

Reticulocyte Count among Tuberculosis Patients under Treatment Attending Rabak Teaching Hospital

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Abstract: Reticulocyte count is one of the most common blood test that used to diagnosis of hematological abnormalities and activity of bone marrow. Tuberculosis is a major of a big health problem in the world especially in Sudan, This study done in Rabak teaching hospitals During January to April 2016.

Method: Case control study One hundred patients of tuberculosis and one hundred age and sex matched healthy controls, after individually filled the informed consent.

2.5 ml blood samples were taken in ethylene diamine tetra acetic acid (EDTA) treated tube and Reticulocyte count was done manually by microscopy of new ethylene blue stained blood films.

Result: The results showed Reticulocyte count was highly non significant in TB patients when comparing with the healthy person with P value 0.692 for reticulocyte count.

Conclusion: Most of the patients showed no relationship between reticulocyte and tuberculosis.

Keywords: (Tuberculosis, ethylene diamine tetra acetic acid), Abbreviations (, TB tuberculosis, EDTA ethylene diamine tetra acetic acid.)

1. INTRODUCTION

Reticulocyte count is a blood test that measured how fast red blood cells called reticulocytes are made by bone marrow and release into blood.⁽¹⁾

Tuberculosis is a bacterial infection.⁽²⁾ and It is the second greatest killer due to a single infectious agent worldwide, and in 2012, 1.3 million people died from the disease, with 8.6 million falling ill.⁽³⁾ The African Region had 28% of the world's cases in 2014. Most people who are exposed to TB never develop symptoms because the bacteria can live in an inactive form in the body. But if the immune system weakens, such as in people with HIV or elderly adults, TB bacteria can become active. In their active state, TB bacteria cause death of tissue in the organs they infect. Active TB disease can be fatal if left untreated.⁽⁴⁾

The present study was aims at assessing Reticulocyte count among patient infected with tuberculosis under treatment attending Rabak teaching hospital, White Nile state, Sudan, which have not been studied before in this area.

2. METHOD

Case control study hospital based study was conducted during January to April 2016 in Rabak teaching hospital in Sudan .One hundred patients of tuberculosis randomly involved in this study and one hundred age and sex matched healthy controls were enrolled for study by convenient non-probability sampling, after individually filled

2.5 ml blood samples were taken in ethylene diamine tetra acetic acid (EDTA) treated tube and Reticulocyte count was done manually by microscopy of new ethylene blue stained blood films.

All results sited in the questioner. And SPSS version 21 was used for data entry and analysis.

3. THE RESULT

Two hundred Venous blood samples, 100 from patients infected with TB attending Kosti and kenana teaching hospitals and 100 from healthy individuals as control, were analysis for hematological parameters change using automated hematological analyzers method (Sysmex) and the result were processed statistically by using SPSS (version21). The following tables showed the results obtained.

Table 1: Gender, Age, Education, Family history and Address of TB patients under effective Anti tuberculosis therapy and control:

No	Parameter	Category	Study group n=100		Control group n=100	
			Frequency	Percent	Frequency	Percent
1	Gender	Male	78	78	78	78
		Female	22	22	22	22
2	Age	<15years	9	9	6	3
		15-30years	44	50	50	56.4
		31-45years	26	30	35	18.5
		>45years	21	11	9	26.5
3	Education	Not Educate	35	52.9	10	8.2
		Primary	24	12.7	20	12.8
		Secondary	33	17	42	47.7
		University	8	17.4	32	32.3
4	Family history	Yes	27	27	0	0
		No	73	73	100	100
		Non smoker	93	92.3	100	100
		1-2 years	95	94.6	0	0
		>2years	1	1	0	0
		Rabak	71	71	5	5
		Rural area	29	29	0	0

- ❖ 78% of cases are Male.
- ❖ The most frequencies of TB patients age (15-30) represent 50%.
- ❖ Most of patients are not Educate represent 52.9%, and 27% of patients had a history of Tuberculosis in their families.
- ❖ Almost of patients from Rabak (71%) .

