

CLINICAL ASSESSMENT OF THE ADOLESCENTS STUDYING IN MADHYAMIKSHALA OF KHADIA, JUNAGADH

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ABSTRACT:

Clinical methods of assessing nutritional status involve checking signs of deficiency at specific places on the body or asking the respondent whether they have any symptoms that might suggest nutrient deficiency. Clinical signs of nutrient deficiency include: pallor (on the palm of the hand or the conjunctiva of the eye), Bitot's spots on the eyes, Oedema, Goitre and severe visible wasting. Underweight adolescents (40%) were from the age group of 13-15 year old. The extent of Vitamin C, Iron, Zinc and β -Carotene deficiencies were more prevalent among adolescents. The findings of the dietary pattern reveal that adolescents in the age group of 16 - 17 years could be at greater risk of nutritional stress because of inadequate dietary intake. Nutrient deficiencies of Protein, Iron Zinc, Vitamin C and A are visible through clinical assessments as PEM, Anaemina, Angular stomatitis, Cheilosis, Koilonychias, Bleeding gums, Pale conjunctiva, etc.

KEY WORDS: Clinical Assessment, Adolescents, Deficiency

INTRODUCTION:

Clinical assessment is one of the common tools to assess the extent of clinical forms of under nutrition. It can be observed by a trained person who has the in depth knowledge about the clinical signs and symptoms visible on the different body parts with their related nutrient deficiency. It can be diagnosed at the earlier stage of the assessment to treat and intervene the problem. The general physical examination includes an assessment of the person's general condition and close examination of skin, hair, and teeth (Table 1 & 2). This includes an assessment for pallor, clinical assessment of body fat stores, wasting of muscle mass, edema, skin rash, thinning of hair, and evidence of specific nutritional deficiencies. Examples of specific signs include the flag sign or the loss of hair color associated with a period of malnutrition, followed by recovery with a return of normal hair color and texture to normal. Vitamin A deficiency causes follicular hyperkeratosis and night blindness.

METHODOLOGY:

SELECTION OF THE AREA:

The data utilized for this study were collected from Madhyamik Shala of Khadiya, Junagadh. This was necessary to obtain authentic records of students as well as their management without suspicion or refusal as the teacher were very helpful including enlightening parents who may be apprehensive.

SELECTION OF THE SAMPLES:

The study sample consisted of randomly selected 100 from standard 9th and 10th adolescent boys and girls. The study (cross-sectional method) was designed in such a way that subjects from all socio-economic classes were represented and for the same, the Madhyamik Shala was selected.

COLLECTION OF DATA AND CONDUCT OF STUDY

Specially designed questionnaires were used to elicit information from the participating subjects about their age, sex, date of birth, family/personal background, medical history, socio-economic and nutritional status, family size, parent's occupation and educational status. The questionnaires were kept anonymous as well as confidential in order to encourage good response. The ages of the subjects were from the schools register. It is worthy of note to here that it was only those subjects whose birth were ± 3 months from the date of observation were included in this study. When any discrepancy suspected or noted from the information supplied on the questionnaire by any subject, such subject was excluded from the study.

DEMOGRAPHIC PROFILE

The information of the student for name, age, and sex, and family income, occupational status of the parents, birth order, poverty and type of family were collected using the interview schedule.

CLINICAL ASSESSMENT

Using the Jellif's table of clinical assessment¹, and with the help of practicing physician, the sign and symptoms exhibited by the adolescents for micro and macronutrient deficiency were recorded. A general health camp was conducted in the school to screen the students for the presence of any nutritional and associated health problems.

RESULTS AND DISCUSSION:

CLINICAL ASSESSMENT

Clinical examination is the oldest, most practical and relatively cheaper method of assessing the nutritional status of individuals. In clinical assessment, changes in the superficial tissue, especially the skin, eyes, hair, gums, nails and in the organs near the surface of the body such as thyroid gland are observed. In other words, the subjects' body from head to feet is examined visually.

