

MPH/ Environmental Health

Deanship of Graduate Studies

**Gender variation in risk factors for anemia among
Palestinian children**

By

Student Name: Rima Rafiq Rabah El Kishawi

Registration No.: 20011690

Supervisor: Dr. Yehia Abed

Master thesis submitted and accepted, data: June 28th 2003

The name and signatures of the examining committee members as follows:


1-Dr. Yehia Abed

Head of Committee

signature.....

2-Dr. Suzanne Shasha'a

Internal Examiner

signature.....

3-Dr. Ahmed El Shibi

External Examiner

signature.....

Al-Quds University

June 2003

Abstract

Anemia is the most widespread disorder in the world; iron deficiency anemia is the most prevalent nutritional deficiency among children in Gaza Strip. There are many risk factors contributing to such prevalence include feeding pattern, nutrition practice, supplements, health status, and infectious parasites. The aim of this study is to examine gender variation in these risk factors for anemia among children in Gaza Strip. As good caring practices in the initial years of life without any preference treatment in the health care and nutritional practice will have a major impact on child development. Secondary data was carried out to achieve this objective. Study sample was 881 children from Gaza Strip of these 445 males and 436 females; the age group was up to 24 months. This study shows that the prevalence of anemia among the study population was 46.4%, and anemic males were 49.0% more than females 43.8%, and it was found that moderate anemia was the most common, while sever anemia was rare. Factors was considered as statistically significant such as breast-feeding, the results indicated males received breast milk more than females. Additionally, females received solid food more than males as cereals and there was statistically significant relationship, while there was no difference among males and females in drinking fluids, the study shows that tea was common liquid given for infants <6 months as it is a very common tradition. Health status among the respondents indicated that males exposed to diseases more than females and there was statistically significant relationship, also males received treatment more than females. Infectious parasites distributed among males and females approximately with the same percentage. In general this study shows that there are no major differences between males and females in the risk factors for anemia but there are few significant gender differences such as in feeding pattern and morbidity and that may be as the result of parents' care for males more than

females so the researcher recommends to encourage exclusive breast-feeding for infants up to 6 months without gender variation and equity care for male and female children. Finally further research is needed to address issues related to gender variation with an intervention to improve child growth.

ملخص الدراسة

يعتبر فقر الدم من أكثر المشاكل الصحية انتشارا في العالم، و فقر الدم الناتج عن الحديد هو أكثر أنواع نقص التغذية المنتشرة بين الأطفال في قطاع غزة. هناك العديد من العوامل التي تساهم في هذا الانتشار مثل: طرق التغذية، ممارسات التغذية، الإضافات، الحالة الصحية و الإصابة بالطفيليات.

تهدف هذه الدراسة إلى فحص الفروقات بين الجنسين بالنسبة لعوامل الخطر المؤدية إلى فقر الدم لدى الأطفال في قطاع غزة، حيث أن ممارسات الرعاية في السنوات الأساسية في الحياة و الخالية من المعاملات التفضيلية في الرعاية الصحية والتغذية لها الأثر الكبير على تطور الطفل ونموه ومن بين تلك الأهداف:

1-فحص مدى الاختلاف بين الجنسين بالنسبة لنوع التغذية.

2-فحص مدى الاختلاف بين الجنسين بالنسبة لطرق التغذية.

3-قياس الفرق بين الذكور و الإناث بالنسبة للوضع الصحي بينهم.

4-فحص إذا كان هناك فرق بين الذكور و الإناث بالنسبة لانتشار الطفيليات.

ولقد تم أخذ المعلومات الخاصة بالدراسة من دراسة سابقة. تتكون عينة الدراسة من 881 طفلا من قطاع غزة، منهم 445 من الذكور و 436 من الإناث يبلغون من العمر حتى 24 شهرا.

