Research Article

Morbidity patterns and its associated factors among school children of an urban slum in Hyderabad, India

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Abstract

Background: More than a billion children now live in cities and towns. Children of the urban slums are denied essentials such as clean water and health care even though they may live closer to these services. Private schools in urban slums do not have any school health programs.

Objective: To study the morbidity patterns among the school children attending private schools in an urban slum; to explore the association of specific morbidities with socioeconomic and demographic factors.

Materials and Methods: This was a cross-sectional, descriptive study. Five private schools in an urban slum were chosen by cluster sampling technique. A cross-sectional survey to assess the morbidity patterns and its associated factors was conducted with 713 school children aged 4–15 years.

Result: Overall attendance of the students was 83.5%. Anemia (33.5%), worm infestation (47.4%), dental caries (56.24%), and poor personal hygiene were more prevalent. A significant association was found between socioeconomic and demographic factors such as maternal illiteracy, occupation, hygiene, social class, and so on, and specific morbidities among the study subjects.

Conclusion: Children in urban slums attending private schools have a high prevalence of morbidities. Certain socioeconomic and demographic factors are significantly associated with specific morbidities. Sensitization of all stakeholders and initiating comprehensive school health services with active involvement of parents may be the need of the hour.

KEY WORDS: Urban slum, school health, morbidities, socioeconomic factors, demographic factors

Introduction

Over half the world's people, including more than a billion children, now live in cities and towns. However, too many are denied essentials such as clean water and proper health-care facilities.[1]

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In Andhra Pradesh, 33.36% of the total population live in urban regions.[2] It shares a slum population in India of 15.6%.[3]

Slums have been defined as "mainly those residential areas where dwellings are in any respect unfit for human habitation by reasons of dilapidation, overcrowding, faulty arrangements and designs of such buildings, narrowness or faulty arrangement of streets, lack of ventilation, light, sanitation facilities or any combination of these factors which are detrimental to safety, health and morals."[3] The lack of adequate sanitation, potable water, and electricity, in addition to substandard housing and overcrowding, aggravates the spread of diseases and avoidable deaths. Thus, life in a slum can be very challenging, more so for children.

After the family, schools are the most important places of learning for children. A survey among the school children in

India revealed that about half of the ailments found are related to unsanitary conditions and lack of personal hygiene.[4]

Childhood is the best time for children to learn health-seeking behavior. Education that provides basic academic skills, specific knowledge, attitude, and skills related to health is vital to their physical, psychological, and social well-being.[5] School health programs can help to ensure that children are healthy and able to take full advantage of what is often their first and only opportunity for formal education.[6] The introduction of school health services in India dates back to 1909.[7]

There are multiple issues plaguing government schools including inadequate staff, lack of motivation of teachers, quality of teaching, and so on. On the other hand, there is a multitude of private schools with monthly fees ranging from Rs. 300 onward. The current scenario in urban slums of India is the enrolment of children in private schools.

As there are no school health programs in private schools, a gap was sensed. This study was planned to make a start by enumerating morbidity patterns and personal hygiene status of school-going children in an urban slum. Association of socioeconomic and demographic factors with specific morbidities and poor personal hygiene was also studied.

Materials and Methods

A cross-sectional descriptive study was conducted in an urban slum of Greater Hyderabad, India, from February to May 2014. The study subjects were school children attending private secondary schools aged 4–15 years (academic classes I to X). There are 20 private schools in the study area. By cluster-sampling technique, five schools were selected. (1 school = 1cluster). All the children in these five schools were the proposed units of study. Approval from the institutional ethical committee was obtained. Before initiation of the study; permission was obtained from the school authorities. The parents were informed of the date of the survey in advance by the school authorities and were required to accompany the children on the day of the survey. Informed consent of parents was taken before the survey. The number of enrolled students as indicated on the school registers was 1,000.

Students who were not present during three separate visits (one fortnight apart) were considered to be absent (n = 165). Children whose parents did not accompany them were excluded from the study (n = 112). The study was finally done with 713 participants.

