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ORIGINAL ARTICLE

Health Problems Amongst Adolescent Girls In Rural Areas Of Ratnagiri District Of Maharashtra India.

PATIL S N*, WASNIK V**, WADKE R***

ABSTRACT

Adolescent constitute over 21.4 % of the population in India. This period needs special attention because of turmoil of adolescence faces due to different stages of development, different circumstances, different needs and diverse problems. The psychosocial and emotional problems are of considerable magnitude and they may exert significant influence on their nutritional status. Unfortunately assessment of nutritional status of adolescent girls has been the least explored area of research particularly in rural India

Objective: To assess the Nutritional problems amongst the adolescent girls.

- To find out the reproductive problems amongst the adolescent girls.
- To suggest the recommendation based on Study findings.

Methods: The approach adopted for this community based study was cross sectional one.

One Community Development Block (i.e. Chiplun) was selected from nine CD Block of the Ratnagiri District by simple random sampling. Anganwadi centre of Chiplun were stratified into 3 strata according to distance Viz. < 15 Km, 15-30 Km and > 30 Km) from Institute and from each stratum three bit were selected by simple random sampling. In the selected Anganwadi centre three adolescent girls were selected. This served as the sampling frame. The information on age, Weight, Height, BMI, Socioeconomic status, menstrual problems, and reproductive problems were assessed. The hemoglobin concentration as well as MCHC was measured. The data was collected and analyzed using SPSS version 16.0.

Results: The mean age of the study subjects was calculated to be 16.9 years. Most (77.6) of the subjects were students followed by school dropout (22.4). As per Proposed Asian and WHO criteria, 67.8% & 69.3% adolescent girls were under weight (BMI < 18.5). Adolescent girls who were categorized as overweight by Proposed Asian (23 to 24.9 kg/m2) and Previous WHO (25-29.9 kg/m 2) criteria's were 2 % and 2.4% respectively. As much as 41.9% study subjects were anaemic (Hb < 12 gm %) as per WHO guidelines. It was found that 68.9% (MCHC < 34 %) of the study subjects were showed hypochromic red cells suggesting Iron deficiency anaemia. The mean age of the menarche was found to be 13.7 years. As far as problems related to menstruation cycle were concerned Dysmenorrhea (44.2%) was the commonest problems faced by adolescent girls. Irregular menses 16.9%, Irritation-21.7%, Malaise – 9.5% , Headchae-14.2, chest pain- 8.2% , abdominal bloating 20.3% , constipation- 11.3%, tightness in chest 10.6%. White discharge-38.3 %.

Conclusion: The study concludes that majority of the girls had clinically obvious nutritional deficiency diseases. Two third of study subjects were undernourished (BMI <18.5 kg/m 2). The prevalence of anaemia among the adolescent girls was found to be 41%.There was a significant association of anaemia with educational status of adolescent girls. Majority more than three fourth of the adolescent girls were suffering from menstrual related problems which leads to reproductive morbidities. Adolescents are expected to enjoy a good health but this does not seem to be in rural areas of developing country like India, where poverty, malnutrition and repeated infection are rampant. To achieve the optimum health and development of the adolescent segment of the population. There is a need to introduce a comprehensive Adolescent Health Initiative (AHI) at block level.

Key Words: Adolecent girls, rural, Nutritional Status, BMI (Body mass Index), Menstruation

*Physician, MD (Med), **MD(PSM), ***MD(PSM), PGDHA,DHRM, Community Health Physician, Community Health Department, B.K.L.Walawalkar Hospital Diagnostic & Research Centre Shreekshetra Dervan, Chiplun, Ratnagiri – 41560, Maharashtra, INDIA. Ph :(02355) 264137,264149. Fax: 02355-264181. E-Mail-info@walawalkarhospital.com
Corresponding Author:
Dr.Vinod Wasnik, Community Health Physician
Community Health Department, B.K.L.Walawalkar Hospital Diagnostic & Research Centre, Shreekshetra Dervan, Chiplun, Ratnagiri – 41560, Maharashtra, INDIA. Ph :(02355) 264137, 264149. Fax: 02355-264181. E-mail:vinod_psm@yahoo.co.in

