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An Epidemiological Study to Assess Health Status of Adolescent Girls Studying in Nursing College, Sheri-I-Kashmir Institute of Medical Sciences, Srinagar, (J&K), India

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Abstract:

Background: *Adolescence is a significant period of human growth and maturation and is the most vulnerable stage from the point of view of health. Among adolescents, girls constitute a more vulnerable group, particularly in developing countries like India. The importance of adolescents lie in the fact that they are going to be the mothers of tomorrow. Not only will they soon bear the future generation, they are also the breeding ground for new ideas, languages, values, and careers.* ***Objective:*** *To assess the health status and study the morbidity pattern among the adolescent girls studying in Nursing College, SKIMS, Srinagar (J&K).* ***Methodology:*** *A cross sectional study was conducted over a period of three months from April 2013 to June 2013 among randomly selected girls studying in Nursing College,*

SKIMS, Srinagar. A total of 220 girls formed the study subjects. Data was collected by interviewing the girls using predesigned, pre tested, semi-structured questionnaire. Anthropometric measurements were recorded using standardized methodology as recommended by World Health Organization and Modified Holmes Rahe stress scale was used to assess stress related illness. ***Results:*** *A total 220 girls were studied and 80.4 % were in the age group of 18-19 years. The most common health problems encountered were menstruation related problems (60%), clinical anaemia (51.3%), migraine (42.7%), skin disorders like acne (35%) and dental caries (27.2%). It was seen that there was a significant association between various morbidities and age groups (p <0.05). A total of 50.9% of the adolescent girls were undernourished (BMI <18.5). Further it was seen that 50.4% and 41.8% of the adolescent girls were at moderate/mild risk of developing stress related illness whereas 7.7% of the study subjects were at high risk of developing stress related illness.* ***Conclusion:*** *The high prevalence of health problems among adolescent girls mandates early intervention at all the levels of health care.*

Key words: Adolescent, Morbidity, Gender discrimination

Introduction

India is the second most populous country in the world with total population of over 1210 million. Adolescents form a large section of population, about 22.5 percent, that is, about 272 million (**1**). Adolescence has been defined by World Health Organization as the period of life spanning between 10-19 years. They are no longer children, but not yet adults. Adolescents are generally considered healthier than the very young or the very old, and hence their health problems were not given much prominence (2). It is a significant period of human growth and maturation and is the most vulnerable stage from the point of view of health.

Among adolescents, girls constitute a more vulnerable group, particularly in developing countries. In a country like India, adolescent girls face serious health problems due to socio-economic, environmental conditions, nutrition and gender discrimination. A vast majority of girls in India are suffering from either general or specific morbidities (3). In most of the developing countries, the girl child is ill-fed and undernourished. They form an important vulnerable sector of population that constitute about one tenth of Indian population. Under-nutrition among adolescents is a serious public health problem internationally, especially in developing countries. A large proportion of adolescent girls suffer from various gynaecological problems, particularly menstrual irregularities such as menorrhagia, polymenorrhea, oligomenorrhea, and dysmenorrhoea. Various baseline studies also revealed that the health, nutritional and educational status of adolescent girls is at sub optimal level. (4). Absence of friendly staff, lack of family concern regarding their health, lack of privacy and confidentiality have been identified as important barriers in accessing health services by them. The importance of this target group lies in the fact that they are going to be the mothers of tomorrow – whose well being is critically important for improving the health, nutritional and educational status of women in the country. (4). Not only will they soon bear the future generation, they are also the breeding ground for new ideas, languages, values, and careers. Keeping in view the importance of this group this study was undertaken among the students of Nursing College, SKIMS, with the aim to find out the health status of this vulnerable group.

Methodology

A Cross sectional study titled *"An Assessment of health status of adolescent girls studying in Nursing College, SKIMS, Srinagar"*

was conducted over a period of three months from April 2013 to June 2013 among randomly selected girls studying in Nursing College, SKIMS, Srinagar, by the Department of Community Medicine. Proper permission was obtained from Director SKIMS and the Principal of the Nursing College, SKIMS before conducting the study. A total of 220 adolescent girls aged 16-19 years studying in Nursing College, SKIMS formed the study subjects. Data was collected using a pre tested and pre structured proforma which was divided into two parts:

Part I: included questions on social and demographic particulars and questions on diet and physical activity besides enquiry about various symptoms pertaining to health problems of adolescent girls.

Part II: included a thorough clinical examination and Anthropometry viz height, weight, BMI.

