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Original Research

Distribution and determinants of common morbidities among adolescent girls in an urban slum of Pune- A Clinical Study

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ABSTRACT
Background: Adolescent is a period of transition from childhood to adulthood. It is the period of life between ages of 10-19 years. The present study was conducted to study the distribution and determinants of common morbidities among adolescent girls in an urban slum of Pune. **Materials & Methods:** The study population comprised of 230 girls in age range 10 - 19 yrs in the households in the urban area. In this study socio-demographic profile (age, education & occupation of parents, family income and size), anthropometric measurements (height, weight and BMI) dietary history (through semi quantitative food frequency questionnaire) and clinical examination to assess the signs of nutritional deficiencies were assessed. **Results:** The majority of the adolescent girls were in the age group of 14-16 years (54.02%) followed by 11-13years (33.03%) age group. Subjects had completed high school education 118(52.4%) followed by middle school 80 (35.6%) and only 10.7% had completed intermediate and above. Subjects belonged to birth order 1(35.71%) or 2 (34.82%) followed by birth order 3.Only around 10% belong to 4 and above birth order. Out of 224 girls, 172 (76.8%) (95% C.I. 73.48-80.12) had started having menstruation while in 23.2% menstruation had not started. The major prevalent morbid conditions among study subjects were pediculosis 79% (95% C.I 75.79-82.20), history passing of worms in stool 69.6% (95% C.I 65.98-73.22), dental caries 61.2% (95% C.I 57.36-65.03), skin disorders 33.5% (95% C.I. 29.79-37.21). **Conclusion:** The common factors responsible for these morbidities are large family size, lower literacy status of parents, lower socioeconomic status, overcrowding, poor personal hygiene, poor dietary habits however in our study a significant association was found in the presence of anemia with history of passing worms in stools, underweight where as the other factors mentioned above were not found to be having an statistically significant association.

Key words: Anemia, menstruation, Nutrition.

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INTRODUCTION

Adolescent is a period of transition from childhood to adulthood.It is the period of life between ages of 10-19 years. It is variously described as "Neither children nor adults" or as "growing-up Years". The term adolescence is derived from latin word 'adolescere' meaning to 'grow, to mature.' The World Health Organization defines adolescents as people aged between 10-19 years. There are 1.2 billion adolescents in the world that is equal to one fifth of world's population and their numbers are increasing. India's population has reached one billion mark, out of which 21% are adolescents.[1]Adolescence is a stage when young people extend relationships beyond their parents and family. It is a time of intense influence of peers, and the outside world in the society. A desire to experiment and explore can manifest in a range of behaviours- exploring sexual relationships, alcohol, tobacco and abuse of other substances. The anxiety and stress associated with achievement failure, lack of confidence etc are likely to lead to depression, anger, violence and other mental.[2]The main nutrition problems affecting adolescent populations worldwide include under nutrition, Iron deficiency

anaemia, Iodine deficiency, Vitamin A deficiency, Calcium deficiency and other specific nutrient deficiencies like zinc, folate, and obesity. Most of the adolescent girls are not adequately aware of their increased nutritional needs for growth (especially increasing their food intake to meet calorie demands of pubertal growth) resulting in girls that are underweight and of short stature.[3] Undernourishment and neglect is reflected by their poor body size/growth and narrow pelvis as they grow into adolescence, making childbearing a great risk.[4] The present study was conducted to study the distribution and determinants of common morbidities among adolescent girls in an urban slum of Pune.

MATERIALS & METHODS

The study population comprised all the girls of age in range 10 - 19 yrs in the households in the urban area. In this area there were 350 adolescent girls. List of all 350 adolescent girls was prepared and 230 were selected by simple random sampling using lottery method. Information on demographic and socio cultural variables was collected by interviewing the study subjects. Information on health status including morbidity was collected by health examination. In this study socio-demographic profile (age, education & occupation of parents, family income and size), anthropometric measurements (height, weight and BMI) dietary history (through semi quantitative food frequency questionnaire) and clinical examination to assess the signs of nutritional deficiencies were assessed. A routine examination of hemoglobin was carried out on subjects studied. After initial examination, adolescent girls were advised treatment where necessary. Data regarding morbidity status was collected using a pre-designed, pre- tested proforma. Every girl was examined physically from head to toe and deviations from normal were recorded. Enquiry was made about the education and occupation of the parents, practices regarding personal hygiene, oro-dental hygiene, menstrual history and menstrual hygiene of the subjects.

RESULTS

Table I: Distribution of study subjects as per Age

Age group (yrs)	Frequency	Percentage %
11-13	74	33.03
14-16	121	54.02
17-19	29	12.95
Total	224	100

Table I shows that in the present study, majority of the adolescent girls were in the age group of 14-16 years (54.02%) followed by 11-13years (33.03%) age group.

Table II Education status of subjects

Educational status	Frequency	Percentage
Primary	2	0.9
Middle	80	35.6
High School	118	52.4
Intermediate	17	7.6
Graduation	7	3.1
Total	224	100

Table II shows that majority of study subjects had completed high school education 118(52.4%) followed by middle school 80 (35.6%) and only 10.7% had completed intermediate and above.

Table III: Birth order of subjects

Birth Order	Frequency	Percentage
1	*80*	*35.71*
2	*78*	*34.82*
3	*44*	*19.64*
4	*17*	*07.59*
5	*3*	*01.34*
6	*1*	*00.45*
7	*1*	*00.45*
Total	*224*	*100*

Table III shows that majority of the study subjects belonged to birth order 1(35.71%) or 2 (34.82%) followed by birth order 3.Only around 10% belong to 4 and above birth order.

