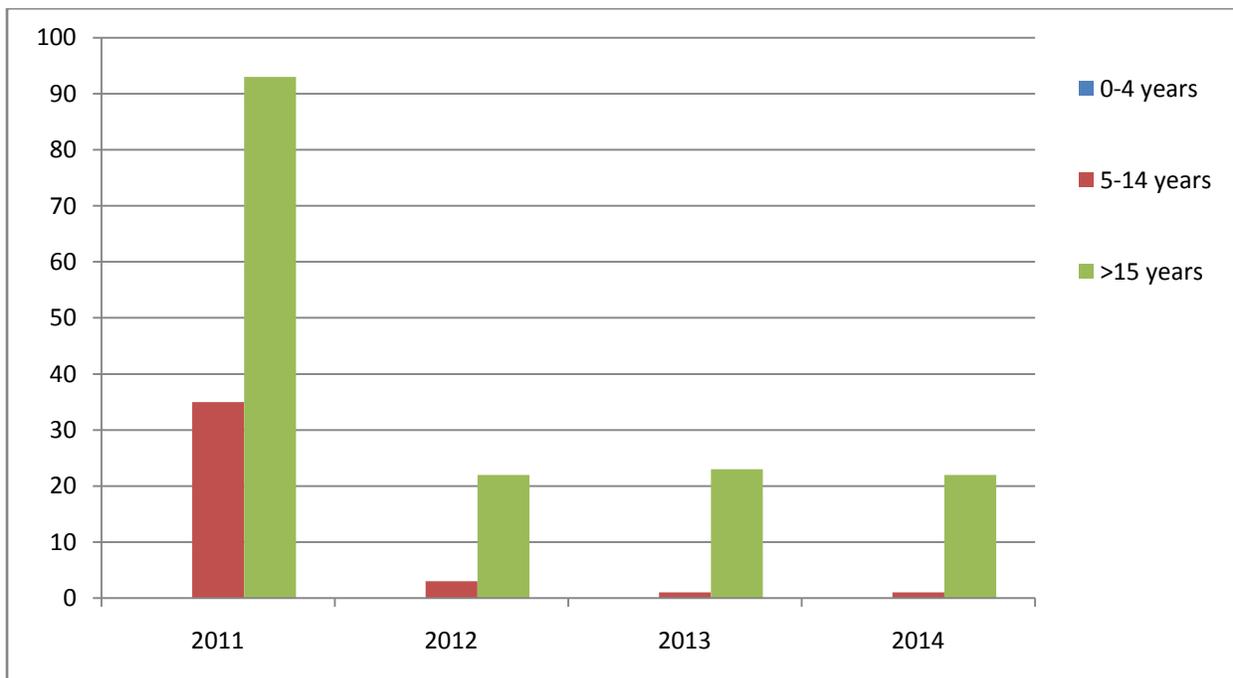

Figure 1. Prevalence of *anemia* in four consecutive years of Adigrat Health Centre with respect to the difference in age.

Key: The prevalence of anemia among patients of 0-4 years of age group which is shown in the blue bullet above is zero, and has no reading on the graph; because it lies exactly on the Y-axis of the graph.

Table 2. Comparison of the prevalence of *anemia* infection between both sexes in 'Adigrat' Health Centre, Adigrat town, from 2011-2014.

Sex	Years (2011-2014)									
	2011		2012		2013		2014		Total	
	No	%	No	%	No	%	No	%	No	%
Males	65	50.78%	8	32%	9	37.5%	5	21.73%	87	**43.5%**
Females	63	49.21%	17	68%	15	62.5%	18	78.26%	113	**56.5%**
Total	**128**	**64%**	**25**	**12.5%**	**24**	**12%**	**23**	**11.5%**	**200**	**100%**

