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**Dr. Isha Kohli**  
MBBS, Christian Medical  
College, Ludhiana, Punjab,  
India

**Dr. Pooja Kapoor**  
MD, Department of  
Paediatrics, Kapoor Bone &  
Children Hospital, Jalandhar,  
Punjab, India

**Corresponding Author:**  
**Dr. Isha Kohli**  
MBBS, Christian Medical  
College, Ludhiana, Punjab,  
India

## Medical and psychosocial health status of adolescent school going girls

**Dr. Isha Kohli and Dr. Pooja Kapoor**

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### Abstract

**Aim:** To evaluate medical and psychosocial health status of adolescent school going girls.

**Material and Methods:** The present cross-sectional study was conducted in the Christian Medical College, Ludhiana from February 2017 to January 2019. The study group was consisted of 1000 adolescent girls of school aged 10-19 yrs in rural Ludhiana. Children were screened for any of adolescent morbidity based on questionnaire. The patients were interviewed that requests for the demographic, socioeconomic status, medical history and previous history of taking any medications and supplements. Girl's socioeconomic status were classified according to Kuppuswamy scale. For skin related disease dermatologist was considered. Dental caries, dental staining and brushing habits were recorded based upon the examination. Informed pertaining to psychosocial morbidities were recorded i.e. depression, anxiety, stuttering and psychosomatic symptoms.

**Results:** 37.1% girls belong to 10-14yr age group, likewise 25.5% to 15-17yrs and 37.4% to 18-19yr age group. Majority of girls (99.6%) attained menarche after 12yrs of age and dysmenorrhea (12.8%) was reported to be the most common menstrual problem among girls; majority of girls were using sanitary pads for menstrual hygiene purpose. In hearing assessment about 1.7% of girls were found in having hearing difficulty. 35.1% of girls were suffering from dental caries; dental staining was present in 15.8% of girls. Acne was the commonest skin problem (13%). 5.2% of girls were found to be in depressed mood, 1.2% of total girls were anxious and stuttering was reported in 0.9% of total girls.

**Conclusion:** To achieve wholesome adolescent health, we need to have a multidimensional approach covering all the adolescent health problems with special emphasis on mental health, behaviour change communication towards healthy lifestyle and positive social environment to acquire life skills.

**Keywords:** girls, adolescent, medical status, psychosocial status

### 1. Introduction

According to WHO, Adolescents are the young people aged between 10 to 19 years. It is a transitional stage of physical, physiological and psychological development from puberty to legal adulthood [1]. About 21% of Indian population is adolescents (about 243 million)<sup>2</sup>. They are the future of the nation, forming a major demographic and economic force. They have specific needs which vary with gender, life circumstances and socio economic conditions. They face challenges like poverty, lack of access to health care services, unsafe environments etc. It is a period of preparation for undertaking greater responsibilities like familial, social, cultural and economic issues in adulthood [3].

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 [4]. The main health issues faced by the adolescents include: Mental health problems, early pregnancy and childbirth, human immunodeficiency virus/sexually transmitted infection (HIV/STI) and other infectious diseases, violence, unintentional injuries, malnutrition and substance abuse [3].

The term 'psychosocial' refers to the interplay between the biological, physiological, emotional, cognitive, social, environmental and the maturational factors [4]. Each of these factors should be considered when the problems and the needs of the adolescents are evaluated<sup>5</sup>. Psychological changes occur largely because the way adolescents see themselves changes dramatically. Simultaneously, there is also a change in the way other people treat Them [6].