Anthropometry was done as below:-

Height – Stature meter capable of measuring to an accuracy of 0.1 cm was used to assess height of the subjects. The subject was made to stand without foot wear with the feet parallel and with heels, buttocks, shoulders, and occiput touching the wall, hands hanging by the sides. The head was held comfortably upright with the top the head making firm contact with the horizontal head piece. ***Weight*** - A portable weighing machine with an accuracy of 100gms was used to record the weight of the girls. Checking the scale with a known weight was done frequently and adjustment to zero was done every time for accurate reading. A girl were instructed to stand on the weighing machine with light clothing and without footwear and with feet apart and looking straight and weight was recorded to the nearest value. ***Body Mass Index (BMI)*** – BMI was calculated using the formula (BMI =Weight in Kg/height in m2). The girls were categorized into various grade based on BMI according to WHO International Standard:-

- Grade 3 thinness (BMI < 16 kg/m2),
- Grade 2 thinness (BMI 16-16.9 kg/m2),
- Grade 1 thinness (BMI 17-18.49 kg/m2),
- Normal (BMI 18.5-24.99 kg/m2),
- Overweight (BMI 25--- 29.99 kg/m2) and
- Obese (BMI >30 kg/m2)

The data thus obtained was analyzed using relevant statistical tests.

Observations

Table-1 depicts the socio demographic profile of the study population. It was seen that out of a total of 220 adolescent girls majority (80.4 %) were in the age group of 18-19 years. Further it was observed that most of them (94.09%) were Muslims, belonged to the rural area (65.9%) and lived either in a joint family (48.1%) or extended families (37.7). Regarding the SE status it was found that majority belonged to class III and IV being 40.4% and 33.6% respectively. Regarding the general morbidity profile our study revealed diverse health problems among the adolescent girls. The most common health problems encountered were menstruation related problems (60%), clinical anaemia (51.3%), migraine (42.7%), skin disorders like acne (35%) and dental caries (27.2%). respectively. Other lesser common health problems seen in the study subjects were abnormal/excessive vaginal discharge (20.4%), defective vision (13.1%), ENT disorders (8.1%), Respiratory infections (5.9%) followed by painful micturition, constipation, musculoskeletal disorders gastroenteritis and chronic diseases (**Table-2)**. **Table-3** shows distribution of various health problems across different age groups. It was seen that most of the health problems were seen more in the 16-17 years age group. However it was seen that there was a significant association between various morbidities and age groups **(**p <0.05). These

include migraine, skin disorders, anaemia, defective vision, inflamed gums, dental caries, ENT disorders, painful micturition, abnormal/ excessive vaginal discharge and menstruation related problems and were seen to be more prevalent in the 16-17 years age group. **Table-4** depicts various menstruation related problems among the adolescent girls. It was seen the most common problem experienced was dysmenorrhoea ((53%) followed by irregular periods (31.8%) and excessive bleeding per vaginum during periods (22.7%). Overall the menstruation related problems were significant across age groups ($p < 0.001$) and were seen more in the 16-17 years age groups **(Table-5).** In our study, according to WHO reference standards, it was seen that a total of 50.9% of the adolescent girls were undernourished (BMI <18.5). Only 7.2% of the girls were found to be overweight and 0.9% were obese **(Table-6).** The modified Holmes and Rahe stress scale developed for non adults was used to assess the risk of stress related illness among the study subjects. The results revealed that 50.4% of the adolescent girls were at moderate risk of developing stress related illness while 41.8 % of the study subjects were at mild risk of developing stress related illness. However only 7.7% of the study subjects were at high risk of developing stress related illness (**Table-7).**

Table 1:- Socio demographic profile of the study subjects (N= 220)

Socio-demographic Characteristics		No.	%age
Age in years	16-17	43	19.5
	18-19	177	80.4
Religion	Islam	207	94.09
	Hinduism	11	5
	Sikhism	1	0.004
	Buddhism	1	0.004
Background	Urban	75	34
	Rural	145	65.9
Type of family	Nuclear	31	14
	Joint	106	48.1
	Extended	83	37.7
Number of family	2-3	10	4.5

members	4-5 >5	32 178	14.5 80.9
Socioeconomic status*	I II III IV V	16 13 89 74 28	7.27 5.9 40.4 33.6 12.7

* Modified GB Prasad scale

Table 2: General Morbidity profile of the study subjects (N=220) *

	General Morbidity	Number	%age
1	Migraine	94	42.7
2	Skin disorders	77	35
3	Clinical Anaemia	113	51.3
4	Defective vision	29	13.1
5	Inflamed gums	8	3.6
6	Dental caries	60	27.2
7	ENT disorders	18	8.1
8	Respiratory infection	13	5.9
9	Constipation	7	3.1
10	Gastro enteritis	3	1.3
11	Painful micturition	8	3.6
12	Menstrual problems	132	60
13	Abnormal/ excessive vaginal discharge	45	20.4
14	Musculoskeletal disorders	4	1.8
15	Any Chronic disease	3	1.3

* Multiple responses by participants

Table 3: General Morbidity profile of the study subjects across all age groups*

Morbidity	(N=220)	Age Group 16-17 (N=43)	Age Group 18-19 (N=177)	P Value	
Migraine	94	27(62.7)	67(37.8)	.00521	(<0.05 Sig)
Skin disorders	77	29(67.4)	48(27.1)	0.000	(<0.05 Sig)
Clinical Anaemia	113	33(76.7)	80(45.1)	0.0003	(<0.05 Sig)