Table IV: Distribution of study subjects as per menstrual status

Menstrual status	No. of Adolescent girls	Percentage
Started	172	76.8
Not started	52	23.2
Total	224	100

In the present study, out of 224 girls, 172 (76.8%) (95% C.I. 73.48-80.12) had started having menstruation while in 23.2% menstruation had not started.

Table V: Distribution of study subjects as per hemoglobin level for age

Age (years)	Number of girls	Hb(gm/dl) Mean± SD
11	15	11.06±1.31
12	13	11.10±1.84
13	46	10.39±1.51
14	67	10.69±2.02
15	40	10.14±2.29
16	14	11.02±1.13
17	12	11.12±1.03
18	8	11.55±1.80
19	9	11.05±1.00
Overall (95% C.I)	224	10.67±1.81 (10.52-10.81)

Table V shows that in the present study, the mean± S.D hemoglobin of study subjects was 10.67± 1.81 with 95% C.I. 10.52-10.81.

Table VI Distribution of study subjects with different morbid conditions

Symptom/sign	Frequency	Percentage	95% C.I
Pediculosis	177	79.0	75.79-82.20
H/o Passing worms in stools	156	69.6	65.98-73.22
Caries tooth	137	61.2	57.36-65.03
Pallor	120	53.5	49.57-57.42
Dysmenorrhoea(n=172)	75	43.6	39.69-47.50
Skin disorders	75	33.5	29.79-37.21
Vaginal discharge	58	25.9	22.45-29.35
Respiratory infections	34	15.2	12.38-18.03
Lymphadenopathy	30	13.3	10.63-15.97
Diarrhoea(in last 2 weeks)	25	11.2	8.72-13.68
Having at least one symptom/sign	181	80.8	77.70-83.89

According to the presence of various symptoms and signs observed in the study population , the major prevalent morbid conditions among study subjects were pediculosis 79%(95% C.I 75.79-82.20), history passing of worms in stool 69.6%(95% C.I 65.98-73.22), dental caries 61.2%(95% C.I 57.36-65.03), skin disorders 33.5% (95% C.I. 29.79-37.21).

DISCUSSION

Increasing investment in improving the lives of adolescents will also have an impact on achieving several of the Millennium Development Goals (MDGs) that includes gender equality, education and improving maternal and child health. Nearly one fourth of India's population comprises of adolescents representing a vibrant human resource. Hence it is of utmost importance to strengthen efforts and formulate innovative strategies to channelize adolescents' energies in a constructive direction.[5]In the present study, majority of the adolescent girls were in the age group of 14-16 years (54.02%) followed by 11-13years (33.03%) age group. This is slightly different from the study by Awasthi S[6] conducted where, 74.38% adolescents were in the age group of 10 to 14 years and 25.6% between the age 15 to 18 years. We found that majority of study subjects had completed high school education 118(52.4%) followed by middle school 80 (35.6%) and only 10.7% had completed intermediate and above. Another study from Meerut by Bhat IA et al[7] reported that 32.93% mothers were illiterate. We found that majority of the study subjects belonged to birth order 1(35.71%) or 2 (34.82%) followed by birth order 3.Only around 10% belong to 4 and above birth order. Out of 224 girls, 172 (76.8%) (95% C.I. 73.48-80.12) had started having menstruation while in 23.2% menstruation had not started. Other studies like Singh MM et al[8] have shown age of menarche ranging from 13.2 to 13.7 years. In present study, the mean± S.D hemoglobin of study subjects was 10.67± 1.81 with 95% C.I. 10.52-10.81. According to the presence of various symptoms and signs observed in the study population , the major prevalent morbid conditions among study subjects were pediculosis 79% (95% C.I 75.79-82.20), history passing of worms in stool 69.6% (95% C.I 65.98-73.22), dental caries 61.2% (95% C.I 57.36-65.03), skin disorders 33.5% (95% C.I. 29.79-37.21). In a study by Dwivedi SN[9]13.3% had anemia, 84.6% anaemic subjects had history of worm infestation, similar to the present study where in 84% anaemic had the story of passing worms in stool. In a study by Ray SK al[10] among 504 adolescent Girls in 174 (34.5%) adolescent girls were anaemic. The prevalence of mild, moderate and severe anemia among adolescent girls was 19%, 14.1%and 1.4%, respectively. The proportion of mild, moderate and severe anemia was 55.2%, 40.8% and 4.0% respectively. A significant association of anemia with socio-economic status, type of family, father's occupation, mother's education and family size stressed the need to develop strategies for intensive adult education, nutrition education and dietary supplementation, including anemia prophylaxis. A community based cross-sectional study by Kapil U et al.[11] was conducted to assess nutritional status and reproductive problems in adolescent girls of 168 villages and 224 anganwadi centres.

The study results showed that, two third of (69.37%) study subjects were undernourished, 41% were anaemic, three fourth of adolescent girls reported menstrual problems that is dysmenorrheal (44.27%) and white discharge (38.3%). School drop outs were reported in 22.4% girls. Higher prevalence of under nutrition reported in this study, reason of difference may be due to different settings of studies with the present study being in urban area.

CONCLUSION

The common factors responsible for these morbidities are large family size, lower literacy status of parents, lower socioeconomic status, overcrowding, poor personal hygiene, poor dietary habits however in our study a significant association was found in the presence of anemia with history of passing worms in stools, underweight where as the other factors mentioned above were not found to be having an statistically significant association.

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