Introduction

Adolescents constitute over 21.4 % of the population in India. This age group needs special attention because of the turmoil of adolescence which they face due to the different stages of development that they undergo, different circumstances that they come across, their different needs and diverse problems. In this context, UNICEF (United Nations Childrens Fund) and UNFPA (United Nations Fund for Population Activity) in collaboration with WHO, issued a joint statement on the reproductive health of adolescents in 1989, to address their problems[1]. 'Adolescent' refers more broadly to the phase of human development encompassing the transition from childhood to adulthood. In terms of age, it is the period of life that is extended from 10-19 years, which includes pubertal development also. This period is very crucial since these are the formative years in the life of an individual when major physical, psychological and behavioural changes take place. Anaemia is the major nutritional deficiency found in this group in India and other developing countries [2].

The meeting of the United Nations Sub Committee on Nutrition held in Oslo in 1998 concluded that more data on the health and nutrition of school children were needed to assess the scale of problems found in this group [3]. Traditionally, the main health indicator used by health planners has been the mortality rate. Adolescents have the lowest mortality among the different age groups and have therefore received low priority. However, recent studies have shown that the prevalence of malnutrition and anaemia is high in these age groups [4], [5]. A young woman in adolescence is at a high risk of anaemia and infants born to iron-deficient mothers also have a higher prevalence of anaemia in the first six months of life (Perziosi et al., 1997). Maternal mortality is increased in women whose haemoglobin levels fall below 6-7 g/dl (Brothwell et al., 1979).

Menarche is a complex of growing up. From both medical and social perspectives, it is often considered as the central event of female puberty, as it suggests the possibility of fertility. The age of onset of the menstrual cycle varies from 9-18 years, with the average age in the United States being about 12 years and 8 months, whereas in India, it is slightly lower and has been reported to be around 12 years [6], [7], [8]

Menarche further calls for special attention because of the physical and emotional problems associated with it. Though the menstrual cycle is a normal monthly function of a healthy female body, the main concern is delayed menstruation, irregular cycles pertaining to hormonal fluctuations and pain during menses. Primary dysmenorrhoea is defined as painful menses in women with normal pelvic anatomy, usually beginning during adolescence. It is characterized by crampy pelvic pain beginning shortly before, or at the onset of menses and lasting for one to three days [9].
The psychosocial and emotional problems associated with menarche are of considerable magnitude and they may exert a significant influence on the nutritional status of the women. Unfortunately, the assessment of the nutritional status of adolescent girls has been the least explored area of research, particularly in rural India. Hence, the present study was done with the objective of assessing the health problems among adolescent girls in the rural area of Ratnagiri District of Maharashtra, (India).

Objective

- To assess the nutritional problems among adolescent girls.
- To find out the reproductive problems among adolescent girls.
- To suggest recommendations based on the findings of the study.

Materials And Methods

The present study was conducted in the rural areas of Ratnagiri District by employing a multistage sampling method. The period for the study was from Dec 2008 to April 2009.The approximate population of this area is 230451. The total villages involved in the study were 168 and the anganwadi centres involved were 224. The study population included all adolescent girls in the age group of 10—19 years.

The approach adopted for this community based study was a cross sectional one.

The following stages were involved in the selection of the study subjects.
A rapport was developed with the Child Development Project Officer (CDPO), Mukhasevika, Anganwadi, workers of the Integrated Child Development Scheme (ICDS Programme) and community health visitors or lady health visitors (LHV) to get an idea about the perceived health practices among adolescent girls in the areas of the study.

Stage-1
One Community Development Block (i.e. Chiplun) was selected from nine CD Blocks of the Ratnagiri District by simple random sampling.