In India, data on adolescents from national surveys including National Family Health Survey III (NFHS-3), District Level Household and Facility Survey III and Sample Registration System call for focused attention with respect to health and social development for this age group. It has therefore been realized that, investing in adolescent health will yield demographic and economic dividends for India. In view of this, Government of India launched its first comprehensive programme for adolescents, 'Rashtriya Kishor Swasthya Karyakram', during January 2014 which has a sharp focus on adolescents' sexual health. The programme envisages that all adolescents in India are able to realize their full potential by making informed and responsible decisions related to their health and well-being<sup>3</sup>. About 1.3 million adolescents died from preventable or treatable causes during 2012 as per WHO reports. Road traffic injuries were the leading cause of death among adolescents. About 15% of global maternal death occurs among adolescents girls. Injuries and neuro-psychiatric disorders were the major issues in adolescents. There is an increasing trend in adolescent obesity due to great shift in diet and activity pattern. Nearly 35% of the global burden of disease has roots in adolescence. Half of all mental health disorders in adulthood starts by 14 year of age, most cases are undetected and untreated<sup>3</sup>. Today, unhealthy and unbalanced diet habits and associated diseases are among the primary biological and psychosocial health problems of young people (Kiliç & Çağdaş, 2012) [7]. School health services in rural areas have not received much attention in our country. Whatever, little efforts have been made, it has largely remained confined to large cities with very little work done for promotion of school health in rural areas. The present study was undertaken to evaluate the morbidity pattern, nutritional profile and psychosocial health status of school going girls in rural school of western Uttar Pradesh.

### Materials and Methodology

The present cross-sectional study was conducted in the Christian Medical College, Ludhiana from February 2017 to January 2019.

The study group was consisted of 1000 adolescent girls of school aged 10-19 yrs in rural Ludhiana. Patients were enrolled in the study after obtaining written informed consent from the school principal

We visited various government and private schools of nearby districts around 25km from hospital and conducted camps in school in which we conducted our study. A total of 16 schools were visited during study and consent for survey was taken from principal of the school.

### Inclusion criteria

1. All the adolescent school going girls of school aged 10-19 yrs in rural western Uttar Pradesh.
2. Students present on the day of the study visit and
3. Those agreed to participate in the study

### Exclusion criteria

1. Girls absent on the day of examination.
2. Not participated in survey.

The study protocol for all procedures was approved by the Institutional ethical committee and was performed in accordance with the Code of Ethics of the World Medical

Association according to the Declaration of Helsinki of 1975, as revised in 2000. The questionnaire has multiple set of questions, for screening of common morbidity of adolescent age. Written informed consent was taken from the teachers. Every child was interviewed, and relevant history & examination was taken as per proforma. Children were screened for any of adolescent morbidity based on questionnaire.

### Case selection

The data was collected by a preformed structured interviewer-administered questionnaire that was pretested with modifications made prior to its use in the study. The patients were interviewed that requests for the demographic, socioeconomic status, medical history and previous history of taking any medications and supplements.

### Questionnaire Development

Questionnaire included questions on physical and mental health, disability, nutrition, sexual and reproductive health, gender norms, decision making, education and violence.

Similarly, to assess girls' nutritional status, we used standard international indicators and methods. We measured girls' height using a stadiometer and weight by weighing machine. Blood pressure was taken by manual sphygmomanometer, taken in sitting position in right arm and readings were checked on percentile attached in Annexure

Girl's socioeconomic status were classified according to Kuppuswamy scale.

Visual acuity was checked by Snellens Chart.

Dental health Status checked by dentist by oro-examination.

For skin related disease dermatologist was considered.

We defined overweight as + 2 SD above the mean. In reporting BMI-for-age statistics, we excluded girls who were pregnant for the first time, and girls who had already been pregnant if it was unclear whether or not they were pregnant at the time of the survey.

Data was also recorded regarding smoking, alcohol or any other substance abuse. Dental caries, dental staining and brushing habits were recorded based upon the examination.

Diet history (vegetable+nonvegetarian) was asked too.

General examination was done to find information on pallor, icterus, lymph nodes and Edema.

Limited systemic examination was done to confirm findings.

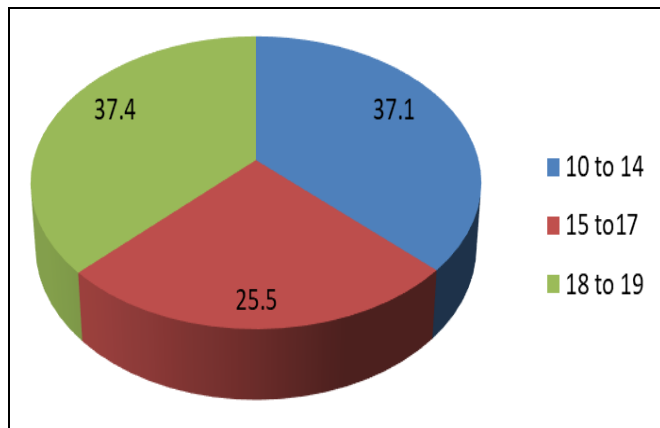
Informed pertaining to psychosocial morbidities were recorded i.e. depression, anxiety, stuttering and psychosomatic symptoms.