أظهرت هذه الدراسة أن مدى انتشار فقر الدم بين مجتمع الدراسة كان بنسبة 46,4% وشكلت النسبة بين الذكور

49% بينما شكلت بين الإناث 43,8% و كان فقر الدم متوسط الحدة هو النوع الأكثر انتشارا بينما فقر الدم

الأكثر حدة كان قليل الانتشار. وقد تم مراعاة المتغيرات ذات الدلالة الإحصائية مثل الرضاعة الطبيعية حيث وجد أن

الذكور تلقوا الرضاعة أكثر من الإناث و كان فطام الذكور يتم في مدة أعلى من 18 شهرا بينما لدى الإناث في أقل

من 6 أشهر ولذلك نسبة انتشار الأنيميا لدى الذكور أعلى منها لدى الإناث لحاجة الطفل بعد سن الستة شهور الى

غذاء بالإضافة الى الرضاعة الطبيعية وهذا ماتؤكدته النتائج التالية حيث وجد أن الإناث قد تلقين طعاما صلبا أكثر من

الذكور مثل منتجات الحبوب وكانت العلاقات ذات دلالة إحصائية. بينما لم يكن هناك فروقات بين الذكور و

الإناث في شرب السوائل حيث أظهرت الدراسة أن إعطاء الشاي كان منتشرنا بنسبة عالية بين الأطفال أقل من 6

أشهر. وأظهرت الدراسة أن الحالة الصحية بين الأطفال تشير إلى أن الذكور قد تعرضوا للأمراض بنسبة أكبر منها لدى الإناث حيث كانت العلاقة ذات دلالة إحصائية، كذلك بالنسبة لتلقي العلاج وجد أن النسبة بين الذكور أعلى منها بين الإناث، أما بالنسبة لانتشار الأمراض الطفيلية المعدية كان متساويا إلى حد ما بين الجنسين. وبصورة عامة لقد أوضحت هذه الدراسة أنه لم تكن هناك فروقات كبيرة بين الذكور والإناث بالنسبة إلى عوامل الخطر المؤدية إلى فقر الدم ولكنه كانت هناك بعض الفروقات القليلة ذات الدلالة الإحصائية مثل الرضاعة الطبيعية وانتشار الأمراض والذي يمكن تفسيره إلى اهتمام الأبوين للذكور أكثر من للإناث. ومن أهم التوصيات التي خرجت بها هذه الدراسة:

الحث على المساواة في المعاملة بين الأطفال الذكور والإناث وخاصة الأمور الصحية، وأيضا في المعاملة المتعلقة بالأمور الغذائية وأيضا تشجيع الرضاعة الطبيعية للأطفال حتى سن ستة شهور التي تشكل جزءا هاما في نمو وتطور الطفل و أخيرا نحن بحاجة إلى أبحاث أخرى توجه إلى المواضيع المتعلقة بالفروقات والتمييز بين الجنسين والتدخلات الموجهة لتحسين نمو لأطفال.

Table of content

	Page
Declaration	I
Dedication	II
Acknowledgement	III
Abstract	IV
Arabic abstract	VI
Table of content	VIII
List of tables	XI
List of graphs	XII
List of abbreviation	XIII

Chapter 1

Introduction	1
Significance of the problem	2
Justification	3
Objectives	5
Demography of Gaza Strip	/
Economical Situation	
Health status	
Primary health care services	
Secondary health care services	

Chapter 2 Literature review

Definition of anemia	
Types of anemia	
Overview	
Manifestations of iron deficiency	6
Stages of iron deficiency	32
Etiology of iron deficiency anemia	
Epidemiology of anemia	
Risk factors for anemia	
Prevention of iron deficiency anemia	

Chapter 3 Methodolo

Study design	
Secondary data	
Study population and sampling	
Study area	
Period of the study	
Study variable	

Ethical consideration	42
Limitation of the study	42
Statistical analysis	42

Chapter 4 Results

Characteristic of study population	44
Examination the differences among gender according to the distribution of anemia and the degree of severity	48
Possible risk factors	50

Chapter 5 Discussion

Anemia	64
feeding pattern	66
Nutritional practice	67
Drink fluids	68
Receiving supplements	70
Health status	70
Infectious parasites	71

Chapter 6 Conclusion and Recommendation

Conclusion	73
Recommendation	74
References	76
Annexes	82

Chapter 1

Introduction

Anemia is a major public health problem worldwide and is not restricted to developing nations. Anemia affects about 3,5 million Americans, making it the most common blood disorder in the United States (CDC, 1998). In the countries of the Eastern Mediterranean Region (EMR), the prevalence of anemia in women and preschool children is high (20-60%) (Verster et al, 1995). In Gaza Strip according to study was conducted by health workers among infants aged 9 months who visited MCH governmental clinics the prevalence rate of anemia was 68.2% and in UNRWA the prevalence rate of anemia was 54.4% among children aged 6-36 months and 32.8% among other population visited UNRWA (MOH, 2002).