Table 2: Smoker and duration of smoking of TB patients under effective Anti tuberculosis therapy and control:

No	Parameter	Category	Study group n=100		Control group n=100	
			Frequency	Percent	Frequency	Percent
1	Smoker	Smoker	7	6.7	0	0
		Non smoker	93	92.3	100	100
2	Duration of smoker	<year	4	3.4	0	0
		1-2 years	95	94.6	0	0

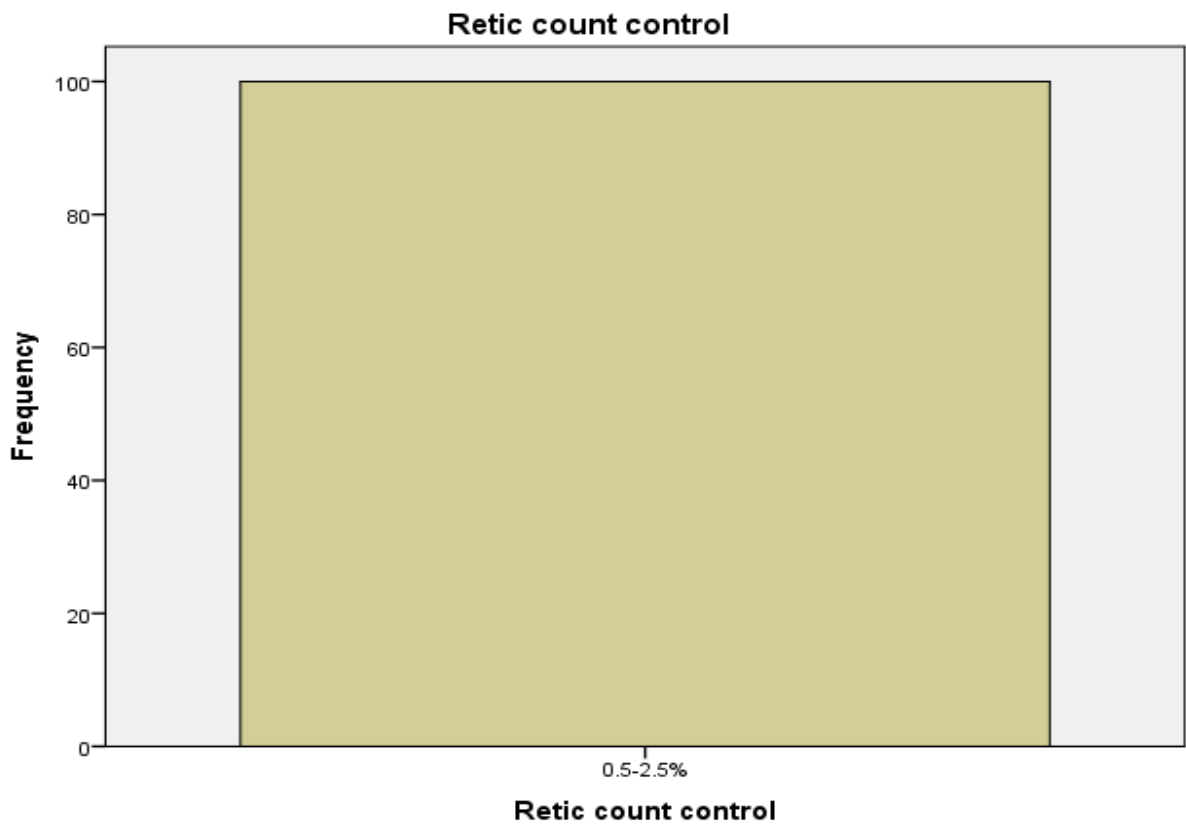
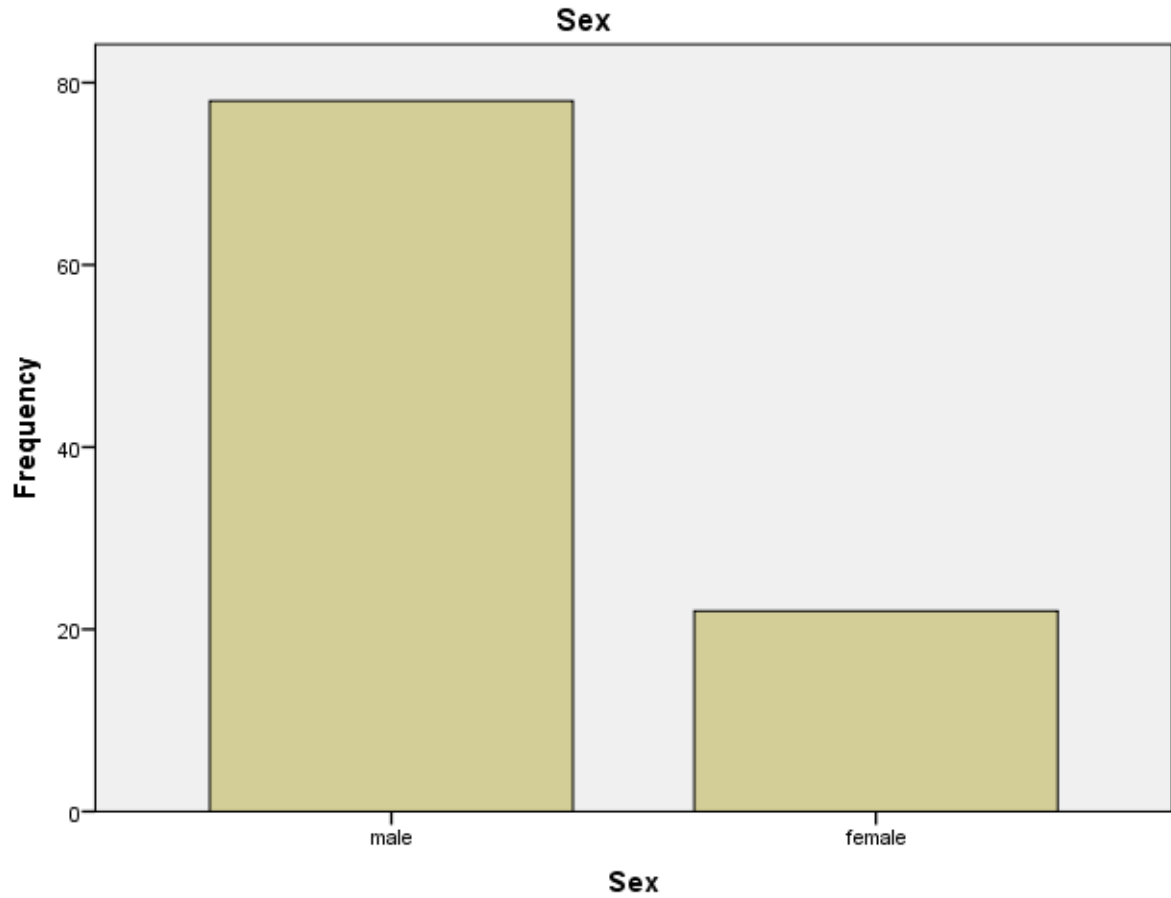
- ❖ 93% of patients included in this study are non smoker.
- ❖ Duration of smoking in smoker patient (1-2 years) represent 94.6%.

