

Prevalence of Anemia in both Developing and Developed Countries around the World

Rajalakshmy Prasanth

ABSTRACT

Anemia is a major nutritional problem worldwide and is mainly caused due to iron deficiency. Though it is global in occurrence, it is more of a concern in the developing countries where it is always associated with the socioeconomic status of the people. Anemia is very high (ranging between 80 and >90%) in pre-school children, adolescent girls, and pregnant and lactating women. There are about 1.2 billion adolescents in the world, which is equal to one-fifth of the world's population and their numbers are increasing. This study deals with the prevalence of anemia in the different nations of the world.

Keywords: Complication, Iron deficiency anemia, Prevalence.

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INTRODUCTION

Anemia is a global public health problem affecting both emerging and developed countries. It leads to major adverse consequences in human health as well as social and economic growth.¹⁻⁴ Anemia is characterized by a decrease in the normal level of red blood cells or due to lower-than-normal quantities of hemoglobin in the blood. According to the World Health Organization (WHO), anemia is defined as the presence of hemoglobin of less than 11 gm/dL for children below 6 years and less than 12 gm/dL for children more than 6 years of age.⁵ Anemia ranges between 80 and >90% in preschool children, adolescent girls, and pregnant and lactating women.^{6,7} There are two billion people worldwide, who are anemic because of iron deficiency. Anemia is a widely prevalent nutritional problem in the young generation, and is mainly caused due to iron deficiency. Also, it should

be noted that adolescence is one of the fastest growing periods in human development. In this period, many physical changes take place due to secretion of hormones both in boys and girls. The changes of puberty are dramatic and momentous.⁸ Anemia affects mainly women of child-bearing age, young children, and adolescent girls.¹⁻⁴

ANEMIA COMPLICATIONS

Anemia causes many complications, which include fatigue, dementia, and decreased mobility and life quality. It also results in higher mortality rates by inducing chronic diseases, such as heart and kidney failure.^{9,10} Anemia has a negative effect on cognitive performance in adolescents.¹¹ Also, iron deficiency leads to cell cycle arrest and even cell death.^{12,13} Dysregulation of iron homeostasis may cause hematological, metabolic, and neurological diseases. In recent years, the correlation between bone metabolism and iron is the focus of research.¹⁴ Also, iron metabolism is implicated in the incidence of diabetes and associated atherosclerotic disease.^{15,16} This causative relationship is underlined by reports of an improvement of glycemic control in response to a reduction in body iron.¹⁷ It also influences the development of vascular disease.¹⁸ Anemia can also result in adverse pregnancy outcomes or even maternal death, as well as reduced work productivity and impaired physical capabilities.¹⁹

PREVALENCE OF ANEMIA

The WHO²⁰ report shows that 52% of pregnant women and around 35 to 40% of normal women are anemic in developing countries due to iron deficiency. About 43% of below-5 children, 27% of adolescents in the developing countries, and 6% in developed countries²¹ are anemic. The prevalence of anemia was as high as 72 and 69% among children in developing countries, such as India²² and Jordan²³ respectively. A much lower prevalence of around 5% was reported in Norway²⁴ and the United States.²⁵

India

India has a high prevalence of iron-deficiency anemia. About 60 to 70% of women are anemic.¹⁹ Similarly, a survey by the Indian Council of Medical Research (2003) showed that 70% of adolescent girls were anemic.

Lecturer

Department of Nutrition, Kasturba Gandhi Nursing College
Puducherry, India

Corresponding Author: Rajalakshmy Prasanth, Lecturer
Department of Nutrition, Kasturba Gandhi Nursing College
Puducherry, India, Phone: +914132615449, e-mail: raji271190@gmail.com

The prevalence of severe anemia among women is the highest in Rajasthan (2.5%), whereas it is the lowest in Bihar and Madhya Pradesh (0.9%). Prevalence of moderate anemia is found to be the highest in the state of Jharkhand and the lowest in Uttar Pradesh. Prevalence of mild anemic cases is the highest in Bihar and lowest in Rajasthan, which means there are more severe anemic women in Rajasthan than other Empowered Action Group (EAG) states. In Uttar Pradesh, almost 50% women are anemic. The States, such as Jharkhand (69.4%), Bihar (68.2%), and Odisha (60.9%) have the highest percentage of anemic women among the EAG states.²⁶

Odisha

The prevalence of anemia among adolescent girls was found to be 78.8%. About 75.6% of girls were suffering from mild degree of anemia and 24.4% girls were having moderate degree of anemia. None suffered from severe anemia in Odisha, India.²⁷