Defective vision	29	13(30.2)	16(9.03)	0.0005	(<0.05 Sig)
Inflamed gums	8	5(11.6)	3(1.6)	0.006	(<0.05 Sig)
Dental caries	60	31(72.09)	29(16.3)	0.000	(<0.05 Sig)
ENT disorders	18	15(34.8)	3(1.6)	0.000	(<0.05 Sig)
Respiratory infection	13	6(13.9)	7(3.9)	0.032	(>0.05 NS)
Constipation	7	3(6.9)	4(2.2)	0.072	(>0.05 NS)
Gastro enteritis	3	2(4.6)	1(0.5)	0.1804	(>0.05 NS)
Painful micturition	8	6(13.9)	2(1.12)	0.0003	(<0.05 Sig)
Menstrual problems	132	32(74.4)	100(56.4)	0.047	(<0.05 Sig)
Abnormal/excessivevaginal discharge	45	36(83.7)	9(5.08)	0.000	(<0.05 Sig)
Musculoskeletal disorders	4	2(4.6)	2(1.1)	0.3607	(>0.05 NS)
Any Chronic disease	3	1(2.3)	2(1.1)	0.899	(>0.05 NS)

*Multiple responses by study subjects

Table 4 Type of menstrual problems among adolescent girls (N=132)*

	Menstrual problems	No. of girls	% age
1	Dysmenorrhoea	80	60.6
2	Irregular periods	42	31.8
3	Excessive bleeding per vaginum	30	22.7

*Multiple responses by study subjects

Table 5: Type of menstrual problems among adolescent across age groups (N=132)

	Menstrual problems	**No. of girls (N=132)**	**Age (16-17) (N=43)**	**Age (18-19) (nN=177)**	**P value**	
1	Dysmenorrhoea	80	31(72.09)	49(27.6)	0.000	(<0.05 Sig)
2	Irregular periods	42	18(41.8)	24(13.5)	0.00005	(<0.05 Sig)
3	Excessive bleeding per vagina	30	19(44.18)	11(6.2)	0.000	(<0.05 Sig)

Table 6: BMI for age (N=220)

BMI	Cut Off Values	Number	%age
Grade 3 Thinness	< 16	24	10.9
Grade 2 Thinness	16--16.99	29	13.1
Grade 1 Thinness	17--18.49	59	26.8
Normal	18.5--24.99	90	40.9
Overweight	25—29.99	16	7.2
Obese	>30	2	0.9

Table 7: Stress Assessment – Risk of stress related illness (N= 220)*

Risk of illness	Cut Off Values	Number	%age
Mild	0-149	92	41.81
Moderate	150-299	111	50.45
High	≥ 300	17	7.7
Total		220	100

*Modified Holmes Rahe Stress Scale

Discussion

In the present study the leading causes of morbidity were Menstruation related problems, anaemia, migraine, Skin disorders like acne, dental caries and Abnormal/excessive vaginal discharge. The most common health problem encountered was Menstruation related problems (60%) which included dysmenorrhoea (60.6%), irregular periods (31.8%) and heavy periods (22.7%). This prevalence was higher as compared to that reported by Susmitha K M et al from Nellore where the prevalence of dysmennorhoea was 43% (4). However a higher prevalence (70%) of menstrual problems was reported by Khanna A et al from Rajasthan which included dsmennorhoea in 80% and irregular periods in 53% of the study subjects (5). Clinical anaemia was seen in 51.3% of the study subjects. A similar study done among adolescent girls in Nellore,AP revealed the presence of clinical anaemia (pallor) in lesser number of the study subjects (41%) (4). In a study done

across 16 districts in India showed a much high overall prevalence of anaemia among adolescent girls (90.1%) lowest being in Dehradun (58.2%) (6). In our study 42.7% of the study subjects had a history of migraine. This was in accordance with the findings of Fichtel A et al from Sweden where 42% of adolescent girls had a history of migraine (7). Contrary to this Shivpuri D et al reported only 14% of adolescent girls with a history of migraine (8). Skin disorders like acne and dental caries was also common being 35% and 27.2% respectively. Higher prevalence of these disorders was seen In a study by Kalamka H S et al at Nagpur which showed the presence of acne in 54.1% of adolescents and dental caries was seen in 34.28% of the study subjects(9). In our study defective vision was seen in 13.1% of the adolescents while as in a study conducted by Srinivasan K et al the prevalence of defective vision was 4.7%(10). Most common age of menarche among the study subjects was 13 years (32.7%) and 14 years (30.9%). This was in accordance with the findings of Majumdar R who reported the most common age of menarche as 14 years (30.5% of study subjects)(11) while it was 13 years (43.05%) in a study conducted by Prajapati M et al (12). In this study, according to WHO reference standards, 50.9% of the girls were undernourished (BMI <18.5). 7.2% of the girls were found to be overweight and 0.9% were obese. Our findings are almost in accordance with those of Wasnik V et al from AP which revealed that 56.4% of adolescent girls were undernourished whereas 2.9% of the girls were overweight (13).

Conclusion

The study shows the poor health status among the adolescents. A periodical and regular health check-up with concerted efforts towards their nutrition along with focused health education will

improve the health and nutritional status of these school going adolescents.

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