Anemia is the most common form of blood disorder occurs when the overall number of healthy red blood cells decreases or when the amount of hemoglobin available in those cells decreases. Red blood cells contain hemoglobin, which is iron-rich protein, carries oxygen from lungs to the rest of the body. Oxygenated blood helps to give the body its energy and the skin a healthy glow. To produce hemoglobin and red blood cells, body needs iron and vitamins from foods (Tierney et al, 1998).

There are many types of anemia, each with its own causes. Anemia can be caused by an iron or vitamin deficiency, blood loss, chronic illness, or a genetic or acquired defect or disease. It may also be a side effect of medication (Tierney et al, 1998).

Iron deficiency anemia is the most common form of anemia in the world, affecting one third of the population worldwide. Iron deficiency anemia in young children is important to identify because of its adverse effects on behavior and development. In the United States, 15%-20% of children under the age of 18 years are estimated to have iron deficiencies. It affects about 240,000 between one and two years of age and 3.3 million


women of childbearing age (Tierney et al, 1998). In the Eastern Mediterranean Region (EMR) collected data indicated that a total of 149 million people are iron deficient (MOH, 2002).

It is noted that the extent of the overlap between iron deficiency and iron deficiency anemia varies considerably from one population to another and mainly according to gender and age groups. Many studies have been conducted showed preferential nutritional treatment between male and female children and health outcome, including mortality rates, morbidity rates, and nutrient intake. The studies have shown boys to be at a comparative advantage over girls. Parents may prefer children of one gender alternatively (Vijanthimala, 2001).

The aim of this study to examine gender differences in risk factors for anemia as nutritional treatment, supplements, and medical history among Palestinian children, which would help to identify the attitude and behavior for parents in treatment their male and female children in our society, as it has its affect on the health and nutritional status of children. The study could help in raising the awareness for equal treatment among gender without discriminatory preference.

Significance of the problem:


Anemia is a common problem in the developed and developing countries, affects all ages and different groups; the most commonly affected groups are young children and pregnant women. In Gaza Strip according to health workers observations and the research studies children and pregnant women are the high-risk groups (MOH, 2002). There are several risk factors for anemia, the most common documented risk factors are iron deficiency intake in food, parasitic infestations, exposure to infection, and factors related to socio-economic status (Abed, 1992). It is important to know what factors are associated with anemia to augment our knowledge about anemia in this part of the



world, and to perform successful program to reduce the prevalence of anemia among risky group. According to WHO at least half of the anemia worldwide is due to nutritional iron deficiency. As the political situation in our area the number of Palestinian children aged 6-59 months suffering from anemia increase due to malnutrition (MOH, 2002). The level of breast-feeding in Palestine is considered acceptable in general without gender variation for the first eight months. In of this, mothers continue breast-feeding the male infants more than females after the ninth month especially for the age group (15-17months) (PCBS, 2000). The attitudes and beliefs have its affecting on the child health care. This is a serious public health problem needs attention from parents and health workers for both male and female children without preferential treatment.


Justification:

Anemia is a major public health problem. It can become a serious problem if it remains undiagnosed and untreated. In the United States Centers for Disease Control and Prevention (CDC) requested the Institute of Medicine to establish an expert committee to develop recommendations for preventing, detecting, and treating iron-deficiency anemia among U.S. children and U.S. women of childbearing age (CDC, 1998). The Dakar International conference held in 1992 looked at the girl child throughout the world as an area needing special health care attention. The Global Platform for Action for Advancement of Women adopted at the Fourth World Conference on Women held in Beijing in 1995, included in the critical areas of concern responsibility for children and increase public awareness of the value of the girl child especially in regard to health (United Nation Africa Economic Commission, 1999). In our community the Palestinian Central Bureau of Statistics established the Child Statistics Program to monitor the



performance and develop the conditions of childhood in Palestine through measurement of statistical indicators and changes and gaps throughout the years.