Stage-2
The anganwadi centres of Chiplun were stratified into 3 strata according to distance viz. < 15 Km, 15-30 Km and > 30 Km) from the Institute and from each stratum, three bits(anganwadi coverage centre,one bit consisting of 30-35 anganwadi centre) were selected by simple random sampling. From the selected anganwadi centres, three adolescent girls were selected. This served as a sampling frame.

Inclusion Criteria
- Girls between 10 -19 years of age.
- Those willing to be examined
- Their residence in the village

Exclusion Criteria
- Girls above 20 years and below 9.
- Those not willing to be examined.

The study was conducted under the auspices of the Pathology department with ethical approval from government officials and from the institution where all the laboratory investigations were undertaken. A total of 620 adolescent girls participated in the study.

The information on age, BMI, socioeconomic status, menstrual problems and reproductive problems were assessed. The haemoglobin concentration, as well as MCHC was measured using Sahli's method.

Measurements

Height
Height in centimeters was marked on a wall with the help of a measuring tape. All girls were measured against the wall. They were asked to remove their foot wear and to stand with heels together and their heads positioned so that the line of vision was perpendicular to the body. A glass scale was brought down to the topmost point on the head. The height was recorded to the nearest 1 cm.

Weight
A bathroom scale was used. It was calibrated against known weights regularly. The zero error was checked for and removed if present, every day. The clothes of the girls were not removed as adequate privacy was not available. Their weight was recorded to the nearest 500 grams.

Body Mass Index
The body mass index (BMI) was computed using the standard formula: BMI (kg/m^2) = Weight (kg) / Height ^{2} (m^2) [10].

Haemoglobin
Hb was estimated by Sahli's method using a haemoglobinometer.
Anaemia was defined as per the WHO criteria for different ages [11]. Also, MCHC was measured[12].
A cramping lower abdominal pain which radiated to the back and lower legs during or before onset of menstruation was classified as Dysmenorrhoea [13].

Premenstrual syndrome (PMS) is recurrent, which is a variable cluster of troublesome physical and emotional symptoms that develop 7-14 days before the onset of menstruation and subsides when menstruation occurs. The symptoms of PMS include low backache, fatigue, breast heaviness, abdominal bloating, increased weight, headache, irritability, gastroinstestinal symptoms and loss of appetite [14].

A cycle that occurs every 21-35 days in which the flow lasts for 2—7 days, with an average flow of not more than 80 ml and lot less than 30 ml, is taken to be a normal cycle. A normal cycle is one which is regular, with an average amount of flow and that which lasts for an average duration of 2-7 days. Any two cycles with a duration of more than three months, is labeled as one missed cycle [15].

The data was collected by personal interviews on a pretested, semi structured questionnaire. The confidentiality of the information was assured and the verbal consent of the girls was taken before initiating data collection. The questions pertaining to menstrual problems, regularities of menses and dysmenorrhoea were collected. The data was then analyzed using SPSS version 16.0

Results

Sociodemographic Profile

Of the total respondents, 5.3 % were in the age group of 11-14 years, followed by 32.7% in the age group of 15-17 years. As many as 61.9 % subjects were in the age group of 17-19 years. The mean age of the study subjects was calculated to be 16.9 years. Most (77.6%) of the subjects were students, followed by school dropouts (22.4%).Of the total number of girls, 62.3% were educated upto the 5th-10th standards. Of the school going girls, most (36.3%) were studying in standard 11th to 12th and only 1.4% were doing their graduation after school [Table/Fig 1] .

