# Epidemiology of anemia among the schoolchildren at Al-Leith 1438

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**Abstract:** *This study was conducted in Al-Leith governorate among schoolchildren during the year 1438 to Study the epidemiology of anemia among the class of students and study the spread among the class and the most reliable in the prevalence of anemia among school students.*
*The study showed that the percentage of anemia is different between the sexes, with 61% for men and 40% for women.*
*The age group (16-20 years) was the most affected (53%), followed by (11-15) years (36%), (20+) years and more (10%).*
*The study showed that there was a relationship between type and incidence rate (p value = 0.01).*
*The study also showed a significant relationship between the genetic factor and the incidence rate (p value = 0.00).*
*The study showed a relationship between the number of infected relatives and the increase in the number of injuries (p value = 0.00).*
*The study showed a relationship between the rate of infection and knowledge of the disease and those with anemia (p value = 0.00).*
*The study showed no relationship between the rate of infection and the monthly income of the family as well as the health services provided to the disease and proximity and after them and the status of the job (not significant)*

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## I.  Introduction

Anemia occurs when the haemoglobin concentration (Hb) falls below the normal range for the age and sex of the individual (Hb) may be altered when living at high altitudes (which elevates the normal range ) , and in states such as pregnancy and splenomegaly , which lead to an increased plasma volume so that a normal red cell mass is maintained at lower haemoglobin concentrations [1].

True anemia arises when there is an imbalance between red cell production and red cell destruction Increased red cell destruction can be compensated fo in part by increased marrow production , so that chronic anemia only occurs when red cell survival is less than half normal . Many causes of anemia have multiple mechanisms . In thalassaemia , for example ,both ineffective erythropiesis and haemolysis occur [2].This study was conducted in Al-Leith governorate among schoolchildren during the year 1438 to study the epidemiology of anemia among the class of students and study the spread among the class and the most reliable in the prevalence of anemia among school students.

## II.  Material and methods

Method of statistical data collection from Schoolchildren at Al-Leith by Questionnaire  and analysis using SPSS.

## III. Result

- Table (1) show the total of sample (200).
- Table (2) contain distribution of gender in study sample (61%) male and (39%) female.
- Figure (1) show distribution of gender in study sample (61%) male and (39%) female.
- Table (3) show distribution of age groups in study sample, With the highest frequency in group (16-20) (53.5%) followed by group (11-15) (36%) and then group (20+) (10.5%).
- Figure (2) show distribution of age groups.
- Table (4) show Distribution of study sample by nationality The Saudis were (93%) while foreigners (7%).

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- Table (5) show the relationship between the gender and the rate of infection where the relationship was significant (p value = 0.01).
- Table (6) show the relationship between the age groups and the rate of infection where the relationship was not significant (p value = 0.09).
- Table (7) show the relationship between the nationality and the rate of infection where the relationship was not significant (p value = 0.55).
- Table (8) show the relationship between an employee status and the rate of infection where the relationship was not significant (p value = 0.54).
- Table (9) show the relationship between the salary and the rate of infection where the relationship was not significant (p value = 0.08).
- Table (10) show the relationship between the Genetic factorand the rate of infection where the relationship was significant (p value = 0.00).
- Table (11) show the relationship between the number of infections in the familyand the rate of infection where the relationship was significant (p value = 0.00).
- Table (12) show the relationship between Degree of kinshipand the rate of infection where the relationship was significant (p value = 0.01).
- Table (13) show the relationship between the distance of the health institutionand the rate of infection where the relationship was not significant (p value = 0.39).
- Table (14) show the relationship between Know the patient to deal with the diseaseand the rate of infection where the relationship was significant (p value = 0.00).
- Table (15) show the relationship between the Change seasonsand the occurrence of symptomswhere the relationship was significant (p value = 0.00).
- Table (16) The prevalence of anemia accounts for 20.5% of the study population (not infection 79.5%).

**Table (1) Total of sample**

|  | Gender | age | nationality |
|---|---|---|---|
| Valid | 200 | 200 | 200 |
| Missing | 0 | 0 | 0 |

**Table (2) frequency of gend**er

|  | Frequency | Percent |
|---|---|---|
| male | 122 | 61.0 |
| female | 78 | 39.0 |
| Total | 200 | 100.0 |
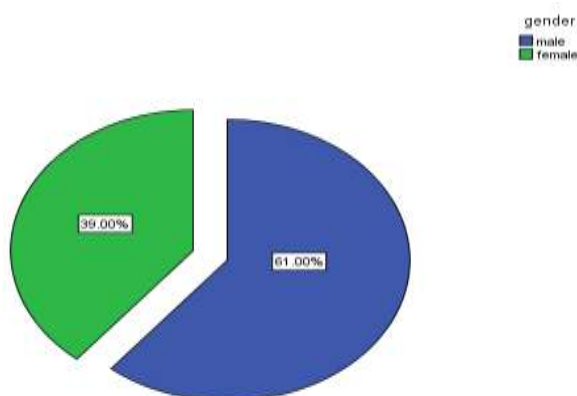