Data regarding the presence of clinical deficiency (clinical assessment) signs in adolescents of 13 to 15 years old has been presented in table 1.1

Table 1.1 Presence of clinical deficiency signs in adolescents of 13-15 years age group

Characteristics	Girls (n=33)	Boys (n=29)	Total (n= 62)
	Frequency	Frequency	
HAIR			
Normal	24(38.7)	14(22.5)	38(61.2)
Lack of Lustre	6(9.6)	10(16.2)	16(25.8)
Dyspigmentation	2(3.2)	4(6.4)	6(9.6)
Easy Pluckability	1(1.6)	1(1.6)	2(3.2)
EYES			
Normal	21(33.8)	18(29.03)	39(62.9)
Pale conjunctiva	12(19.3)	11(17.7)	23(37.09)
Bitot's spot	-	-	-
LIPS			
Normal	30(48.3)	21(33.8)	51(82.2)
Angular Stomatitis	3(4.8)	6(9.6)	9(14.5)
Angular scars	-	2(3.2)	2(3.2)
TEETH FLOROSIS			
Absent	29(46.7)	20(32.2)	49(79.3)
Mottled and Discoloured	4(6.4)	9(14.5)	13(20.96)
TEETH CARIES			
Absent	26(41.9)	20(32.2)	46(74.1)
Slight	3(4.8)	4(6.4)	7(11.2)
Marked	4(6.4)	5(8.06)	9(14.5)
GUMS			
Normal	30(48.3)	24(38.7)	54(87.1)
Spongy and Bleeding gums	3(4.8)	5(8.06)	8(12.9)
SKIN APPEARANCE			
Normal	29(46.7)	21(33.8)	50(80.6)
Lack of Lustre	2(3.2)	3(4.8)	5(8.06)
Dry & rough	2(3.2)	5(8.06)	7(11.2)
Follicular hyperkeratosis	-	-	-
NAILS			
Normal	30(48.3)	24(38.7)	54(87.3)
Koilonychias	3(4.8)	5(8.06)	8(12.9)
FACE			
Normal	32(51.6)	29(46.7)	61(98.3)
Moon Face	-	-	-
Diffuse Dyspigmentation	1(1.6)	-	1(1.6)

1.1 Hair

From data it was observed that out of 100 adolescents there are 50 adolescent boys and 50 adolescents girls, out of them 33 adolescents girls belonged to age group of 13-15 years. Out of 33 adolescent girls, 24 girls (38.7%) were having normal hair. 6 girls (9.6 %) girls were having lack of luster in hair and 3 girls (3.2 %) having Dyspigmentation of hair and 1 girl (1.6 %) was having easily pluckability of hair. Out of 29, 13-15 years adolescent boys, 14 boys (22.5 %) were having normal hair, 10 boys which was (16.2 %) were having lack of luster and 4 boys (6.4 %) were having Dyspigmentation and 1 boy (1.6 %) was having easy pluckability.

1.2 EYES

From data it was observed that out of 33 adolescents girls of age group 13-15 years of age, 21 girls (33.8%) having normal eyes with no clinical signs of any deficiency. And 18 adolescent boys, (29.03 %) out of 29 adolescent boys in the age group of 13-15 years of age having normal eyes with no clinical signs of deficiency. On the other hand, 12 girls (19.3 %) were having pale conjunctiva and 11 boys (17.7 %) were having pale conjunctiva but none were found to have Bitot's spot in their eyes.

1.3 Lips

As per the data observed, out of 33 adolescents girls 30 (48.3 %) were having normal lips with no clinical signs of deficiency; whereas 3 girls (4.8 %) having angular stomatitis which is also known as cheilosis and none were having clinical signs of angular scars. Out of 29 adolescents boys, 21 boys (33.8 %) having no clinical signs of any deficiency but 6 boys (9.6 %) were having clinical signs of Angular stomatitis and 2 boys (3.2 %) were having clinical signs of angular scars.

1.4 TEETH FLOROSIS

As per the observations, out of 33 adolescent girls, 29 adolescent girls (46.7 %) were having no Teeth Florosis and 4 adolescent girls (6.4 %) were having clinical signs of teeth Florosis. Among adolescent boys, out of 29 boys, 20 adolescent boys (32.2 %) were having no signs of teeth Florosis and 9 adolescent boys (14.5 %) were having the clinical signs of having teeth Florosis.

1.5 TEETH CARIES

The observations seen, out of 33 adolescent girls, 26 adolescent girls (41.9 %) were having no teeth caries and 3 adolescent girls (4.8 %) were having slightly signs of teeth caries, and marked teeth caries in 4 adolescent girls (6.4 %). Among adolescent boys, out of 29 boys, 20 adolescent boys (32.2 %) were having no clinical signs of teeth caries and 4 adolescent boys (6.4 %) were having the clinical signs of having slightly teeth caries and 5 adolescent boys (8.06 %) were having marked teeth caries.

1.6 GUMS

Out of 33 adolescent girls, 30 adolescent girls (48.3 %) were having normal gums and 3 adolescent girls (4.8%) were having clinical signs of spongy and bleeding gums. Among adolescent boys, out of 29 boys, 24 adolescent boys (38.7 %) were having normal gums with no signs of bleeding and spongy gums and 5 adolescent boys (8.06 %) were having the clinical signs of having spongy and bleeding gums.