**Statistical analysis:** Data was collected and subjected to statistical analysis using SPSS software version 24. Difference between two groups was determined using chi square test and the level of significance was set at  $p < 0.05$ .

### Results

37.1%, 25.5% and 37.4% of the subjects belonged to 10-12, 13-15 and 16-19 year of age group respectively (Graph 1). Approximately 50% of the girl's fathers were either illiterate or studied upto primary level. SES Class II, III, IV and V were reported among 11.4%, 22.4%, 44.2% and 22% of the subjects respectively, majority of girls belonging to upper lower class according to Kuppuswamy scale. Allergy history in form of allergic rhinitis, asthma, urticaria was

revealed among 9.7%, 11.4% and 10.7% of the 10-14, 15-17 and 18-19 year of the age group respectively with statistically insignificant difference.



**Graph 1:** Age distribution of the adolescent girls

Mean BMI among 10-12, 13-15 and 16-19 year old girls were 18.77, 18.55 and 18.93 kg/m<sup>2</sup> respectively. In our study, 95.8% of the girls revealed about starting of menstrual cycle. 10.8% of the girls with age ≤12 year reported absence of menstrual cycle with statistically significant difference when compared to girls with age >12 years. Dysmenorrhoea was found among 12.8% of the girls. Surprisingly 3.7% of the girls use cloth as sanitary protection while 4.4% of the girls did not use any thing for sanitary protection (table 1). In the present study, anemia was reported among 42.5% of the girls. 10-12 years of girls suffered more from anemia as compared to other age group with statistically insignificant difference.

**Table 1:** Menstrual health among the study population

Habits	Age Group (in years)		Total	
	≤12	>12		
<b>Started period</b>				
No	N	40	2	42
	%	10.8%	0.32%	4.2%
Yes	N	331	627	958
	%	89.2%	99.68%	95.8%
<b>Menstrual Problems</b>				
Oligomenorrhea	N	19	48	67
	%	5.12%	7.63%	6.7%
Dysmenorrhoea	N	51	77	128
	%	13.75%	12.24%	12.8%
Polymenorrhea	N	2	9	11
	%	0.54%	1.43	1.1
Amenorrhoea	N	17	2	19
	%	4.58%	0.32%	1.9
<b>Sanitary protection</b>				
Any Cloth	N	14	23	37
	%	3.8%	3.66%	3.7%
Pads	N	303	574	877
	%	80.16%	91.26%	87.7%
others	N	14	30	44
	%	3.77%	4.77%	4.4%

In the present study, hearing problem was reported among 2.4%, 1.2% and 1.3% of the 10-12, 13-15 and 16-19 of the girls respectively with statistically insignificant difference. Dental caries was found maximum among 38% of the girls

while it was found in 31.8% of the 16-19 year old girls (table 2).

**Table 2:** Hearing Problem and dental status among the study population

Hearing Problem	Age Group (in years)			Total	
	10-14	15-17	18-19		
No	N	362	252	369	983
	%	97.6%	98.8%	98.7%	98.3%
Yes	N	9	3	5	17
	%	2.4%	1.2%	1.3%	1.7%
<b>Dental Caries</b>					
Absent	N	230	164	255	649
	%	62.0%	64.3%	68.2%	64.9%
Present	N	141	91	119	351
	%	38.0%	35.7%	31.8%	35.1%

Acne, dandruff, hirsutism and scabies was found among 13%, 4.6%, 4.1% and 2.3% of the girls respectively with statistically significant difference (table 3).