**Figure (1)** distribution of gender

**Table (3) frequency of age groups**

|  | Frequency | Percent |
|---|---|---|
| 11-15 | 72 | 36.0 |
| 16-20 | 107 | 53.5 |
| 20+ | 21 | 10.5 |
| Total | 200 | 100.0 |
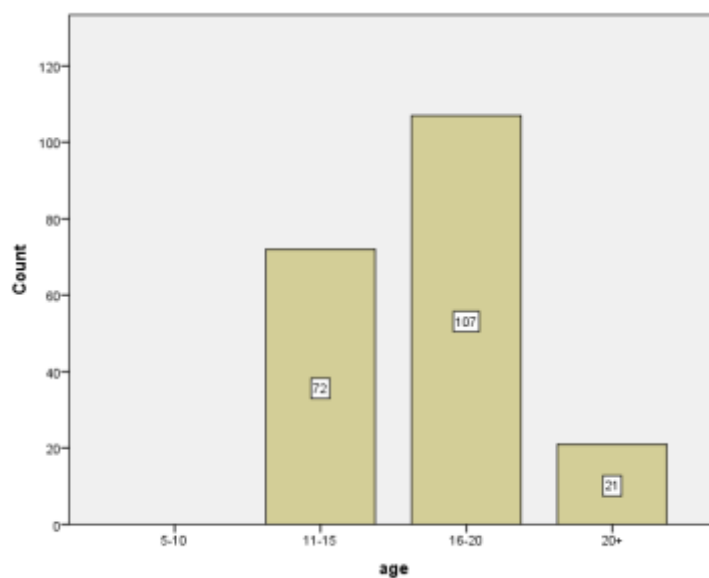


**Figure (2)** distribution of age groups

**Table (4) frequency of nationality**

|  | Frequency | Percent |
|---|---|---|
| Saudi | 186 | 93.0 |
| Non Saudi | 14 | 7.0 |
| Total | 200 | 100.0 |
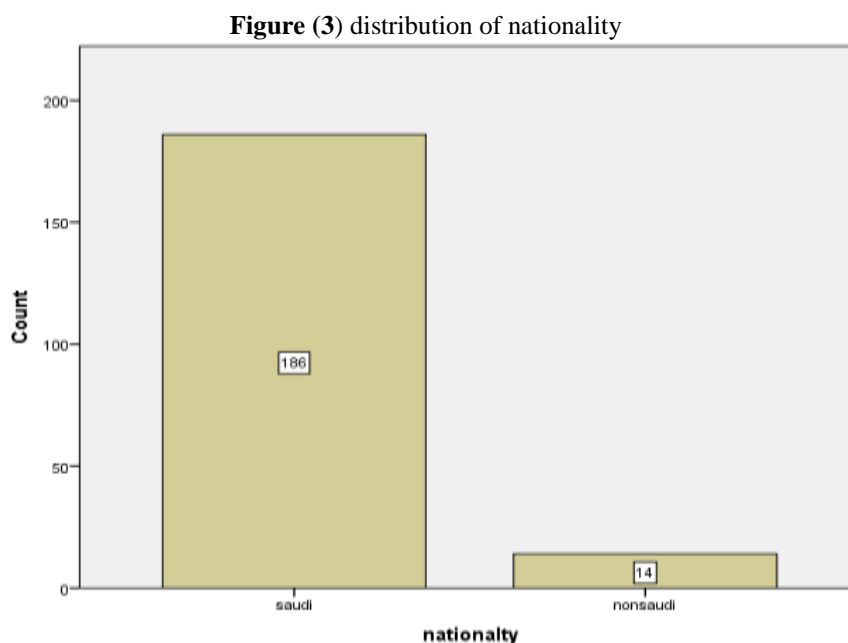
**Figure (3)** distribution of nationality

**Table (5) Relation between infection and gender**

| | | Infection | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| gender | male | 18 | 104 | 122 |
| | female | 23 | 55 | 78 |
| Total | | 41 | 159 | 200 |

$X^2$ 6.33                     p value  .01 (significant)

**Table (6) Relation between infection and age**

| | | Infection | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| age | 11-15 | 14 | 58 | 72 |
| | 16-20 | 22 | 85 | 107 |
| | 20+ | 5 | 16 | 21 |
| Total | | 41 | 159 | 200 |

$X^2$ 19.1                     p value  .09(not significant)

**Table (7) Relation between infection and nationality**

| | | Infection | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| nationality | saudi | 39 | 147 | 186 |
| | nonsaudi | 2 | 12 | 14 |
| Total | | 41 | 159 | 200 |