As shown in table 2, females were more affected by the disease. The prevalence was higher for females in all years except the year 2011. It was also observed that the prevalence was increased in the past four years.
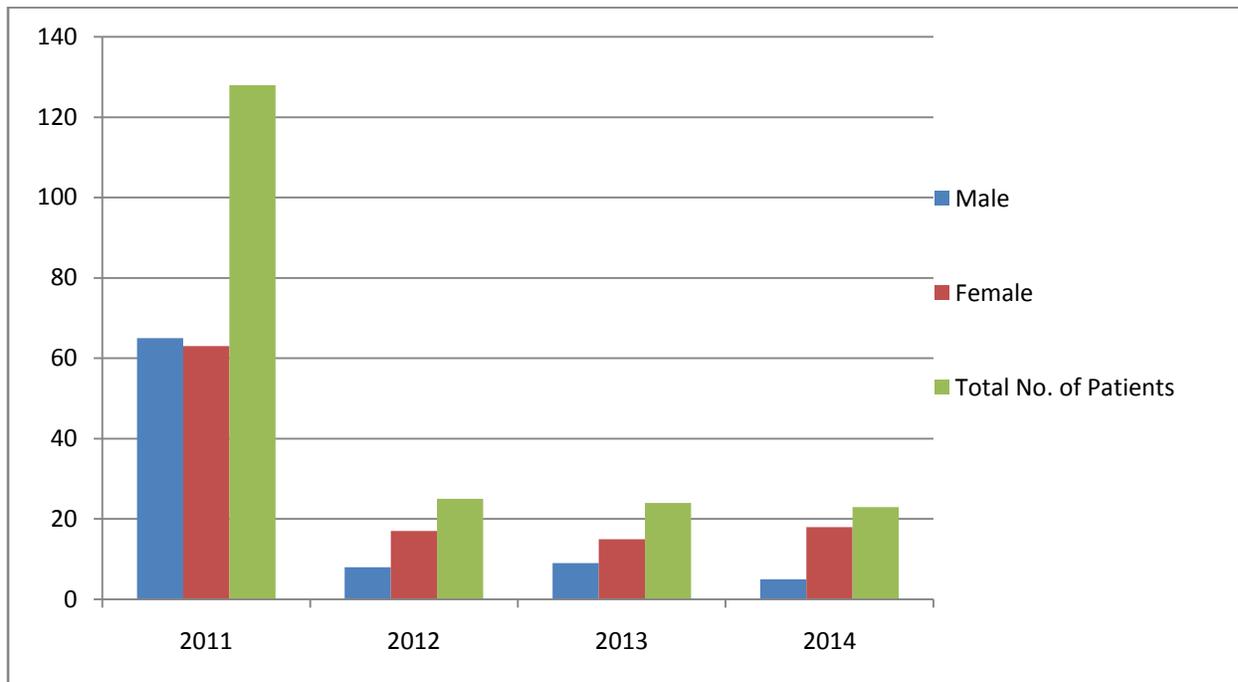

Figure 2. Comparison between male and female with respect to their victimization to *anemia* infection from 2011-2014.

Table 3. Comparison of the prevalence of *anemia* infection among the four years in 'Adigrat' Health Centre, Adigrat town, from 2011-2014.

Years (2011-2014)	No. of patients	Percentage (%)	Total No. of Patients
2011	128	64%	
2012	25	12.5%	200
2013	24	12%	
2014	23	11.5%	

According to the table above, it was in the year 2011, people were more affected by *anemia* 128 (64%) than the other years. However, in the year 2014, there was lowest number of infected individuals 23(11.5%) than the other years.
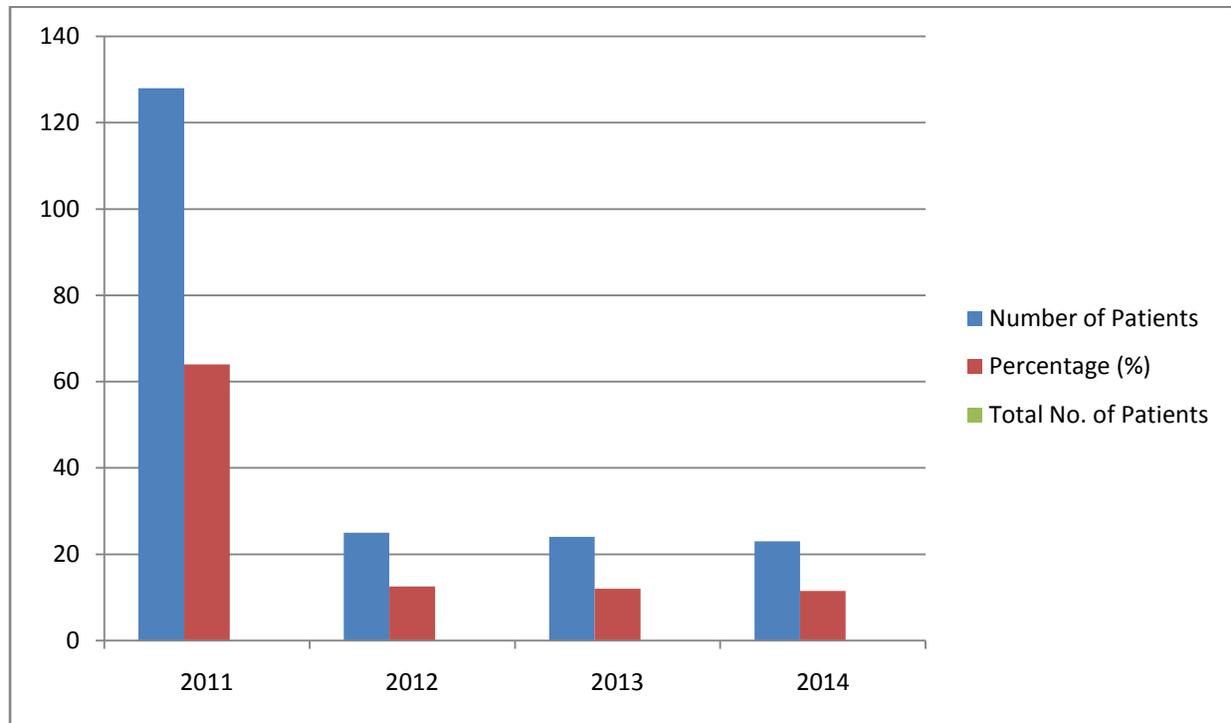