**Table 3:** Skin issues among the study population

Skin Problems	Age Group (in years)			Total	
	10-14	15-17	18-19		
Acne	N	57	30	43	130
	%	15.4%	11.8%	11.5%	13.0%
Dandruff	N	14	8	24	46
	%	3.8%	3.1%	6.4%	4.6%
Hirsutism	N	10	15	16	41
	%	2.7%	5.9%	4.3%	4.1%
Scabies	N	12	6	5	23
	%	3.2%	2.4%	1.3%	2.3%
No	N	278	196	286	760
	%	74.9%	76.9%	76.5%	76.0%

Mild depression was found among 5.3% of the 16-19 years old girls while moderate depression was revealed only in 10-12 year (0.5%) old girls with statistically insignificant difference as p>0.05. In the present study, anxiety was reported among 1.9%, 0.8% and 0.8% of the 10-12, 13-15 and 16-19 of the girls respectively with statistically insignificant difference (table 3).

**Table 4:** Psychosocial health status among the study population

Variables	Age Group (in years)			Total	p value	
	10-14	15-17	18-19			
<b>Depression</b>						
Absent	N	351	243	354	948	0.92
	%	94.6%	95.3%	94.7%	94.8%	
Present	N	20	12	20	52	0.47
	%	5.4%	4.7%	5.3%	5.2%	
<b>Type of Depression</b>						
Absent	N	351	243	354	948	0.47
	%	94.6%	95.3%	94.7%	94.8%	
Mild	N	18	12	20	50	0.47
	%	4.9%	4.7%	5.3%	5.0%	
Moderate	N	2	0	0	2	0.47
	%	0.5%	0.0%	0.0%	0.2%	

Stuttering, anorexia nervosa and bulimia nervosa was reported among 0.9%, 1.2% and 0.8% of the girls respectively (table 5).

**Table 5:** Stuttering, Anorexia Nervosa and Bulimia Nervosa among the study population

Variables	Age Group (in years)			Total	p value
	10-14	15-17	18-19		
<b>Stuttering</b>					
No	N 367 % 98.9%	253 99.2%	371 99.2%	991 99.1%	0.90
Yes	N 4 % 1.1%	2 0.8%	3 0.8%	9 0.9%	
<b>Anorexia Nervosa</b>					
No	N 364 % 98.1%	253 99.2%	371 99.2%	988 98.8%	0.31
Yes	N 7 % 1.9%	2 0.8%	3 0.8%	12 1.2%	
<b>Bulimia Nervosa</b>					
No	N 370 % 99.7%	252 98.8%	370 98.9%	992 99.2%	0.35
Yes	N 1 % 0.3%	3 1.2%	4 1.1%	8 0.8%	

**Discussion**

Development of children and quality of their learning depends on a number of factors, including their own health status. Health promoting behaviour inculcated by the school not only contributes in physical development and health care of students, its spin-off improves awareness about health issues among the parents and local community as well. School health screening provides a unique opportunity to positively impact the health of students.

The Health screening aims to identify and address important health barriers to learning. 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 [8]. 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

37.1%, 25.5% and 37.4% of the subjects belonged to 10-14, 15-17 and 18-19 year of age group(who classification of adolescent age group) respectively. Abha Mangal *et al*<sup>9</sup> in their study found that out of 742 adolescent girls, 207 (27.90%) girls belonged to the stage of early adolescence (10-13yrs), 241 (32.48%) girls belonged to middle adolescence(14-15yrs), and 294 (39.62%) girls belonged to late adolescence(16-19yrs). Aradhya GH *et al.* [10] in their study found the highest number of girls was seen in the 14 years age group (37%) followed by the 15 years age group (23.8%) and the least number of girls was seen in the 17 years age group (0.4%).

Literacy of parents has a definitive contribution in the psychosocial development of an adolescent girl. Approximately 50% of the girl’s fathers were either illiterate or studied upto primary level in our study. These results were in accordance with study done by Veena Rajachar *et al.* [11] i.e. almost half (47.6%) of the rural adolescent girls’ father were either illiterate or educated below primary level.

In our study, 95.8% of the girls revealed about starting of menstrual cycle. Dysmenorrhoea was found among 12.8% of the girls. Surprisingly 3.7% of the girls use cloth as sanitary protection. Kelly Rose-Clarke *et al.* [12] study conducted in eastern India, found that the mean age of menarche was 12 years. Half the girls used sanitary napkins and 27% used locally made napkins. Restrictions during

menstruation were uncommon and mainly pertained to participation in religious rituals.