$X^2$ 35.7                     p value  .55(not significant)

**Table (8) Relation between infection and employee status**

| | | Infection | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| employee | employee | 2 | 14 | 16 |
| | unemployed | 3 | 17 | 20 |
| | student | 36 | 128 | 164 |
| Total | | 41 | 159 | 200 |

$X^2$ 1.2                     p value  .54(not significant)

**Table (9) Relation between infection and salary**

|  |  | Infection | | Total |
|---|---|---|---|---|
|  |  | Yes | No |  |
| salary | none | 15 | 73 | 88 |
|  | 5000+ | 7 | 20 | 27 |
|  | 5000 | 6 | 14 | 20 |
|  | 3000 | 8 | 39 | 47 |
|  | less than 3000 | 5 | 13 | 18 |
| Total |  | 41 | 159 | 200 |

$X^2$ 3.08                    p value  .08(not significant)

**Table (10) Relation between infection and salary**

|  | Infection | | Total |
|---|---|---|---|
|  | Yes | No |  |
| Yes | 25 | 26 | 51 |
| No | 16 | 133 | 149 |
| Total | 41 | 159 | 200 |

$X^2$ 34.1                    p value  .00 (significant)

**Table (11) Relation between infection and salary**

|  |  | Infection | | Total |
|---|---|---|---|---|
|  |  | Yes | No |  |
| Q10 | 0 | 18 | 119 | 137 |
|  | 1 | 5 | 7 | 12 |
|  | 2 | 11 | 23 | 34 |
|  | 3 | 4 | 10 | 14 |
|  | 4 | 2 | 0 | 2 |
|  | 5 | 1 | 0 | 1 |
| Total |  | 41 | 159 | 200 |

$X^2$ 22.9                    p value  .00(significant)

**Table (12) Relation between infection and salary**

| | | Infection | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| Q11 | non | 27 | 137 | 164 |
| | father | 6 | 7 | 13 |
| | mother | 8 | 15 | 23 |
| Total | | 41 | 159 | 200 |

$X^2$ 10.3      p value .01(significant)

**Table (13) Relation between infection and salary**

| | | Infection | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| Q12 | non | 6 | 39 | 45 |
| | 1 hour | 8 | 26 | 34 |
| | lees than | 27 | 94 | 121 |
| Total | | 41 | 159 | 200 |

$X^2$ 1.8      p value .39 (not significant)

**Table (14) Relation between infection and salary**

| | | Infection | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| Q18 | Yes | 17 | 54 | 71 |
| | No | 12 | 25 | 37 |
| | i don't no | 8 | 77 | 85 |
| | sometime | 4 | 3 | 7 |
| Total | | 41 | 159 | 200 |

$X^2$ 15.9      p value .00(significant)

**Table (15) Relation between infection and salary**

| | | Infection | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| Q22 | winter | 16 | 31 | 47 |
| | summer | 20 | 106 | 126 |
| | Air condation | 5 | 22 | 27 |
| Total | | 41 | 159 | 200 |

$X^2$ 20.7      p value .00(significant)

**Table (16) infection**

|  | Frequency | Percent |
|---|---|---|
| infection | 41 | 20.5 |
| Not infection | 159 | 79.5 |
| Total | 200 | 100.0 |

## IV. Discussion

The prevalence of anemia accounts for 20.5% of the study population (in KSA (20-30)% at schoolchildren) [1].

The study showed that the percentage of anemia is different between the sexes, with 61% for men and 40% for women respectively.

The age group (16-20 years) was the most affected (53%), followed by (11-15) years (36%), (20+) years and more (10%).

The Saudis (93%), while foreigners (7%).

The study showed that there was a relationship between type and incidence rate (p value = 0.01).

The study also showed a significant relationship between the genetic factor and the incidence rate (p value = 0.00).

The study showed a relationship between the number of infected relatives and the increase in the number of injuries (p value = 0.00).

The study showed a relationship between the rate of infection and knowledge of the disease and those with anemia (p value = 0.00).

The study showed a relationship between change in seasons and increased feelings of symptoms of anemia (p value = 0.00).

The study showed no relationship between the rate of infection and the monthly income of the family as well as the health services provided to the disease and proximity and after them and the status of the job (not significant)

## V. Conclusion

* The prevalence of anemia accounts for 20.5% of the study population.
* The highest rate of infection was in the age group (16-20) years and reached (53%).
* The proportion of males to females (61% - 39%), respectively.
* Factors affecting the rate of infection are the type p = 0.01 and the genetic factor p value = 0.00). And the number of patients in the family p value = 0.00).
* The degree of kinship related to the infected person as well as knowledge and knowledge of the disease

## VI. Recommendation

• Further studies on anemia.

• Focus on school students.

• Pre-marital screening to avoid the genetic factor.

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