

MORBIDITY PROFILE OF ADOLESCENT GIRLS IN URBAN SLUMS OF GUWAHATI CITY, ASSAM

Community Medicine

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ABSTRACT

Context/Background: Adolescent period is a stage of transition from childhood to adulthood when the maximum amount of physical, psychological and behavioural changes takes place. Adolescents continue to suffer from an array of morbidities like iron deficiency anaemia, menstrual problems, malnutrition etc. **Aims/Objectives:** To estimate the morbidity profile and to determine the association of socio-demographic risk factors with morbidity profile among adolescent girls in urban slums of Guwahati city. **Methodology:** This descriptive cross-sectional study was conducted among adolescent girls residing in the urban slums of Guwahati city. A total of 400 adolescent girls participated in the study after due inclusion and exclusion criteria. Data was collected using a pre-tested and pre-designed interview schedule and results were analyzed using SPSS package (version 23). **Results:** The proportion of adolescent girls with morbidity was found to be 78.5%. Among the various morbidities, anaemia (41.2%) and menstrual disorders (40.8%). A significant association between socioeconomic factors and morbidity was seen. **Conclusions:** Preventable morbidities like anaemia continue to be a burden among this sub-group of the general population and socioeconomic factor was found to play a contributory role. Thus, primordial interventions like sensitization and health education must be strengthened so that these health problems can be reduced.

KEYWORDS

Adolescents, morbidity, adolescent girls, urban slums

INTRODUCTION

Adolescence is a period of transition from childhood to adulthood. This is a formative year when the maximum amount of physical, psychological and behavioural changes take place. It is that time when they learn to be independent as an individual, forge new relationships, develop social skills, and learn behaviours that will last the rest of their lives but due to their healthy facade, most of their ailments remain hidden. The term adolescence comes from the Latin word "adolescere" which means "growing to maturity". (Adolescence, 1997) While there is no universally accepted definition, WHO has defined adolescence as those who fall within the age group of 10-19 years. (World Health Organization, 2006) Adolescents constitute one-sixth of the world's population and account for a substantial proportion of the global burden of disease and injury. (World Health Organization, 2017) It is estimated that 85% of the adolescent population lives in developing countries wherein India has the largest adolescent population of 243 million i.e. 21.2%. (Strategy Handbook, 2014) Of the total female population in India, 10.7% and 9.7% are adolescent girls in age groups 10-14 years and 15-19 years respectively. (Ips, 2017)

As per the WHO Global database, anxiety and depressive disorders remain the top cause of DALY among female adolescents aged 10-19 years. (Maternal, Newborn, Child and Adolescent Health and Ageing Department, n.d.) In India, morbidities like iron deficiency anaemia, menstrual disorders, malnutrition, etc. continue to remain a burden for this age group. For instance, according to one study, the prevalence of anaemia among females was 50.8%⁵ while another study indicated that health problems like being underweight (51%), stunting (34%), menstrual problems (79.5%), eye problems (31%), dental problem (35.34%), etc. are still an issue. (Dabas et al., 2019) Adolescent health problems are very different from younger adults, children, or their male counterparts. They form a vulnerable age group, especially in developing countries like India where females are socio-culturally deprived of various opportunities and rights. As a result of which their nutritional needs, emotional well-being and their reproductive requirements are overlooked. It is also a unique intervention point in the lifecycle of adolescent girls.

According to Census 2011, the slum population in Guwahati was 13.05% of the total population. (Assam - Slums Census Data 2011, n.d.) Studies have indicated that the health conditions of the adolescent girls residing in the slums are detrimental. Among the adolescent girls, 32.66% suffered from menstrual disorders, 10.69% had pallor, and 47% had a BMI less than the 5th percentile out of which 33.50% of adolescent girls belonged to class IV socioeconomic status. There is often a close relationship between the health status and the living

conditions of the slum dwellers. (Deka et al., 2016; Nath, n.d.) Due to the increased population and urbanization, migration becomes imminent exposing adolescent girls to poor socio-economic conditions and making them more vulnerable to various diseases. Their importance lies in the fact that they are going to be the future mothers of tomorrow whose well-being is critically important for improving their health status. (Sachan et al., 2017)

Though the previous similar study has been done in this part of the region, keeping in mind the continual as well as changing impact that targeted health programmes or the effect that the recent COVID-19 pandemic may have upon the health of the girls, the present study has been undertaken with the impression to bring to light their health status and thus improvise suggestions/recommendations for their betterment. Hence this study was conducted to estimate the morbidity profile and to determine the association of socio-demographic risk factors with morbidity profile among adolescent girls in the urban slums of Guwahati city.

