

Diploma Thesis

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Analyses of Anaemia in the Autonomous Oblast of Gorno-Badakhshan, Republic Tajikistan



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Abstract

Anaemia and its major cause Iron Deficiency (ID), is a world-wide public health problem, especially in developing countries. Beyond ID there are a number of other factors that coexist and contribute to anaemia. They include other micronutrient deficiencies, like vitamin A, folate, vitamin B12 and zinc, but also infectious diseases, intestinal parasites and generalised under-nutrition. This thesis gives the results of a cross-sectional study that analysed the nature and extent of anaemia in the autonomous Oblast of Gorno-Badakhshan. The investigated group made up 148 non pregnant women aged 20 to 41 years and 148 children aged 28 to 65 months. These people were located in different districts and were living on different altitude levels. The surveyed population consumed a diet including animal products but with a rather low intake of vegetables and fruits. Therefore deficiency of folate and vitamin B12 was rare, but deficiency of β -carotene was high prevalent. On average, 40% of the women and 30% of the children were found to be anaemic. Deficiency of only one or two micronutrients was more frequent among women, whereas children showed a higher prevalence in multiple micronutrient deficiencies.

The Autonomous Oblast of Gorno-Badakhshan is a mountainous area with people living between 1500m and 3900m, and with different agricultural and climatic conditions. Therefore incidence and deficiency rates were related to altitude level. The highest prevalence of intestinal parasites was found at low altitude for both women and children. For example the incidence of the intestinal parasite *Enterobius vermicularis* was more frequent at high altitude in contrast to *Ascaris lumbricoides*, that was mainly detected at low altitudes. Children living at low altitude showed a higher prevalence of vitamin A and zinc deficiency compared to other altitudes. At high altitude for both women and children the deficiency of multiple micronutrients and β -carotene alone was the most frequent. When compared to low and middle altitude, women living at high altitude showed a higher prevalence of vitamin E deficiency.

The findings of this study confirm the multifarious aetiology of anaemia in the surveyed population. Underlying causes of anaemia include a diet with low intake of vegetables and fruits, chronic infections, incidence of intestinal parasites and multiple micronutrient deficiencies that coexist and increase the risk of developing anaemia.