Initially, a pilot study was done with 245 children and parents. The final pretested questionnaire was used to collect demographic details of the child, parental sociodemographic details, history of infectious diseases, bathing frequency per week, diet history, and academic performance. Study subjects were classified into social classes by BG Prasad's socioeconomic classification.[8]

Assessment of maternal literacy was done, wherein the mother was classified as literate if she could read and write with understanding in any language[7] and illiterate if she was unable to do so. Parental awareness regarding the importance of personal hygiene in disease prevention was assessed by interview method. Maternal hygiene was assessed by general examination and assessing bathing frequency/week and was classified as good or poor.

Examination of the study subjects commenced with the inspection of their personal hygiene status by examining nails, hair, uniforms, socks, and skin; personal hygiene status was then recorded as poor or good. This was followed by a general examination of their vital parameters in appropriate position as required by the individual participant (sitting/supine). Systemic examination of the relevant systems in order of inspection, palpation, percussion, and auscultation was then done.

Pallor of the conjunctiva/tongue/palms was used as a screening for iron deficiency anaemia. Oral cavity was examined by dental specialists for any abnormal pigmentation of teeth, caries, glossitis, and ulcers of the mouth or tongue. Parental and each child's present history of worm infestation were recorded. ENT specialists used otoscopes to diagnose ear discharge and wax impaction. Early treatment diabetic retinopathy study (EDTRS) chart was used to assess the visual acuity with appropriate reduction in distance for younger children (4/3 m). Scholastic backwardness was screened for by parental history collaborated with inputs (academic records) from teachers. Children were considered completely immunized if they had been immunized according to National Immunization Schedule, and the last one being either first/second booster dose of DPT/DT or TT depending whether the child was <5/5/10/15 yrs, respectively.

During the study period, all the children were given a single dose of albendazole (400 mg tablet). Children who were not completely immunized were duly immunized with the required vaccine. Sensitization workshops for teachers and parents on "need for inclusive school health services" and "importance of personal hygiene in disease prevention" were held in each school with the permission from the school authorities. Wherever indicated, study subjects were referred to the institute's teaching hospital. The data were collected and analyzed using MS Excel and SPSS, version 19.0.

Result

Overall, 835 students were present. Attendance was 835 of 1,000 (i.e., 83.5%). Absenteeism rate was 16.5% (165/1,000*100). Of the total enrolment, 548 girls were enrolled (548/1000*100, i.e., 54.8%) when compared with boys (452/1,000*100, i.e., 45.2%). Attendance was better for girls (83.2%) than boys (80%).

Table 1 shows that the prevalence of anemia and dental caries among girls was statistically significant. Table 2 shows poor personal hygiene was observed in 42.8% (n = 300) of the study participants.

Table 3 shows the association of sociodemographic and economic factors with specific morbidities.

Table 1: Morbidity patterns in study participants

Morbidity patterns	Boys (*n* = 401)	Girls (*n* = 312)	χ^2	Degrees of freedom	*P*
Clinical anemia					
Present	108	131	17.846	1	0.001
Absent	293	181			
Visual acuity less than normal					
Yes	38	42	2.798	1	0.09
No	363	270			
Signs of vitamin A deficiency					
Present	2	4	1.29	1	0.26
Absent	399	308			
Angular stomatitis/cheilosis					
Present	29	37	4.472	1	0.03
Absent	372	275			
Impacted wax					
Present	51	39	0.008	1	0.93
Absent	350	273			
Ear discharge					
Present	9	11	1.057	1	0.31
Absent	392	301			
Acute respiratory infections					
Present	46	39	0.177	1	0.67
Absent	355	273			
Dental caries					
Present	298	103	121.624	1	0.001
Absent	103	209			
Dermatitis					
Present	12	9	0.007	1	0.93
Absent	389	303			
Goitre					
Present	1	0	0.779	1	0.38
Absent	400	312			
Worm infestation					
Present	196	148	0.146	1	0.7
Absent	205	164			
Nocturnal enuresis					
Present	18	24	3.248	1	0.07
Absent	383	288			
Scholastic backwardness					
Present	98	71	0.275	1	0.6
Absent	303	241			
Stammering					
Present	15	9	0.395	1	0.53
Absent	386	303			