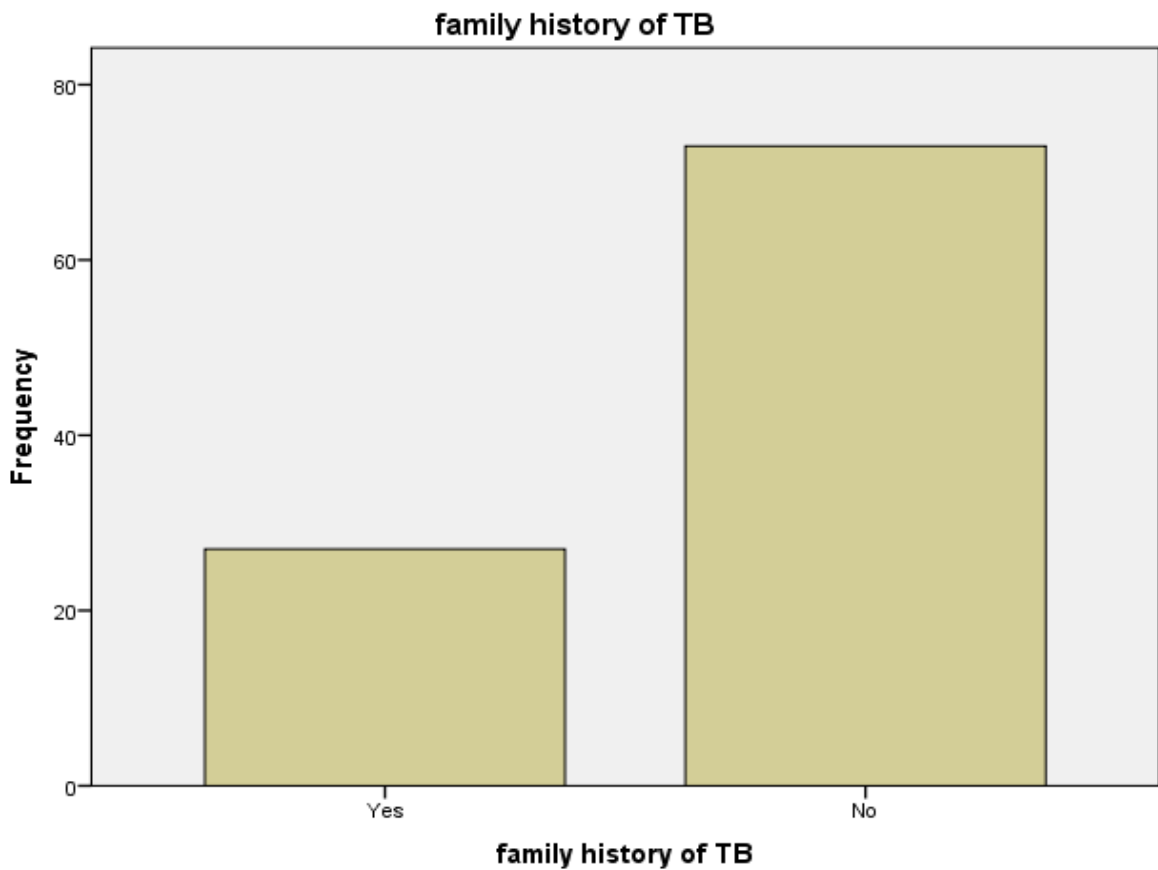
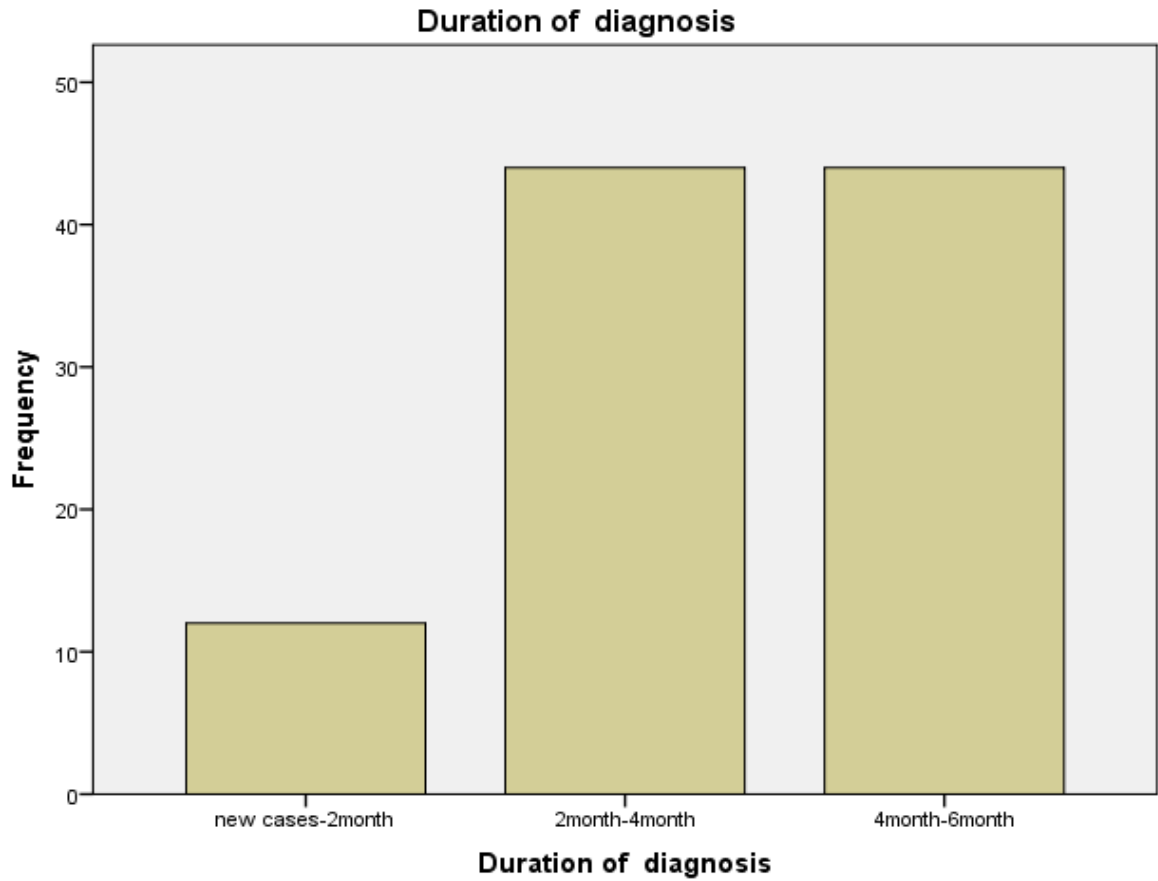
Table 3: Reticulocyte counts of TB patients under effective Anti tuberculosis therapy and control:

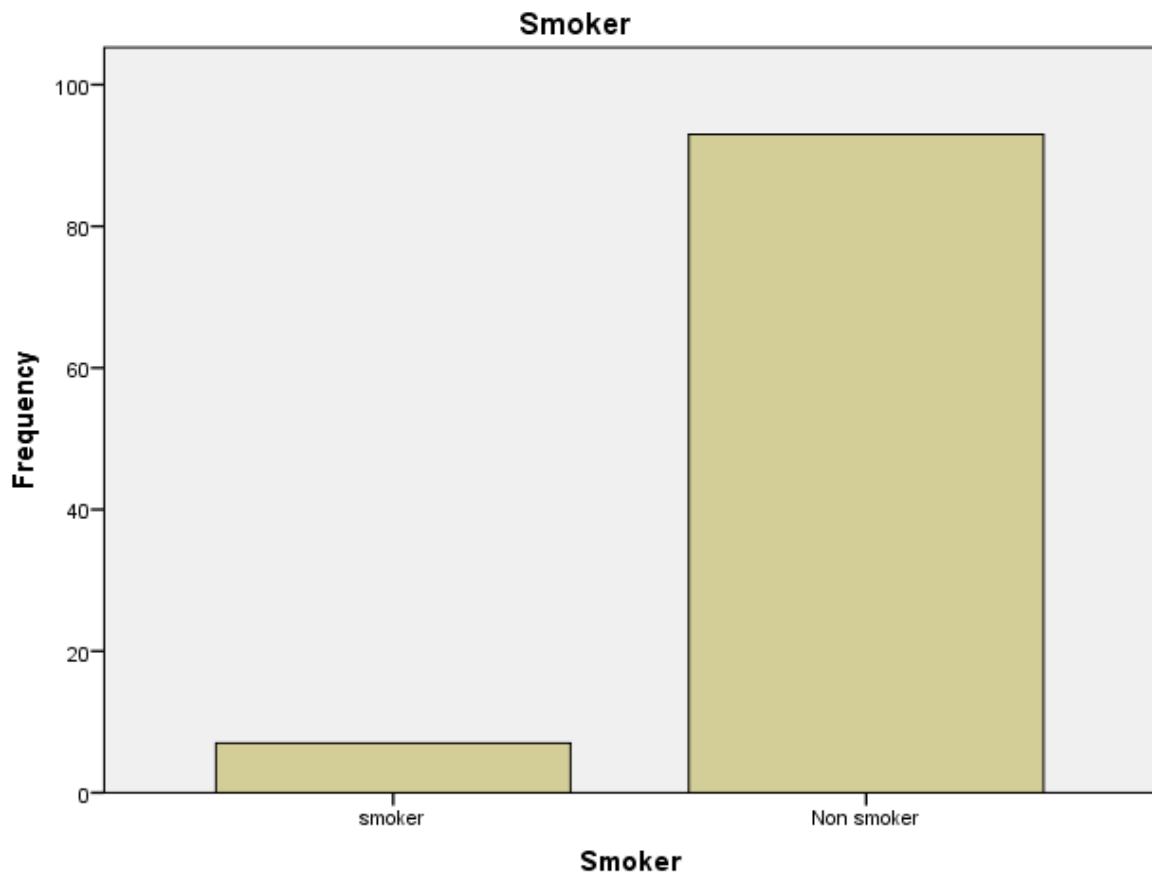
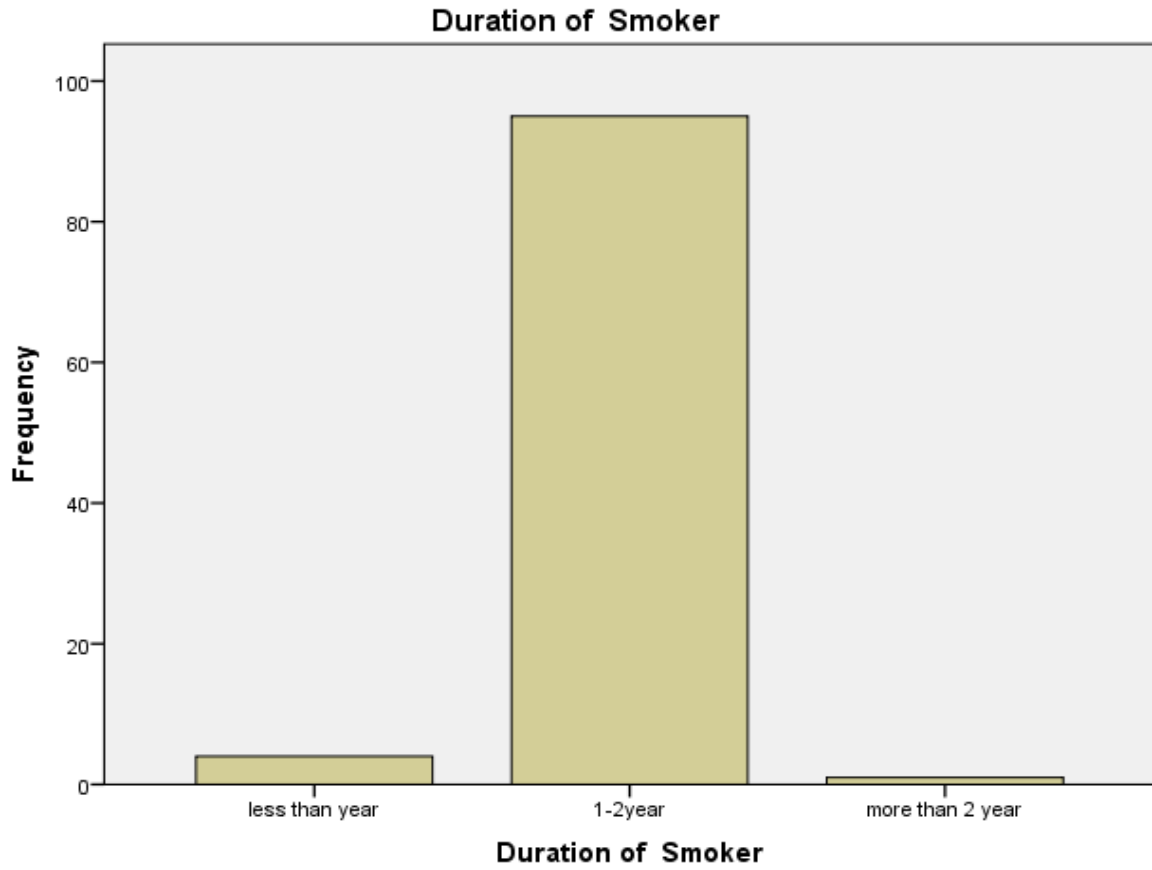
No	Parameter	Category	Study group n=100		Control group n=100		t value	P Value
			Frequency and percent	Mean ±SD	Frequency and percent	Mean ±SD		
8	Retic count	<0.5%	3	1.03±0.45	0	1.22±0.42	3.115	0.692
		0.5-2.5%	97		100			

