

Original Research Article

Study of magnitude and socio-demographic factors associated with anaemia among children of a school for mentally challenged in Ahmednagar, Maharashtra

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ABSTRACT

Background: Anaemia is one of the important silent morbidity in childhood that affects the development of a child. Disabled children are more vulnerable for nutritional problems like under-nutrition or anaemia due to inadequate nutrient intake either due to feeding problems or poor feeding knowledge among care providers. However there are very few studies regarding nutritional problems of intellectually disabled. The aims of the study were to assess the nutritional status and magnitude of anaemia among mentally challenged children and to study the socio-demographic variables associated with anaemia among them.

Methods: A Cross sectional study was conducted in a Day School for mentally challenged in Ahmednagar. All 45 children (Day scholars) were enrolled in the study. Data collection was done using a predesigned proforma for detail history. Anthropometric measurements and Body mass index were used for assessment of nutritional status. Haemoglobin estimation was done by using Sahali's Haemoglobinometer. The details of socioeconomic status and intelligence quotient (I.Q.) were taken from the official records of the school. Percentages, proportions and Chi square test were used for Statistical Analysis.

Results: The mean age was 12.5 years, mean IQ was 37.8. More than half of the children were undernourished (64% had BMI<18.5). Mean Haemoglobin was 10.3 and 33 (73%) children were suffering from mild to moderate anaemia. Significant association was observed between degree of mental retardation and anaemia.

Conclusions: Majority of mentally challenged children in our study were suffering from under nutrition and anaemia.

Keywords: Anaemia, Mentally challenged, Intelligence quotient

INTRODUCTION

Anaemia is one of the most common nutritional morbidity having higher prevalence in children and a major health problem in developing countries like India. It is the most common morbidity among micronutrients deficiency which affects health, education and economy. Malnutrition is the most common cause for anemia.¹ Feeding and mealtime behaviour problems like food

refusal, food selectivity, mealtime aggression, rumination, pica and insufficient feeding skills; are commonly observed among individuals with developmental disabilities.²

Disabled people are often assumed to have poorer nutrition than their non-disabled counterparts, they are also vulnerable to poor nutritional care. The factors contributing to the nutritional disorders like under

nutrition or nutritional anaemia in mentally challenged children include inadequate nutrient intake due to poor feeding techniques; gross motor self-feeding impairment, swallowing difficulties, food aversion and food refusal etc.³

Far less information is available on the nutritional status of disabled children in developing countries, where the situation is further complicated by widespread malnutrition among the general population.⁴

A cross sectional study was conducted among mentally challenged children in a day school for mentally disabled children in Ahmednagar to assess nutritional status and magnitude of anaemia among them.

METHODS

Study type

A cross sectional study was conducted among the children from a school for mentally challenged children.

Study place

Day school for mentally challenged in Ahmednagar.

Study period

From November 2017 to December 2017.

Study participants

All children (day scholars) enrolled in the school were included in the study after the verbal consent obtained from their parents and the, sample size was 45.

Materials used

Materials used Sahali's haemoglobinometer, weighing machine, measuring tape.

Data collection

After obtaining the verbal consent from the parents of the children and school authorities, data collection was done. Data collection was done using pre designed proforma

prepared by literature search.³⁻⁵ Anthropometric measurements and body mass index were used for assessment of nutritional status.

Hemoglobin estimation was done by using Sahali's haemoglobinometer. The details of socioeconomic status and intelligence level (I.Q.) were taken from the official records of the school.

Statistical analysis

Data was compiled, tabulated and analyzed using percentages and proportions. A Chi square test was used as a test of significance for association among variables.

RESULTS

In a study conducted among 45 day scholars of a school for mentally challenged, 71.1% were boys and 28.9% were girls. More than half of the children (57.5%) were belonging to upper class and upper middle class as per the modified B.G Prasad's scale.

Table 1: Distribution of continuous variables.

Variable	Mean	Standard Deviation
Age (years)	12.56	3.237
BMI (Kg/m ²)	17.56	5.092
Hb (gm %)	10.29	1.461
IQ	37.8	10.076

The mean age was 12.5 years, mean IQ was 37.8 (Table 1). Only 4 children (8.9%) could not able to indicate when hungry and 6.7% children could not consume food on their own.

More than half of the children were undernourished (66.7%), 4.4% were pre obese and only 2.1% were obese.

Mean haemoglobin was 10.3 and 33 (73%) children were suffering from mild (8.2%) to moderate anaemia (64%). None of them was suffering from severe anaemia. Significant association was observed between degree of mental retardation and anaemia. However there was no association between demographic variables and anaemia (Table 2 and 3).

Table 2: Association of anaemia with degree of mental retardation.

Mental retardation	Moderate anaemia	Mild anaemia	No anaemia	Chi-square value	P value
Mild	3	3	1	14.241	0.027*
Moderate	13	0	8		
Severe	12	1	3		
Profound	1	0	0		
Significant	29	4	12		

*p value <0.05 – significant.

Table 3: Association of anaemia with different socio-demographic variables.

Socio-demographic variables	Variables	Moderate anaemia	Mild anaemia	No anaemia	Chi-square value	P value
Age	5–10 years	12	2	2	2.827	0.587
	10–15 years	11	1	6		
	>15 years	6	1	4		
	Total	29	4	12		
Socio economic status	I	10	2	2	6.260	0.395
	II	6	2	4		
	III	10	0	3		
	IV	3	0	3		
	Total	29	4	12		
Sex	Male	19	4	9	2.155	0.340
	Female	10	0	3		
	Total	29	4	12		

DISCUSSION

In our study conducted among 45 mentally challenged children, majority of the participants were having moderate to severe mental retardation and more than half of them were undernourished. Nutritional anaemia was also widely prevalent (73%) among them and it was significantly associated with degree of mental retardation.

In a similar study conducted among mentally disabled children in Egypt only 14.1% were underweight, 6.7% were overweight and 41.1% males and 37.6% females were suffering from anaemia.⁶

Only 14.3% mentally challenged children were under nourished and 15.2% were obese in a study conducted in Turkey.⁷

In present study the prevalence of anaemia was 72.2% (64% moderate anaemia and 8.2% mild anaemia) while in another study conducted by Nassa et al the prevalence of mild and moderate anaemia was 38.4% and 20.8% respectively. Based on body mass Index, more than half of the children were under nourished and 4.4% were pre obese in our study while only 10% children were under nourished and 3.3% were pre obese in study conducted by Nassa.⁸

Majority of mentally challenged children were under nourished and suffering from mild to moderate anaemia. Anaemia was significantly more common among severely retarded children. A further research can be carried out to find out the underlying pathology and other biological factors leading to the development of malnutrition and anaemia in mentally challenged children so that preventive measures can be undertaken to prevent these morbidities.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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