(Table/Fig 1) Socio¹demographic Profile of Study subjects

Age wise Distribution		
Age in Years	No. of Subjects (n=620)	Percent
11-14	33	5.3
14-16	203	32.7
17-19	384	61.9
Educational Profile		
5-10th std	386	62.3
11th std	114	18.4
12th std	111	17.9
Graduation	9	1.4
Status of Studies		
Student	481	77.6
School dropout	139	22.4

Mean age in years - 16.97

Various anthropometric indices were used to pinpoint the nutritional status of the adolescent girls. As per the Proposed Asian and WHO criteria, 67.8% and 69.3% adolescent girls were underweight (BMI < 18.5) [10.] . According to the Proposed Asian criteria, subjects with normal nutritional status were 27.6%; the corresponding value by the WHO criteria was 28.3%. Adolescent girls who were categorized as overweight by the Proposed Asian (23 to 24.9 kg/m2) criteria were 2% and those categorized by the Previous WHO (25-29.9 kg/m 2) criteria were 2.4%, respectively. None of the study subjects were labeled as preobese or obese as per the WHO criteria; however, 2.6 % subjects were found to belong to this category according to the Proposed Asian criteria [Table/Fig 2] .

(Table/Fig 2) Nutritional status of Study subjects: (n=620)

Body mass Index	No	%
As Per WHO Criteria		
<18.5	430	69.3
18.5--25	175	28.3
>25	15	2.4
According to proposed Asian criteria		
<16	160	25.7
16-16.9	127	20.4
17-18.4	134	21.7
18.5-22.9	171	27.6
23-24.9	13	2.0
>25	15	2.6

The average haemoglobin content in adolescent girls was found to be11.8 ± 1.52 gm/dl. As much as 41.9% of the study subjects were anaemic (Hb < 12 gm %) as per the WHO guidelines [11] [Table/Fig 3]. It was found that 68.9% (MCHC < 34 %) of the study subjects showed hypochromic red cells, suggesting the possibility of iron deficiency anaemia [12]. [Table/Fig 3]. The end result of iron deficiency anaemia is nutritional anaemia, which is not a disease entity. It is rather a syndrome caused by malnutrition in its wider sense. (Royston, E. WHO Statis Q.14 35:52,1982).

(Table/Fig 3) Haemoglobin Status of Study Subjects

Hemoglobin (gm) %	No. of Subjects(n=589)	%
<12	247	41.9
>12	342	58.1
MCHC		
MCHC (percent)	No. of study subjects(n=338)	%
<34	233	68.9
>34	105	31.1

Mean ±SD ------- 11.8 ±1.52

It was found that haemoglobin content and educational status have statistically significant differences. ($p<0.005$) [Table/Fig 4].

(Table/Fig4) Association of Educational profile with hemoglobin Status of Study subjects.

Hemoglobin (gm) %	Education of the Students				
	1-10th std	11th	12th	Graduation	Total
<12	143	56	47	1	247
>12	225	54	56	7	342
Total	368	110	103	8	589

Chi-x2-= 8.49 df-3 p< 0.05

The mean age of menarche was found to be 13.7 [Table/Fig 5].

(Table/Fig 5) Distribution of study subjects according to age at Menarche

Age at menarche	No of subjects (n=620)	%
11	9	1.5
12	76	12.3
13	179	28.9
14	183	29.5
15	124	20.0
16	45	7.3
17	3	0.5
18	1	0.2

Mean ±SD ------- 13.7 ±1.19

Problems related to the menstrual cycle- A majority of the girls had one or the other problems related to their menstrual problems. Dysmenorrhoea (44.2%) was the commonest problem faced by adolescent girls. More than half of the study subjects had one or the other symptoms of premenstrual syndrome (PMS), namely; irregular menses 16.9%, irritation-21.7%, malaise – 9.5% , headchae-14.2, chest pain- 8.2% , abdominal bloating 20.3% , constipation- 11.3%, tightness in chest 10.6% and white discharge-38.3 % [Table/Fig 6] .

(Table/Fig 6) Menstrual problems amongst the Study subjects

Menstrual Problems	No	%
Dysmennorohea	274	44.2
Irregular menses	102	16.9
Irritation	131	21.7
Malaise	59	9.5
Headchae	88	14.2
Chest pain	51	8.2
Abdominal bloating	126	20.3
Constipation	70	11.3
Tightness in chest	66	10.6
White discharge	229	38.3

Multiple Responses

Discussion

The mean age of the study participants was calculated to be 16.9 years. Most (77.6%) of the subjects were students, followed by school dropouts (22.4%). However, only 1.2% girls were school droupouts among the adolescent girls in urban areas [16]. Of the total girls, 62.3% were educated upto the 5th-10th standards.