Figure 3. Comparison (in percentage) of prevalence of *anemia* infection among the four years experiences of 'Adigrat' Health Centre, Adigrat town, from 2011-2014.
Key: The prevalence of anemia among patients of 0-4 years of age group which is shown in the blue bullet above is zero, and has no reading on the graph; because it lies exactly on the Y-axis of the graph.

DISCUSSION

The prevalence showed that there is fluctuation from time to time; for example in 2013, there was lowest number of individuals infected with *anemia*. In the age of 0-4 of all years, there was no *anemia*

prevalence. The prevalence of anemia in 2011 for the age group of 5-14 was about 35 (27.34%) while it was 3(12%) in 2012 for the same age group. This indicates the prevalence was slightly decreased 2011-2014 in this age group (5-14). In 2011, the prevalence was about 37 (27.34%). This shows that it was slightly higher as compared to the other years in the same age group of 5-14. In 2013, the prevalence of *anemia* at the age group of 5-14 was about 1(4.16%). This shows that it was lowest as compared to the previous years in the same age group. The prevalence of *anemia* in the age group of >15 in the year 2011 was 93 (72.65%). This shows that its prevalence was lower than the prevalence in 2012 -2014 in the same age group.

The prevalence of *anemia* in the year 2011 was 93 (72.65%) which indicates the prevalence was slightly lower than the other years in the same age group of >15. And its prevalence was slightly higher in the year 2013 for the same age group of >15 which is about 23 (95.83%). Based on the result, the individual at the age group >15 were more affected by the disease. This was in line with work of Meseret *et al.* (2013), University of Gondar, Ethiopia.

It was also observed that the prevalence was higher for females than males in all years except the year 2011. Its rate was increased in the past four years. This shows that the number of individuals infected by *anemia* during these years as compared to other years was higher. From the total number infected with the disease about 87 (43.5) were males and 113 (56.5) were females. This indicates that females individuals were severely affected and at

high risk with the disease as compared to male.

The study has strongly emphasized that *anemia* was more prevalent in women than males attending in 'Adigrat' Health Centre, from 2011-2014. Even though it was higher in women it shows fluctuations from years to years. Women in the child bearing years are particularly susceptible to iron deficiency *anemia* because of blood loss from menstruations and increased blood supply demands during pregnancy. Women have monthly period that eliminates iron and they have a baby that is using iron. Pregnant women are building up baby, which uses up a lot of nutrients. The result of this study was therefore in line with the work of Meseret *et al.*, (2013).

CONCLUSION

Based on the study, the prevalence of *anemia* has been shown fluctuating from time to time in the study area. Even though, the disease could affect both sexes, the prevalence was highly recorded in females than males. Moreover, the prevalence was also higher in the age group of greater than 15 years.

Generally, in the study area, females have high risk of developing *anemia* than males. If the infection continues in such away in the study area, it can adversely affect the female's performance in the development of the nation as a whole. Therefore, the finalized document of this study may help to understand and direct the current status and future preventive mechanisms of *anemia* among individuals and the community as a whole. Furthermore, the work might be used as a starting point (as reference) for further research work.

Besides, to reduce the risk of the *anemia* disease in 'Adigrat' Health Centre, there should be some point of action to be recommended by the researcher as solution; of which pregnant women must feed on iron diets; both sexes must depend on their diet on iron rich foods; the health center should educate and encourage pregnant women to born their child in the health centre in order to prevent large blood loss are the most.

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