Discussion

Among the study participants, 239 (33.52%) were clinically pale. Of these, 132 (132/239*100, i.e., 55.2%) were girls, more than that reported by Panda et al.[9] and Semwal et al.[10] Possible reasons may be inadequate dietary intake owing to lack of parental awareness of low-cost nutritionally rich food options and the importance of regular (biannual) antihelminthic medication. This could be a possible area for nutritional health education interventions for parents, school authorities, and students.

Table 2: Personal hygiene of study participants

Personal hygiene of study participants	Boys	Girls	χ^2	Degrees of freedom	*P*
Poor	174	126	0.651	1	0.42
Good	227	186			

Table 3: Association of sociodemographic and economic factors with specific morbidities

Socio-economic demographic factors	Anemia		Dental caries		Poor personal hygiene	
	Yes	No	Yes	No	Yes	No
Maternal literacy						
Yes	98	214	115	196	108	214
No	141	260	286	116	192	199
χ^2, *P*	1.108, 0.29		83.174, 0.001		17.552, 0.001	
Maternal occupation						
Employed	101	125	219	135	197	149
Home maker	129	358	182	177	103	264
χ^2, *P*	23.403, 0.001		9.003, 0.001		60.909, 0.001	
Maternal hygiene						
Poor	181	125	330	109	229	155
Good	58	349	71	203	71	258
χ^2, *P*	158.022, 0.001		166.329, 0.001		105.285, 0.001	
Parental awareness						
Aware	55	128	78	124	97	101
Not aware	184	346	323	188	304	211
χ^2, *P*	1.327, 0.001		35.586, 0.001		5.857, 0.02	
Social class						
1	12	31	12	9	23	17
2	21	37	52	47	49	36
3	42	69	67	52	81	41
4	115	236	164	120	159	109
5	49	101	106	84	109	89
χ^2, *P*	1.864, 0.76		0.84, 0.93		45.832, 0.001	

Impacted wax in this study was lower than the findings of Olusanya et al.[11] and Adhikari et al.[12,13] Nocturnal enuresis was also lower than the findings of Gürnüš et al.[14] and Ozkan et al.[15] Prevalence of dental caries was higher than the findings of Shakya et al.[16] and Kishore et al.[17] In a study by Shenoy and Kapur,[18] 10.23% students showed scholastic backwardness, which was the cause of reported parental stress. It requires detailed further investigations. Poor personal hygiene seen in 42.08% participants could be a reflection of lack of parental awareness on importance of personal hygiene and was better than that reported by Dongre et al.[19]

Poor personal hygiene and lack of parental awareness on the importance of personal hygiene in disease prevention could be the possible contributors for worm infestation, wax impaction, and dental caries, highlighting areas for health education interventions.

Maternal factors such as literacy, occupation, personal hygiene, and social class show statistically significant association with anemia, dental caries, and worm infestation, concurrent with other studies.[20–24] Maternal literacy has been associated with improved health outcomes,[25] lower fertility, and better child health and nutrition.

Conclusion

Children in urban slums attending private schools have a high prevalence of morbidities and poor personal hygiene. Certain socioeconomic and demographic factors are found to be significantly associated with specific morbidities and poor personal hygiene of study subjects.

Sensitization of all stakeholders (parents, school authorities, students, concerned official departments, and entire community) on the need for comprehensive school health programs for private schools functioning in poor resource settings (urban slums) may be the need of the hour.

An effective school health program can provide a healthy environment, health education, and school health services with active involvement of the parents. It would enable parents to create vibrant healthy environments within their homes with existing resources and equip children with necessary knowledge and skills to lead a healthy life. We as a society owe this to our future citizens.

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