METHODOLOGY

This study was undertaken to assess the morbidity profile of the adolescent girls residing in the slums of Guwahati city after taking due permission from the Institutional Ethics Committee of Gauhati Medical College and Hospital (GMCH), Assam. This community-based descriptive cross-sectional study was conducted for a period of one year from August 2019 to July 2020 among adolescent girls in the slums of Guwahati city. The sample size has been calculated based on the assumption that the prevalence of any morbidity among the adolescent group at a given point of time is 50%. (Israel, 1992) because it shall yield the largest value of "n" when the level of precision "L" is fixed at 5% with 95% confidence interval. Applying the formula $n = \frac{4pq}{L^2}$, the sample size for this study came out to be 400.

The adolescent girls, who had attained menarche, were residing in the slums for more than six months and gave consent/assent, were included in the study. Those who were either critically ill, diagnosed with psychiatric illness, or married were excluded. Taking 102 notified slums from the Guwahati Municipal Data 2012, as the sampling frame, 50 slums were randomly selected by lottery method. From each 50 selected slums, eight households were taken for the study-the first household was randomly chosen, and consecutively the next house was selected till the desired sample for each slum was attained. In case the selected household did not have any adolescent members, the next household was chosen for the study. The interview was conducted by house-to-house visit. Informed consent/assent was taken after the purpose of the visit was explained and confidentiality was assured. The

girls were examined and interviewed using a pre-designed, semi-structured questionnaire containing socio-demographic information containing particulars like age, type of family, religion, occupation of parents, total family income, and history of any prior illness. The study tools used for examination included a stethoscope, torch, weighing machine and measuring tape. Morbidity in the current study was considered as any subjective departure from the state of physiological well-being or any illness occurring fifteen days before the interview or persisting for more than a month during one year. The interview was followed by a detailed clinical examination in the presence of one female adult attendant. Social class was classified using the Modified Kuppuswamy scale.(Mahajan & Gupta, 1995; Thakkar & Rawat, 2015) Haemoglobin estimation was done by Sahli's Haemoglobinometer. The cut-off level of haemoglobin for anaemia in adolescent girls was taken as those levels <12g/dl.(Anaemia, n.d.)

Menstrual morbidity: Girls having any one of the morbidities mentioned below were taken as presence of menstrual morbidity.(Konar, 2016; Padubidri, 2008)

- Dysmenorrhoea:** Painful menstruation of sufficient magnitude to incapacitate day-to-day activities.
- Oligomenorrhoea:** Infrequent, irregularly timed episodes of bleeding usually occurring at intervals of more than 35 days.
- Polymenorrhoea:** Frequent episodes of menstruation, usually occurring at intervals of 21 days or less.
- Menorrhagia:** Girls who were having heavy episodes of bleeding (self-reported) and/or the duration of flow was more than 7 days.
- Hypomenorrhoea:** Girls who had a regular menstrual cycle with blood flow very less in amount or duration of flow for two days or less.
- Normal menstrual cycle:** Cyclic menstrual cycle with an average of 28 ± 7 days, inclusive of 4-6 days of bleeding and estimated blood loss is between 50 and 200ml.
- Regular menstrual cycle:** A regular cycle of 28 days with a deviation of 7 days.
- Irregular menstrual cycle:** Any deviation from the above.

RTI: Presence of symptoms suggestive of RTI such as genital ulcers, genital itching, swelling in the groin, abnormal genital discharge or burning sensation during urination in the three months preceding the interview.(Sabarwal & Santhya, 2012)

Refractive error: Those using medically prescribed lenses or spectacles.

Statistical Analysis

The data were entered in Microsoft Excel and analyzed by using Statistical Package for the Social Sciences software (SPSS) version 23. Results were described in proportions through appropriate tables and figures. The Chi-square test was used to elicit the association between various variables and a value of $p < 0.05$ was considered statistically significant.

RESULTS

A total of 400 adolescent girls participated in the study after due inclusion and exclusion criteria. Among the respondents, 28.8% of them were in the age group of 10-12 years while 27.5% were of 16-18 years of age. The majority of the girls were Hindu (82.2%) by religion and belonged to the nuclear type(74.5%) of the family. Information regarding category was also collected and it was found that most respondents belonged to the general caste (57.2%) followed by OBC (27.1%) while ST comprised 11.7%. Utilizing the Modified Kuppuswamy socioeconomic scale, it was found that most of them belonged to socioeconomic class IV (30.5%) and class V (34.2%) respectively. None of the adolescents was illiterate and most of them had completed high school (36.5%) and middle school (28%)(Table 1). Tables:

Table 1: Socio-demographic profile of the study participants (n=400)

Socio-demographic profile	Number (%)
Age in years	
10-12 years	115 (28.8)
12-14 years	75 (18.7)
14-16 years	46 (11.6)
16-18 years	110 (27.5)
>18 years	54 (13.5)

