

Accepted : June, 2010

Effect of iron supplementation on the productivity of adult coalmine workers of Assam

M. DAS AND M. CHALIHA KALITA

ABSTRACT

The effect of iron supplementation (Group I and Group II receiving 60 mg and 120 mg of ferrous sulphate per day, respectively) for a period of 6 months was examined on coal mine workers of Assam. Workers productivity, haemoglobin estimation, parasitology and morbidity data were collected from 300 samples at baseline (0 days), mid intervention (90 days), final (180 days) and post final (270 days) intervention. Prevalence of anaemia was universal with a mean haemoglobin level of 9.42g/dl. 77.3% of the subjects were morbid and after supplementation there was decrease in the incidence of morbidity. Supplementations have significant impact on productivity variables and haemoglobin level. The number of days worked improved from the base line value of 18 days to 24 days in Group I and 20 to 25 days in Group II, respectively. There was also significant improvement in coalcutting performance and money earning capacity of the workers. Significant correlation was found between number of working days, haemoglobin, money earned and negative correlation with morbidity.

Key words : Anaemia, Productivity, Morbidity, Parasitic infection, Supplementation

INTRODUCTION

A reduction in work output and economic productivity is an inevitable consequence of severe nutritional deprivation in humans. For working population in developing countries, this has a greater and important economic implications because the productivity of the workers is a key to the nation's development and secondly the workers survival depends on their daily job performance. Some previous studies have found that the productivity of the workers was reduced in both iron deficiency and iron deficiency anaemia (Li, 1994). But it is not clear so far in which way this harmful effect occurs and what physiological mechanism it is. Productivity of the labour force in developing countries is generally low. This has been mainly attributed to their poor physique resulting from chronic malnutrition. Widespread malnutrition thus cripples the nation's productivity (Devdas, 1988). The present study was planned to assess whether anaemia among workers affected their productivity and their resistance to infection and to find

out whether iron supplementation could diminish iron deficiency anaemia and raise work out put among the workers.

MATERIALS AND METHODS

Characteristics of the population :

A total of 300 samples in the age group of 25-45 years old were selected randomly from a list of 600 samples. Out of the 300 samples 30 coal cutter were among the study population during randomization and therefore 10 coal cutters were included in each group purposively to study the impact of supplementation on the coal cutting performance and more importantly they belonged to the piece rated category of workers and were paid according to the quantum of work turned out by them everyday. Then the samples were pair matched for weight and haemoglobin and three groups were formed namely, Placebo (receiving sugar coated tablets), Group I (receiving 60mg of ferrous sulphate) and Group II (receiving 120mg ferrous sulphate) at a stretch for a period