1.7 SKIN APPEARANCE

The findings show that, out of 33 adolescent girls, 29 adolescent girls (46.7 %) were having normal skin and 2 adolescent girls (3.2 %) were having lack of luster and dry and rough skin in 3.1 adolescent girls (6.4 %) Among adolescent boys, out of 29 boys, 21 adolescent boys (33.8 %) were having normal skin and 3 adolescent boys (4.8 %) were having lack of luster and 5 adolescent boys (8.06 %) were having dry and rough skin.

1.8. NAILS

As per the observations, out of 33 adolescent girls, 30 adolescent girls (48.3 %) were having normal nails and 3 adolescent girls (4.8 %) were having Koilonychias. Among adolescent boys, out of 29 boys, 24 adolescent boys (38.7 %) were having normal nails and 5 adolescent boys (8.06 %) were having Koilonychias.

1.9 FACE

The observations show that out of 33 adolescent girls, 32 adolescent girls (51.6%) were having normal face and none of them having moon face and 1 adolescent girl (1.6%) were having Diffuse Dyspigmentation. Among adolescent boys, out of 29 boys, 29 adolescent boys (46.7%) were having normal face and none of the adolescent boys were having moon face and none were Diffuse Dyspigmentation.

Data regarding the presence of clinical deficiency (clinical assessment) signs in adolescents of age 18 to 17 years has been presented in Table 2.

Table 2 Presence of clinical deficiency signs in adolescents of 16-17 years age group

Characteristics	Girls (n=17)	Boys (n=21)	Total (n= 38)
	Frequency	Frequency	
HAIR			
Normal	8(21.05)	10(26.3)	18(47.3)
Lack of Lustre	5(13.1)	8(21.6)	13(34.2)
Dyspigmentation	-	3(7.8)	3(7.8)
Easy pluckability	4(10.5)	1(2.6)	5(13.1)
EYES			
Normal	10 (26.3)	18(47.3)	28(73.6)
Pale conjunctiva	7(18.4)	3(7.8)	10(26.3)
Bitot's spot	-	-	-
LIPS			
Normal	9(23.6)	11(28.9)	20(52.6)
Angular stomatitis	5(13.1)	7(18.4)	12(31.5)
Angular scars	3(7.8)	3(7.8)	6(15.7)
TEETH FLOROSIS			
Absent	13(34.2)	15(39.4)	28 (73.6)
Mottled and Discoloured	4(10.5)	6(15.7)	10(26.3)
TEETH CARIES			
Absent	13(34.2)	15(39.4)	28(73.6)
Slight	3(7.8)	2(5.2)	5(13.1)
Marked	1(2.6)	3(7.8)	4(10.5)
GUMS			
Normal	10(26.3)	16(42.1)	26(68.4)
Spongy and Bleeding gums	7(18.4)	5(13.1)	12(31.5)
SKIN APPEARANCE			
Normal	12(31.5)	11(28.9)	23(60.5)
Lack of Lustre	3(7.8)	5(13.1)	8(21.05)
Dry & rough	2(5.2)	5(13.1)	7(18.4)
Follicular hyperkeratosis	-	-	
NAILS			
Normal	14(36.8)	16(42.1)	30(87.3)
Koilonychias	3(7.8)	5(13.1)	8(12.9)
FACE			
Normal	17(44.7)	21(55.2)	38(100)
Moon Face	-	-	-
Diffuse Dyspigmentation	-	-	-

2.1 Hair

From data it was observed that out of 100 adolescents there are 50 adolescent boys and 50 adolescent girls, out of them 17 adolescents girls belonged to age group of 16-17 years. Out of 17 adolescent girls, 8 girls (21.05 %) were having normal hair. 5 girls (13.1 %) girls were having lack of luster in hair and none of them having Dyspigmentation of hair and 4 girls (10.5 %) was having easily pluckability of hair. Out of 21, 16-17 years adolescent boys, 10 boys (26.3 %) were having normal hair, 8 boys (21.6 %) were having lack of luster and 3 boys (7.8 %) were having Dyspigmentation and 1 boy which was 2.6 % was having easy pluckability.

2.2 EYES

From data it was observed that out of 17 adolescents girls of age group 16-17 years of age, 10 girls (26.3 %) having normal eyes with no clinical signs of any deficiency. And 18 adolescent boys, which was 47.3 % out of 21 adolescents boys in the age group of 16-17 years of age having normal eyes with no clinical signs of deficiency. On the other hand, 7 girls (18.4 %) were having pale conjunctiva and 3 boys (7.8%) were having pale conjunctiva but none were found to have Bitot's spot in their eyes.