Religion	
Hindu	329 (82.2)
Muslim	66 (16.5)
Others	5 (1.3)
Category	
General	229 (57.2)
SC	16 (4.0)
ST	47 (11.7)
OBC	108 (27.1)
Type of family	
Nuclear	298 (74.5)
Joint	102 (25.5)
Socioeconomic status (Modified Kuppuswamy Scale)	
Upper middle- II	34 (8.6)
Lower middle-III	107 (26.7)
Upper lower-IV	122 (30.5)
Lower-V	137 (34.2)
Education	
Primary	92 (23.0)
Middle School	112 (28.0)
High school	146 (36.5)
Higher secondary and above	50 (12.5)

*Note: SC-Scheduled Caste, ST- Scheduled Tribes, OBC-Other Backward Caste

At the time of the interview, 78.5% were found to have morbidity whereas the remaining 21.5% did not have morbidity (Figure 1).

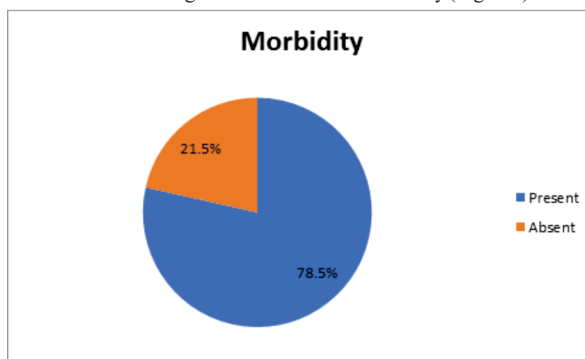


Figure 1: Distribution of the adolescent girls according to morbidity

It was found that among the various morbidities, anaemia (41.2%) was the most common followed by menstrual disorders (40.8%). Other morbidities include gastrointestinal tract infection (34.5%), dental caries (33.5%), upper respiratory tract infection (29%) etc. (Table 2).

Table 2: Morbidity profile among adolescent girls in the urban slums (n=400)

Morbidity Profile	Number (%)
Anaemia	165 (41.2)
Skin infections	35 (8.7)
Lymphadenopathy	1 (0.2)
Nutritional deficiency	28 (7.0)
Refractive error	86 (21.4)
Conjunctivitis	34 (8.5)
ENT problem	46 (11.5)
Dental caries	134 (33.5)
GIT disorders	138 (34.5)
URTI	116 (29.0)
Menstrual problem	163 (40.8)
RTI	110 (27.5)
Psychological problem	111 (27.7)

*Multiple responses

†Note: ENT problems- Ear, nose and throat problems, GIT disorders- Gastrointestinal Diseases, URTI- Upper Respiratory Tract Infections, RTI- Reproductive Tract Infections.

On drawing out an association between socio-demographic profile and morbidity, it was found that socioeconomic status, age, caste, and religion were found to be significant ($p < 0.05$) whereas no association

was drawn for the type of family with morbidity (Table 3).

Table 3: Relationship between socio-demographic profile and morbidity (n=400)

Socio-demographic Profile	Morbidity					P-value
	Present (n=314)	%	Absent (n=86)	%	Total	
Age in years						
10-12	95	82.6	20	23.3	115	*0.007
12-14	53	16.8	22	25.6	75	
14-16	29	9.2	17	19.8	46	
16-18	89	28.3	21	24.4	110	
>18	48	15.3	6	6.9	54	
Religion						
Hindu	272	86.6	57	66.4	329	*0.001
Muslim	40	12.8	26	30.2	66	
Others	2	0.6	3	3.4	5	
Caste						
General	200	63.7	29	33.7	229	*0.001
SC	9	2.9	7	16	16	
ST	23	7.3	24	47	47	
OBC	82	26.1	26	108	108	
Type of family						
Nuclear	228	72.6	70	81.4	298	0.098
Joint	86	27.4	16	18.6	102	
Socioeconomic status						
Upper middle-II	9	2.9	25	29.1	34	*0.001
Lower middle-III	81	25.7	26	30.2	107	
Upper lower-IV	107	34.1	15	17.4	122	
Lower-V	117	37.3	20	23.3	137	
Education						
Primary	82	26.1	10	11.7	92	*0.0249
Middle School	88	28.1	24	27.9	112	
High school	106	33.7	40	46.5	146	
Higher secondary and above	38	12.1	12	13.9	50	

*p<0.05, Significant

†Note: SC-Scheduled Caste, ST- Scheduled Tribes, OBC-Other Backward Caste

DISCUSSION

The study was undertaken to assess the morbidity status of the adolescent girls living in the urban slums of Guwahati city to find out risk factors, if any, which might affect the prevalence of morbidity among the study participants. According to the current study findings, most of the adolescent girls comprised 10-12 years and 16-18 years age group. Kumar S et al also reported similar findings where most of their study participants belonged to the age group of 10-12 years.¹⁹ Sinha et al in their study reported that the majority of the adolescent girls were Hindus (72.7%), (Sinha et al., 2017) which is concomitant with my study, however, most of the girls were in the age group of 14-16 years (57.8%), most probably, due to demographic variation in the distribution of the population of the states. In the present study, about 34.2% of girls belonged to socioeconomic class V and 30.5% belonged to socioeconomic class IV. Mohite et al however reported a significantly higher percentage of adolescent girls belonging to the socioeconomic class V (77.8%), (Mohite & Mohite, 2016) which may be attributed to the regional disparity in the proportion of slum-dwelling adolescent girls.