Health workers and policy makers must working on raising people's awareness of the harmful effects of some traditional practices especially health care treatment variation among male and female children for better quality of life and health outcomes.



Objectives:

General objective:

To examine gender variation in risk factors for anemia among Palestinian children.

Specific objectives:


- 1-To test gender variation in feeding pattern among Palestinian children.
- 2-To test whether nutritional practice and supplements are variant among Palestinian children.
- 3-To test if there are differences between males and females in the health status.
- 4-To investigate the variation between infectious parasites among males and females for Palestinian children.

Chapter 6

Conclusion and Recommendation

Conclusion:

The purpose of this study was to examine gender variation in risk factors for anemia among Palestinian children. This study explored also the differences among males and females in the prevalence of anemia. Results of this study show that males were more anemic than females, most of anemic children distributed in the moderate anemia level with higher percentage among males than females. In mild anemia level there was slight differences in the distribution between males and females. While in severe anemia males and females distributed equally with low percent, it seems to be severe anemia was rare in our community. The present study shows that positive and statistically significant association between males and females regarding feeding practice. Results revealed that the percentage of males was higher than females in relation to breast-feeding. Moreover; females had stopped breast-feeding at earlier age less than 6 months in contrary than males had long duration of breast-feeding more than 18 months. The percentage of females received solid foods was higher than males. The study shows statistically significant association between males and females in receiving cereals. Concerning drinking fluids, results indicate that there is no statistically significant association between gender variation regarding drinking fluids such as tea and water. The present study reports that males and females received tea at early age less than 6 months. This is an important point to mention which needs more attention and raise awareness for parents toward their children as tea inhibit the absorption of non-haem iron from diet. To reduce the prevalence of iron deficiency anemia, infants by 4 months must receive suspension of iron and vitamins. This study revealed that there was no statistically significant association concerning gender



variation and receiving supplements. More than half of children received iron at early age less than 6 months, with no difference in the number of iron bottles between males and females. In addition to that, most of males and females received vitamins at early age. This is good indication about the attention from parents towards their children without any preference treatment. According to health status the present study shows that males exposed to diseases such as diarrhea and cough more than females. There was positive and statistically significant association. It was found that the percentage of males received diarrhea and cough treatment was slightly higher than females. Regarding infectious parasites such as *Ascaris*, *Trichurus trichura* and *Giradia lamblia*; results reveal that males and females approximately had the same percentage. Finally the research clarifies that males are more anemic than females, and worth point to mention that in spite of the bad nutrition in our community there are no big differences among males and females regarding risk factors for anemia in Gaza Strip, contradictory in developing countries where gender variation is clear. This study shows some significant gender variations such as feeding practice and morbidity that could be explained by parents' caring for males more than females.

Recommendation:

The first few years of a child's life are the most important since early childhood development takes in this period. Care for survival, growth and development are every child's right to fulfillment of human potential requires optimal early care for infants so we recommend: in the light of that the research recommend the following:

- 1-Highlights the importance of perspective, that every child has the right for survival, growth, care and development.
- 2-Raising awareness and understanding of gender variation to public health programs.
- 3-Encourage exclusive breast-feeding up to 6 months without gender variation.

- 4-There is a great need for research into types and amount of food given, feeding behavior and infants' growth patterns without gender variation.
- 5-Challenging unhelpful stereotype in society that encourage gender preference.
- 6-Great efforts will be require in establishing the perspective of gender equity in society as the attitudes and behavior change is always a very slow process.
- 7-Promote research to address issues related to gender variation with an intervention to improve child health status.
- 8-National intervention plan is needed to improve child status.
- 9-A follow up study is needed to examine the situation for the children in Gaza Strip after the period of primary data of this research.