Original Research Article

Medical health status of adolescent school going girls in rural western Uttar Pradesh

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Abstract

Background: According to WHO, adolescents are the young people aged between 10 to 19 years. It is a transitional stage of physiological and psychological development from puberty to legal adulthood. Health needs of adolescents require special attention from the family, community and the society.**Aims and objectives:** The prime objective of this study was to assess the prevalence of common medical health morbidities in school going adolescent girls of rural western Uttar Pradesh.**Material and methods:**This was a cross sectional study conducted over two years in tertiary healthcare in western Uttar Pradesh. A total of 1000 adolescent (10-19 years) girls from 12 schools (both government and private) situated in nearby districts were included. Questionnaire was used for data collection. Descriptive statistics test was used to analyse the collected data.**Results:**Of total girls, 19.2% were underweight and 10.4% were overweight. Anaemia was reported in 58.6%of which majority had mild to moderate anaemia. Menstrual problem was reported in 26.8% in which most common was dysmenorrhea (13.7%). Visual field defects were found in 12.3% and hearing problem was reported in 1.7% of girls which was mostly conductive type. Acne, dandruff, hirsutism and others infections was found among 13%, 4.6%, 4.1% and 2.3% of the girls respectively. **Conclusion:**A multidimensional approach covering all health problems in needed. Mass Screening in schools could be an effective tool to control the existing disease and to prevent occurrence of any new diseases.

Keywords: adolescent, health, school

Introduction

According to WHO, Adolescents are the young people aged between 10 to 19 years. It is a transitional stage of physiological and psychological development from puberty to legal adulthood. About 21% of Indian population is adolescents (about 243 million)[1]. They are the future of the nation, forming a major demographic and economic force.It is a period of preparation for undertaking greater responsibilities like familial, social, cultural and economic issues in adulthood[2].Adolescents are a group of apparently healthy individuals. The health status of an adolescent determines the health status in his/ her adulthood.

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Many serious diseases in adulthood have their roots in adolescence.This is particularly among adolescent girls especially in rural India, who also face gender discrimination considering deep rooted culture of patriarchy and hierarchy which trap and modulate their growing socialization. In Indian culture setup adolescent girls by and large emulates cultural and family values prescribed by the religion, caste and ethnic group of their identity, and their personal, vocational and even reproductive choices are based on conservative traditional values as a norm with a few exceptions[3].Although adolescence comprises of one decade of a life span, it is a prelude to the ultimate life that the individual will be destined to live. Thus, those who are going through this period of life require special attention from the family, community and the society as a whole.The present study was undertaken to evaluate the morbidity pattern, nutritional profile and medical health status of school going girls in rural school of western Uttar Pradesh.

Aims & objectives

The prime objective of this study was to assess the prevalence of common medical health morbidities in school going adolescent (aged 10-19 years) girls of rural western Uttar Pradesh.

Materials and methods

This was a cross sectional study which was conducted in the department of paediatrics at tertiary care hospital in western Uttar Pradesh. A total of 12 schools, both government and privatein nearby districts around 25km from hospital were included in the study. After getting permission from Medical Superintendent,camps were conducted in all the included schools. Permission to conduct the study in schools was taken from the school principals.The sample size was calculated by using formula: n= {(Zα\2)2pq}/L2, where n = desired sample size, Zα\2 = standard normal deviate (taken as 1.96 for confidence level of 95%), p = proportion in the target population estimated to have a particular characteristic (prevalence in percentage), q = 100-p, L = allowable error (5% p). So, to calculate prevalence taken was 9% as per States Census 2011 and least allowable error was taken (5%). The required sample size thus calculated was 124. But in our study we have included 1000 school going girls of rural western Uttar Pradesh to get more reliability and accuracy in our results.The inclusion criteria were adolescent (age 10-19 years) school going girls,present on the day of the study visit and agreed to participate in the study.The questionnaire proformaused in this study was developed indigenously, taking consideration of rural setup and appropriate to adolescent girls. The questionnaire included questions on physical health, nutrition, sexual and reproductive healthand education. The study for all procedures was approved by the Institutional Review Board for Ethical Clearance of Chattrapati Shivaji Subharti Hospital.The obtained data were collected and analysed. Statistical analysis was done using SPSS software. Difference between two groups was determined using chi square test and the level of significance was set at $p < 0.05$.