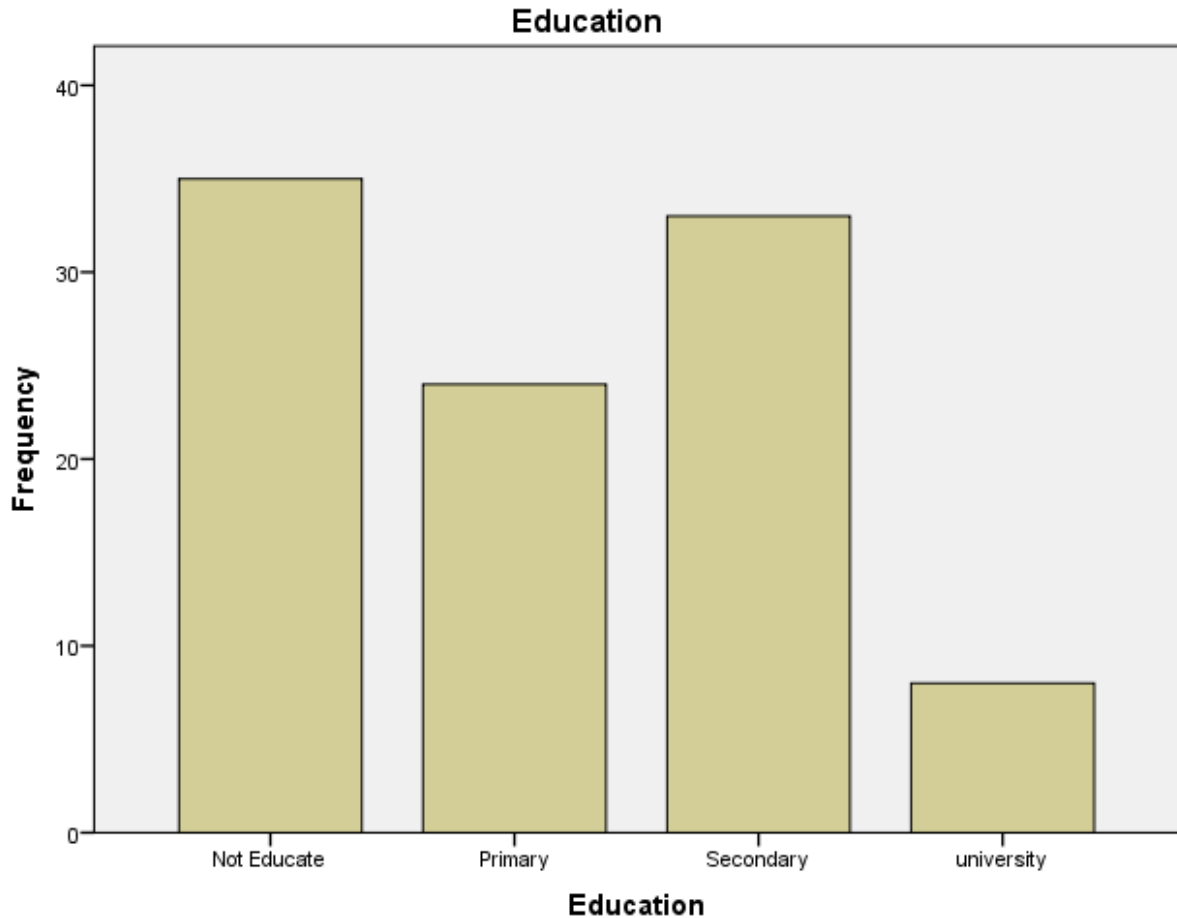
* Significant (P<0.05)