Raipur

The overall prevalence of anemia among girls was 63.34%. Only 36.52% were normal, whereas 16.86% were mildly anemic, 39.32% were moderately anemic, and 7.30% were severely anemic in Raipur city, India.²⁸

Punjab

In Punjab, the prevalence of anemia in females (5–30 years) was 89.5%, which included 49.8% of mild, 38.2% of moderate, and 1.5% of severe anemia cases. The prevalence of anemia in males (5–20 years) was 89.9%, with 51.2% suffering from mild, 38% from moderate, and 0.7% from severe anemia. Both males and females who were in the younger age group, who were underweight, who belonged to a lower socioeconomic status, and who had a low-activity lifestyle had a higher prevalence of anemia in Punjab, India.²⁹

Madhya Pradesh

The prevalence of anemia among females was 82%, while, among males, it was 18% in Madhya Pradesh, India.³⁰

Nepal

The prevalence of anemia among adolescent girls in Nepal ranges from 42 to 60%.³¹ Male prevalence was 56.3%.³² About 42.0% pregnant and 40.0% lactating women are reported as anemic in Nepal. Anemia was found to be more prevalent in early-stage adolescent girls at 65.4% as compared with the late- and mid-staged adolescent age group of 45.5 and 31.6% respectively.³³ A study at the

Birat Hospital and Research Centre (BHRC), Biratnagar, Morang District of Nepal 2012 showed the prevalence, among adolescents in the region, of 47.7 and 52.3% in males and females respectively.³⁴

Iraq

The prevalence of anemia among adolescents was 12.9 and 17.6% in rural and urban regions in Iraq respectively.^{35,36}

Iran

Greater prevalence of anemia among adolescents (14–20 years) of 21.4% was reported from Iran.³⁶

Palestine

The prevalence of anemia among adolescents (13–15 years) was from 6.0 to 22.5% for males and from 9.2 to 9.3% for females in Palestine.³⁷

Egypt

The prevalence of anemia in south Egypt showed that 64% of the children had iron-deficiency anemia.³⁸ The prevalence of anemia among 10- to 19-year-olds was 46.6%, where 28.8% were females and 26.4% males. The severity of anemia varied between sexes. Mild anemia is seen in about 98.3% in females and 88.5% in males and moderate anemia in about 11.5% in females and 1.7% in males. Severe anemia was not detected.³⁹

China

Historically, findings from three Chinese national nutrition surveys (1959, 1982, and 1992) showed that the prevalence of anemia among adults in this region is the highest in China.⁴⁰ Over the past several decades, although the prevalence of anemia has decreased substantially, it still remains high. For example, in Jiangsu province, the prevalence of anemia was 18.3% in men and 31.5% in women in 2002.⁴¹

Bangladesh

Bangladesh has historically been a high anemia-prevalent country, with a higher proportion in the rural areas. About three-quarters of the total population were reportedly suffering from varying degrees of anemia during 1975/76, among which more than three-fourths were rural residents; while in 1995/96, the rural anemic prevalence was around 45% among adolescent and nonpregnant women and 50% among pregnant mothers.⁴² The prevalence among rural nonpregnant women slightly reduced to 43.5% in 2010 to 2011 against an urban rate of 37.2%.⁴³

Taiwan

The overall prevalence of anemia, iron deficiency, and iron-deficiency anemia among Taiwanese adult women was 19.5, 8.6 and 6.2% respectively. The menopausal status was closely related to the prevalence of iron-deficiency anemia (11.6% for premenopausal women and 1.0% for postmenopausal women).⁴⁴

Denizli, Turkey

The prevalence of anemia among children aged 12 to 16 years was about 5.6%, where 8.3% of the girls and 1.6% of the boys were found anemic. We diagnosed iron-deficiency anemia where 59% was anemic and combined iron deficiency and vitamin B₁₂-deficiency anemia where 41% were anemic patients. None of the patients had folic acid deficiency.⁴⁵

Tanzania

The prevalence of anemia among children was 77.2%. Mild, moderate, and severe anemia were prevalent in 16.5, 33, and 27.7% respectively. About 22.6% had iron deficiency. Majority of the anemic children (37.5%) had microcytic hypochromic anaemia.⁴⁶

CONCLUSION

This study concludes that the prevalence of anemia varies by the age group, gender, and economic status. The adolescent group is vulnerable than any other age group, the female has a higher prevalence of anemia than the male, and the developing countries have a higher prevalence of the condition than developed countries.

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