Results

Demographic

The study comprised of 1000 adolescents (aged 10-19 years) school girls, of which 37.1%, 25.5% and 37.4% of the subjects belonged to 10-14, 15-17 and 18-19 year of age group respectively. Majority of the girls were from Hindu religion (80.3%). The majority of girls participated in our study were from private school (67.6%) and 32.4% of total girls in government school.

Majority of girls belong to upper lower class (44.2%) followed by lower middle class (22.4%) according to Kuppuswami scale. Of the total, 57.5% girls were living in nuclear type of family and 42.5% in joint family. More than 2/3rd girls were taking vegetarian diet (79%) while 21% of girls were non-vegetarian by diet.

Physical health status

Mean BMI among 10-14, 15-17 and 18-19-year-old girls were 18.77, 18.55 and 18.93 kg/m2 respectively. Majority of girls were of normal weight (70.4%) followed by underweight (19.2%) and overweight (10.4%) .Anaemia on physical examination was reported among 58.6% of the girls, in which majority of girls were having mild anaemia (76.3%). Majority of girls (90.6%) were normotensive, 2.6% of the girls were pre-hypertensive and 6.8% of total girls were found hypotensive.

In our study, 99.68% of the girl's menarche at mean age of around 12years. In girls who attained menarche by 12 years of age, menstrual problem were reported in 26.8% in which most common was dysmenorrhea (13.7%) followed by oligomenorrhea (5.1%). The majority of girls were using pads (87.7%) as these are easily available, easy to use and 4.4% of girls were using sanitary options other than pads and cloth.

Vision was checked using Snellens chart, 12.3% of total girls were having visual field defects in which majority of them were found to be myopic. Hearing assessment was done by tuning fork test; hearing problem was reported in 1.7% of girls which was mostly conductive type. Dental health status was checked by oral examination by dentist. 35.1% of the girls were suffering from dental caries. Acne, dandruff, hirsutism and others (milia, pityriasis alba, warts, fungal infections) was found among 13%, 4.6%, 4.1% and 2.3% of the girls respectively.

Table 1: Physical health status

Sr.	Parameter	Age (in years)			Mean / %	P-value
		10-14	15-17	18-19		
1	Body mass index (BMI) in kg/m^2(mean) Underweight– 19.2% Normal – 70.4% Overweight – 10.4%	18.77	18.55	18.93	18.77	0.20
2	Anaemia Mild to moderate–56.5% Severe – 1.74%	54.2%	60.8%	58.6%	58.6%	0.23

3	Blood pressure					
	Pre-Hypertensive	3.2%	3.5%	1.3%	2.6%	0.42
	Hypotensive	6.5%	7.1%	7.0%	6.8%	
	Normal	90.3%	89.4%	91.7%	90.6%	
4	Vision defect				12.3%	
5	Hearing defect	2.4%	1.2%	1.3%	1.7%	
6	Dental (caries)	38%	35.7%	31.8%	35.1%	0.20
7	Skin manifestation(acne/ dandruff/ hirsutism/ others)	25.1%	23.1%	23.5%	23.9%	0.03