2.3 Lips

As per the data observed, out of 17 adolescents girls 9 (23.6 %) were having normal lips with no clinical signs of deficiency; whereas 5 girls (13.1 %) having angular stomatitis which is also known as Cheilosis and 3 (7.8 %) were having clinical signs of angular scars. Out of 21 adolescents boys, 11 boys (28.9 %) having no clinical signs of any deficiency but 7 boys (18.4 %) were having clinical signs of Angular stomatitis and 3 boys (7.8 %) were having clinical signs of angular scars.

2.4 TEETH FLOROSIS

As per the observations, out of 17 adolescent girls, 13 adolescent girls (34.2 %) were having no teeth Florosis and 4 adolescent girls (10.5 %) were having clinical signs of teeth Florosis. Among adolescent boys, out of 21 boys, 15 adolescent boys (39.4 %) were having no signs of teeth Florosis and 6 adolescent boys (15.7 %) were having the clinical signs of having teeth Florosis.

2.5 TEETH CARIES

As per the observations, out of 17 adolescent girls, 13 adolescent girls (, 34.2 %) were having no teeth caries and 3 adolescent girls (7.8 %) were having slightly signs of teeth caries, and marked teeth caries in 1 adolescent girl (2.6 %). Among adolescent boys, out of 21 boys, 15 adolescent boys (39.4 %) were having no clinical signs of teeth caries and 2 adolescent boys (5.2 %) were having the clinical signs of having slightly teeth caries and 3 adolescent boys which 7.8 % were having marked teeth caries.

2.6 GUMS

The test reveals that out of 17 adolescent girls, 10 adolescent girls (26.3 %) were having normal gums and 7 adolescent girls (18.4 %) were having clinical signs of spongy and bleeding gums. Among adolescent boys, out of 21 boys, 16 adolescent boys (42.1 %) were having normal gums with no signs of bleeding and spongy gums and 5 adolescent boys (13.1 %) were having the clinical signs of having spongy and bleeding gums.

2.7 SKIN APPEARANCE

The result show that out of 17 adolescent girls, 12 adolescent girls (, 31.5 %) were having normal skin and 3 adolescent girls (7.8 %) were having lack of luster and dry and rough skin in 2 adolescent girls which 5.2 % . Among adolescent boys, out of 21 boys, 11 adolescent boys (28.9 %) were having normal skin and 5 adolescent

boys (13.1 % were having lack of luster and 5 adolescent boys (13.1 % were having dry and rough skin. And none of the adolescent girls and boys was having Follicular hyperkeratosis.

2.8 NAILS

The observation reveals, out of 17 adolescent girls, 14 adolescent girls (36.8 % were having normal nails and 3 adolescent girls (7.8 %) were having Koilonychias. Among adolescent boys, out of 21 boys, 16 adolescent boys (42.1 %) were having normal nails and 5 adolescent boys (13.1 %) were having Koilonychias.

2.9 FACE:

Out of 17 adolescent girls, all 17 adolescent girls (44.7 %) were having normal face and none of them having moon face and none were having Diffuse Dyspigmentation. Among adolescent boys, out of 21 boys, all 22 boys (55.2 %) were having normal face and none of the adolescent boys were having moon face and none were having Diffuse Dyspigmentation.

CONCLUSION:

Based on the clinical findings, 68% adolescents were underweight. Thus, more prone to diseases such as anaemia, Vitamin A deficiency, PEM, lower immunity and many more. Similarly the symptoms of anemia such as paleness of conjunctiva, lack of luster, bleeding gums and were also observed. The extent of Vitamin C deficiency, Iron deficiency, Zinc, Calcium and β Carotene deficiency were also observed which can result into the aforesaid diseases. The reasons for these deficiencies can be attributed due to the inadequate diet intake, lower socio- economic status, etc. Taking stock of the clinical profile of the adolescents, it emerges that the diet is deficient in nutrients. Thus, the adolescents are highly vulnerable to the above mentioned diseases, if not taken the necessary steps to compensate the negative intake of such essential nutrients.

To conclude, the clinical signs revealed that current nutrition status of the adolescents studying in Madhyamik shala, Khadia was not an ideal status. They require healthy, nutritious food to fulfill their daily requirements of all the essential nutrients such as Energy, Carbohydrates, Protein, Vitamin C, Vitamin A, Zinc, Iron, etc. to avoid nutrient deficiency and further complications occurring due to these deficiencies.

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