Clinical examination has always been and remains an important practical method for assessing the nutritional status of a community. Nutritional anaemia has been considered as an important problem in adolescent girls. Nutritional anthropometry predominates above the other methods of nutritional assessment. Several workers [17], [18] have emphasized the importance of Body Mass Index (BMI) as an index of nutritional assessment. As reported elsewhere [19],[20] , a high prevalence of undernutrition (BMI<18.5) was observed in adolescent girls in the rural areas of Ratnagiri District on the basis of this index. However, only 2.3% of adolescent girls were found to be underweight in urban areas. This indicates that adolescent girls are the worst sufferers of the ravages of various forms of malnutrition since the beginning of the adolescent period.

This phenomenon remains uninterrupted throughout their life. Variations in the extent of undernutrition among adolescent girls could be attributed to differences in socio-cultural practices, levels of socio-economic development, values attached to the girl child and prevailing dietary practices in different settings.

Besides clinical examination and nutritional anthropometry, estimation of haemoglobin (Hb) is an important component of nutritional assessment., Even if nutritional anaemia is prevalent in adolescent girls, in order to assess it properly, Hb estimation and the study of biochemical parameters are required.
Perceptible differences have been observed in the extent of anaemia by haemoglobin estimation, thereby indicating the applicability of biochemical examination in the detection of anaemia in adolescent girls. In contrast to reports elsewhere [19],[21],[22], a low prevalence of anaemia was observed in adolescent girls in the study area. In a multicountry study (Kunt and Johnson, 1994) on the nutritional status of adolescents, carried out by the International Centre for Research on Woman (ICRW), anaemia was found to be a widespread nutritional problem and its prevalence ranged from 32-55% [23]. However, in urban areas, 93.5% of adolescent girls were found to be anaemic [24].

The mean age for menarche was calculated to be 13.7 years, as was reported by other researchers, [24]

However, in urban areas, the mean age of menarche among the girls was much earlier as against the earlier reported age of 12-14 years in India [24], [25].

A majority of the girls had one or more problems related to their menstrual cycles. Dysmenorrhoea (44.2%) was the most common problem reported to be associated with menstruation by the study subjects. Dysmenorrhoea has been reported to be commonest menstrual problem by other researchers also [26],[27], [28], [29]. As per the other authors, the prevalence of dysmenorrhoea is 54% (53% in girls in urban areas and 56% in girls in rural areas) (X 2 df = 0.1, $P = 0.05$) [30].

Premenstrual syndrome (PMS) was reported by almost all the subjects. Dysmenorrhoea (44.2%) was the commonest problem faced by adolescent girls. More than half of the study subjects had one or the other symptoms of premenstrual syndrome (PMS), namely; irregular menses 16.9%, irritation-21.7%, malaise – 9.5% , headchae-14.2, chest pain- 8.2% , abdominal bloating 20.3% , constipation- 11.3%, tightness in chest 10.6% and white discharge-38.3 %. This situation is serious with respect to the findings of the present study. However, comparatively low figures have been reported by other researchers[24], [31] In urban areas, 21.3% of the adolescent girls complained of white discharge [23].

In the literature also, PMS has been reported to be one of the most distressing problems associated with the menstrual cycle[32], [33], [34].

Conclusion

The study concludes that a majority of the girls had clinically obvious nutritional deficiency diseases. Two third of the study subjects were undernourished (BMI <18.5 kg/m 2). Out of the 589 girls who were checked, 247 were found to be anaemic. As the problems related to menstruation are quite frequent and often result in the interruption of the daily routine of the adolescent girls, it is important that school officials and school health programme personal may be sensitive to their problems.
Adolescents are expected to enjoy good health, but this does not seem to be the case in the rural areas of developing countries like India, where poverty, malnutrition and repeated infection are rampant.

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