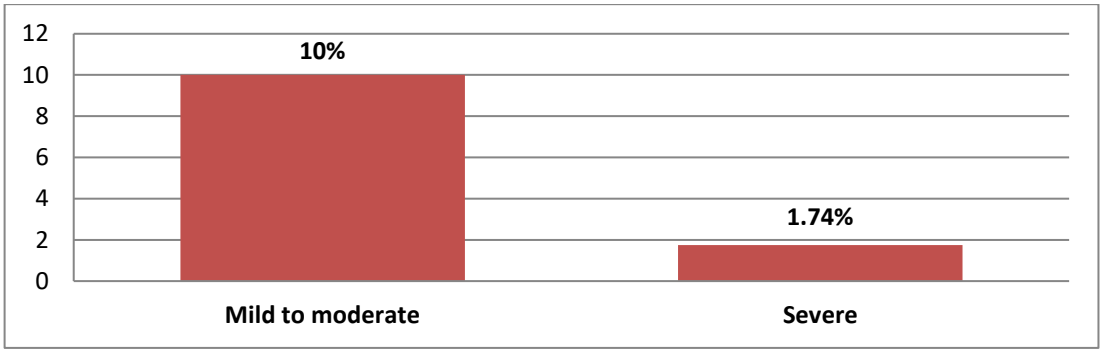

Fig 1:Incidence of anemia on basis of severity(%)

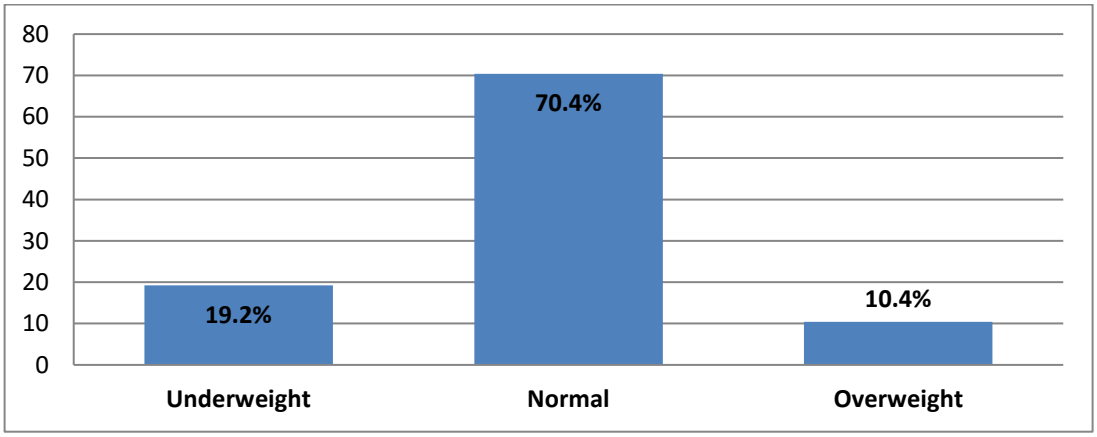

Fig 2:Nutritional status of Girls(%)

Discussion

School health screening is an important aspect of any community health programme. It consists of tools applied to healthy pupils to detect those with particular health problem that require further evaluation by a specialist. There are many health problems among school children in developing countries like India. Identifying health problems early will improve a child's overall development and assist with his or her ability to learn at school. It will also make parents aware of health problems their children are experiencing and help them to deal with it. Hence we conducted this study to assess the morbidity pattern, nutritional profile and psychosocial health status of school going girls in rural school of western Uttar Pradesh.Underweight (<18.5) and overweight (>25) was found among 19.2% and 10.4% of the girls respectively in our study. This may be due to active lifestyle of girls in rural area. NFHS-3 data shows, in the age group 15–19 y, 47% girls were thin. In a study by Kelly Rose-Clarke et al[4], the prevalence of thinness (<−2SD BMI for age and sex) among younger girls (14%) was more than twice the prevalence among older girls(6%). However, 41% of older girls had a BMI below 18.5. Only 1% of girls aged 10–19 were overweight (BMI >1SD). Stunting (<−2SD height for age and sex) was

common, affecting a third of younger girls and 58% of older girls.In the present study, anaemia was reported among 58.6% of the girls. 76.3% of girls were documented to have mild anaemia and 1.7% was classified as severe.