- ❖ The most of Reticulocyte count of patients is normal (0,5-2.5%) represent 97%.









4. DISCUSSION

Pulmonary tuberculosis (PTB) is a major infectious disease with very high incidence in developing countries.⁽⁵⁾ It causes ill-health among millions of people each year and ranks alongside the human immunodeficiency virus (HIV) as a leading cause of death worldwide. The African Region had 28% of the world's cases in 2014.⁽⁶⁾

This is a case control study conducted in Rabak teaching hospital in White Nile State, Sudan, from January to April 2016 to reveal reticulocyte count in pulmonary tuberculosis patients who are clinically positive with acid fast bacilli (MTB) in sputum and under treatment.

The patients were lies in average of ages between 15-30 years, 31-45 years and <15 years with percentage 44%, 26% and 9% respectively(**Table 1**).

This study shows close relation between educational state and the distribution of the disease among the patients, with significant distribution among 52.9% of non-educated patients in Rural area 29%, and Rabak 71% (**Table 1**).

27% of patients had a family history of TB (**Table 1**).

There was a negative correlation between Reticulocyte count and tuberculosis (p. value = 0.692) and the count revealed was (1.03 ± 0.45) resemble that of the Mubarak I Idriss result..etal, that done on Kassala Area, Eastern Sudan on August 2013, who found that Reticulocytes Count, $\% 0.99 \pm 0.51$ (**Table 3**).⁽⁷⁾

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