In the present study, anemia was reported among 58.6% of the girls. 76.3% of girls were documented to have mild anemia and 1.7% were classified as severe. NFHS-3 data shows, in the age group 15–19 y, 56% girls were anemic. Based on findings from the CAB(clinical anthropometric and biochemical) survey, a prevalence of 86% anemia was found among girls aged 10–17 years living in rural West Singhbhum [13]. Evidence suggests that iron alone, iron and folic acid, zinc, and multiple micronutrient supplementation can increase serum haemoglobin concentration among adolescent girls. Also especial emphasis to be taken on adolescent diet which is mostly ignored, to combat against anemia. However, in order to identify an appropriate intervention, further investigation into the aetiology of anaemia in this population is warranted [14].

Elevated blood pressure in childhood may be early expression of essential hypertension in adulthood [15, 16]. Hypertension has its origin in childhood but goes undetected unless specifically looked for during this period [17]. 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% [18]. 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% [19]. They recommend that children should be regularly screened so that remedial measures can be initiated as early as possible. In a study by Amitha Rao Aroor *et al* [8], six of the children (0.8%) were hypertensive and 14 (1.9%) had pre hypertension.

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 [20] reported higher prevalence of caries (46.75%) among children in rural areas of Udaipur district. 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. Amitha Rao Aroor *et al* in their study reported that among the dental problems, highest prevalence was caries (22.9%) followed by calculus (15%), malocclusion (7.4%) and cross bite (1.5%) [8].

Skin disorders are among the most frequent ailments of schoolchildren in both developing and industrialized countries. The school environment makes children vulnerable to cross transmission of communicable skin diseases among themselves and their families. Acne, dandruff, hirsutism and scabies was 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 [21] on Varanasi school children observed high prevalence of skin diseases (54%) and the commonest one noted was pediculosis capitis. The reason for the high incidence was thought to be due to the low socioeconomic state of these children. The lower incidence of skin diseases in the present study is probably because of better hygienic practices.



The term 'depression' can describe a normal human emotion and it may be a part of the adolescent developmental process, which results from the giving up of the childhood security in the drive of separation and independence. Moderate and severe depression can affect the scholastic performance. Extreme depression can lead to suicidal tendencies. Suicide has become one of the most common causes of death among the adolescents and the young population<sup>[10]</sup>. In our study, depressed mood was found among 5.2% of the girls. In a study by Aradhya GH *et al.*<sup>[10]</sup>, the prevalence of depression was 2%, which is lower than our study. In a study which was done at Thiruvananthapuram, India, the prevalence of depression was 2.6%<sup>[22]</sup>.

In our study, stuttering was found among 0.9% of the subjects. Stuttering was seen in 1% of the girls as reported by Aradhya GH *et al.*<sup>[10]</sup>. In a similar study which was done in urban Delhi, the prevalence of stuttering was high i.e. 5.3%.

In our study, mental and physical harassment were nil. Sexual abuse is one of major problems faced by adolescent girls and boys equally. These problems mostly go unnoticed as the victim suffers in silence because of fear and social stigma. This indirectly affects the physical health, mental health and the academic performance<sup>[2]</sup>. In a study by Kelly Rose-Clarke *et al.*<sup>[12]</sup> conducted in eastern India, 18% of girls aged 10–14 years had been exposed to emotional violence and 0.3% to sexual violence. Among older girls, 9% had experienced physical violence and 1% sexual violence.

### Conclusion

To achieve wholesome adolescent health, we need to have a multidimensional approach covering all the adolescent health problems with special emphasis on mental health, behaviour change communication towards healthy lifestyle and positive social environment to acquire life skills. Promoting and protecting adolescent health will lead to great public health, economic and demographic benefits. Adolescent friendly clinics need to be widely established throughout India and should achieve universal coverage will help set a pattern of healthy lifestyles and reduce morbidity, disability and premature mortality later in adulthood.

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. Nation and States wise detailed investigation and reports on adolescent's health issues, is the need of the hour and that's why present study was conducted.

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