NFHS-3 data shows, in the age group 15–19 y, 56% girls were anaemic. Evidence suggests that adequate diet, iron and folic acid, zinc, and multiple micronutrient supplementations can increase serum haemoglobin concentration among adolescent girls. However, in order to identify an appropriate intervention, further investigation into the aetiology of anaemia in this population is warranted[5]. Elevated blood pressure in childhood may be early expression of essential hypertension in adulthood[6,7]. Hypertension has its origin in childhood but goes undetected unless specifically looked for during this period[8]. A variety of studies conducted in different parts of the world revealed a vast range in the prevalence of hypertension in children showing as high as 22% to as low as 0.6%[9]. In our study, 2.6% and 6.8% of the girls were found pre-hypertensive and hypotensive stage at that point of time respectively.Abnormal values were screened twice after gap of 15min.This was significantly less compared to study by Durrani A M on school children 12-16y in Aligarh where the overall prevalence of hypertension was 9.4%[10] .In our study, 12.3%% of the girls were found abnormal that is were having visual problem. Col A Dutta[11] reported high prevalence of uncorrected errors of visual acuity among adolescent children. Mukherjee et al[12], stated the importance of early detection and treatment of refractive errors to prevent permanent disability. Padhye AS reported myopia to be 3.16% in urban children and 1.45% in rural children[13]. Study by Anwar HN on Pakistani school children also reported low prevalence of myopia (4.38%)[14]. Study by Prasanna K on 1300 children in Karnataka reported Vitamin A deficiency as the commonest ocular morbidity (33.8%) and uncorrected refractive error as the second commonest morbid condition (5.6%)Dental caries is a major health problem with high prevalence globally involving people of all regions and society. Several prevalence studies have been conducted and reported on different occasions on the dental caries and the treatment needs in developing countries such as India. Study by Dhar V reported higher prevalence of caries (46.75%) among children in rural areas of Udaipur district[16]. Dental caries was found maximum among 35.1% of the girls while it was found in 35.7% of the 15-17 year old girls. Dental Staining was revealed among 15.8% of the girls in our study.Skin disorders are among the most frequent ailments of school children in both developing and industrialized countries. The school environment makes children vulnerable to cross transmission of communicable skin diseases among themselves and their families[17]. Acne, dandruff, hirsutism and scabies were found among 13%, 4.6%, 4.1% and 2.3% of the girls respectively with statistically significant difference in our study. Study by Valia RA [18] on Varanasi school children observed high prevalence of skin diseases (54%) and the commonest one noted was pediculosiscapitis. The reason for the high incidence was thought to be due to the low socio economic state of these children. The lower incidence of skin diseases in the present study is probably because of better hygienic practices.

Conclusion

In developing country like India due to poverty and prevailing socio-cultural milieu a substantial number of school children from paediatric age to adolescents suffer from various diseases which can be prevented if diagnosed and treated early and preventive measures taken in time.School health screening is an important aspect of any community health programme. It consists of tools applied to healthy pupils to detect those with particular health problem that require further evaluation by a specialist. There are many health problems among school children in developing countries like India. Little attention is paid to this important issue.Identifying health problems early will improve a child's overall development and assist with his or her ability to learn at school.

It will also make parents aware of health problems their children are experiencing and help them to deal with it. Hence we conducted this study to assess the morbidity pattern, nutritional profile of school going girls in rural school of western Uttar Pradesh.Mass Screening in schools or Community based survey of adolescent on regular basis could be an effective tool to control the existing disease and to update occurrence of any new diseases. "Adolescent girls" further need especial consideration because of gender inequality and illiteracy especially in rural area. Offering such opportunities to the growing children gives them a chance to build a safe, happy, healthy and productive nation in the future. In our study issues like nutrition, anaemia, menstrual problems and common morbidities(visual defects, hearing defects, and skin disorders) were targeted so we can know the prevalence of these problems in our area and accordingly take measures.

Various programmes launched by government like-Rashitrya kishoriswasthya programme, Rashtriya shaktiyojna, Nutrition programmes for adolescent girls, Menstrual hygiene programme needs to be reinforce and more awareness to be created among people about these

programmes. Adolescent girl's health should be at utmost care as healthy adolescent girl decreases maternal morbidity and mortality which further result in decreasing neonatal mortality, thus reducing great burden on our healthcare system. It will help in making women more independent, and also contribute in rising of economy of country.

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