The present study showed a high prevalence of morbidity among adolescent girls (78.5%). Similarly, many studies have shown a high prevalence of morbidity (Sachan et al, Bhushan et al and Srinivasan K et al). (Nath, n.d.; Sachan et al., 2012; Srinivasan & Prabhu, 2006) Among the various morbidity, anaemia was found to be the most common health problem in adolescent girls (41.2%). Boruah B et al. however in their study, conducted among the adolescents attending the RHTC in the Nagaon district of Assam found that 69.29% of them suffered from anaemia which might be since the study was carried out in a healthcare facility where already morbid individuals are most likely to attend. (Boruah et al., 2020) Another study carried out in the urban population of western Uttar Pradesh reported 62.2% of

adolescent females as being anaemic, (Dabas et al., 2019) while the presence of clinical anaemia in the form of pallor among adolescent girls in Kolkata was also reported to be 62.39%. (Pal & Pal, 2017) This is comparatively higher than my study findings, which might be due to variation in the regions where factors such as food habits, sociocultural practices, etc. also play an important role in determining the health of individuals. On the other hand, a study conducted in Nellore and another by Charitha et al reported comparable findings in the prevalence of clinical anaemia to that of the current study. (Kumar, n.d.; Susmitha et al., 2012)

Menstrual problem (40.8%) was found to be the second most common morbidity in the present study. Dabas N et al. also reported dysmenorrhoea (47.6%) as the most prevalent disease among adolescent girls in their study findings. (Dabas et al., 2019) Another study on adolescent girls by Waghavhare et al. reported 58.4% menstrual problems. (Waghavhare et al., 2013) These findings are consistent with the results in my study. However, a comparatively higher prevalence of menstrual problems was seen in studies by Mathiyalagen et al and Agarwal et al. (Agarwal & Agarwal, 2010; Mathiyalagen et al., 2017) This difference could be attributed to multifactorial origin like higher stress, chronic illness or immaturity of the hypothalamic-pituitary-adrenal axis which reportedly play an important role in menstrual disorders. (Neinstein, 1985)

Morbidities like gastrointestinal infection (34.5%), upper respiratory tract infection (29.0%), dental caries (33.5%), and refractive error (21.4%) were also found among others in the present study. Yerpude et al and Singh et al^{33,34} in their study reported 23.5% and 25.8% respiratory tract infections which contradict my findings. It may be due to the seasonal variation in the different states of our country. The prevalence of dental caries (33.5%) was found to be similar to that of my current findings by other studies too. (Dambhare et al., 2010; Susmitha et al., 2012) In the present study, a total of 27.7% of adolescent girls reported having psychological problems. Jain et al (2016) also reported about 20.3% psychological morbidity among adolescent girls which is concomitant with my current study. (Jain et al., 2016)

The frequency of morbidity was found to increase with a decrease in socioeconomic status among the adolescent girls as significantly indicated in the study. A similar association was also found by T. Charitha et al and Jain et al in their studies. (Jain et al., 2016; Kumar, n.d.) Age and morbidity was also found to have a significant association with similar finding by Goyal N et al as well. (Goyal, 2018) Socio-demographic variables like education, caste and religion likewise were significantly associated with morbidities among girls.

Limitations Of The Study

Considering the limitations of this study, further research should be conducted in the community with samples comprising not only adolescent girls but also adolescent boys and married adolescents. Also, laboratory investigations for the different morbid conditions were not done except for anaemia.

CONCLUSION

Adolescent girls continue to suffer from an array of morbidities such as anaemia and menstrual problem which are mostly preventable. Socio-demographic variables do play a significant role in determining their health conditions thus making interventions such as health awareness, health education and promotion regarding healthy lifestyle and diet, early identification of illness, menstrual hygiene practices and their disorders pertinent. This can be achieved through active sensitization about the various services available for adolescent girls and their implementation by using the common platform of VHND, Anganwadi centres, schools, NGOs, self-help groups etc. so that its benefits can be reaped by this special group of the population. Hence, because adolescent girls are the future mothers of tomorrow, their health as an individual is crucial for not only a healthy society but also a productive community for the country.

Conflict Of Interest: There are no conflicts of interest.

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