ORIGINAL RESEARCH

Prevalence of prevalent diseases affecting paediatric rural populations: Findings and lessons learned from a camp hosted in rural areas of eastern Uttar Pradesh, India

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ABSTRACT
Background
The nation's future and its largest human resource investment are its children. Children in rural communities who are attending preschool and school continue to have poor health. By all measures, pre-school and school-aged children continue to have poor quality of life. According to surveys, they are more likely to suffer from malnutrition, infectious disorders, intestinal parasites, diseases of the skin, eyes, and ears, and dental cavities. This cross-sectional study was carried out to assess the demographics, prevalence of prevalent diseases affecting paediatric rural populations, attending rural health camps held at rural areas of eastern Uttar-Pradesh, India.

Methods
In 10 randomly selected blocks of the Gorakhpur district, a 6-month descriptive cross-sectional research of preschool and school children (0-18 years of age) was conducted between August 2018 and December 2018. Using a probability proportional to size sampling technique, 3600 children were chosen from 10 blocks. In the ten blocks' rural, underdeveloped districts, health camps were established. All of them offered free health camps. Free medical exams were offered, and even prescription drugs were distributed without charge. After being checked for consistency, data was gathered and entered into an Excel data sheet. The data were examined using IBM's Statistical Program for Social Sciences (SPSS), version 23.

Results

In our study, a total of 3691 children (18 years or less) were examined in the 10 camps organised in the various of district. Out of 3691 children, 1996 were males (54.1%   ) and 1695 females (45.9%). In our study, %). Growth retardation was observed in 51.6% of children (males: 47.9%, females: 55.9%) .The illness of respiratory system was noticed in 36.0% of children. Skin diseases were observed among 23.2% of children (males: 19.9%, females: 27.1%). Acute diarrhoeal disease (9.7%) was among the most common GI problem in children. Hernia was the most common surgical disease (1.2%) among children. Dental caries was notice in 12.2% of children. Anaemia was observed in more than half of the (54.5%) of children. The neonate's examination showed that feeding difficulty was noticed in 19.0% of children <1 month of age, Cradle cap and nappy rash were observed in 17.9% and 15.4% of children. There were 16.9% of children (<1 month of age) who came to camp for HIE follow up. Abdominal colic was notice in 21.5% of children <1 month of age.

Conclusion
The free health camps held in rural parts of eastern Uttar-Pradesh revealed that malnutrition and nutritional anaemia are more prevalent in female children, while respiratory, gastrointestinal, and skin ailments are most prevalent among children.

Keywords: Health Camp, nutritional anemia, malnutrition, Respiratory system, Gastrointestinal system, rural area,

INTRODUCTION

The nation's future and its largest human resource investment are its children. Children in rural communities who are attending preschool and school continue to have poor health. By all measures, pre-school and school-aged children continue to have poor quality of life. According to surveys, they are more likely to suffer from malnutrition, infectious disorders, intestinal parasites, diseases of the skin, eyes, and ears, and dental cavities. Children in our nation do not have a suitable level of health, and there are substantial nutritional deficiencies widespread. [1]

Poor academic performance can be caused by health-related issues such inadequate nutrition, physical and mental abuse, and infections. Children between the ages of 5 and 16 are on the verge of adulthood and are frequently neglected. Many government-sponsored pre-school and school health initiatives have been introduced from time to time, but they have largely only had an impact on urban areas with a small number of pre-schools and schools. Most morbidities are generally linked to many infectious diseases. It is important to realise that the co-morbidity rate in rural regions, which is the percentage of child mortality that may be ascribed to the co-occurrence of numerous illnesses, is quite low. [2]

Children in preschool and elementary school may have a variety of morbidities, which might hinder learning and the educational process. The infant's cerebral development could potentially falter, with the consequences permanently impairing the child. Although this age group has a relatively low mortality burden, the different morbidities provide a serious concern. Several surveys conducted across the nation's many regions have shown that India has relatively higher rates of illness and mortality. [3]

"Children require good health to learn properly," the World Health Organization's Expert Council on School Health Services remarked in 1950. The promotion of good nutrition, personal hygiene, and proper health care through early diagnosis and treatment helps minimise absenteeism and early dropout because of the poor health of children and their varied nutritional deficiencies. [4,5] This cross-sectional study was carried out to assess the demographics, prevalence of prevalent diseases affecting paediatric rural populations, attending rural health camps held at rural areas of eastern Uttar-Pradesh, India.

MATERIALS and METHODS

In 10 randomly selected blocks of the Gorakhpur district, a 6-month descriptive cross-sectional research of preschool and school children (0-18 years of age) was conducted between August 2018 and December 2018. Based on the prevalence of childhood morbidity estimated to be 41.1% in a study of a similar nature [3], a confidence level of 95%, 2% absolute precision, and 35% non-response rate, the sample size was calculated to be 3575. In place of 3575, 3600 was used to complete the sentence. A list of every child in those blocks under the age of 18 was made with the aid of community healthcare professionals, and this list served as the sample frame. Using a probability proportional to size sampling technique, 3600 children were chosen from 10 blocks.

To guarantee consistency, the questionnaire was pilot tested among a small subsample of children after receiving approval from the CMHO. In the ten blocks' rural, underdeveloped districts, health camps were established. All of them offered free health camps. Free medical exams and investigations were offered, and even prescription drugs were distributed without charge. The prents were told of the study's objective and provided with assurances of confidentiality and anonymity before their informed consent was obtained. Mothers were questioned about sociodemographic characteristics and their history of diseases during the previous 15 days in order to calculate morbidity. Every child was given a thorough clinical examination in the open to evaluate their morbidity. A diagnosis was reached after a thorough history was obtained and a clinical examination.

For children over 1 year old, a platform weighing machine was used to calculate body weight, while for infants, a Salter weighing scale was used. Before each measurement, both instruments were calibrated and standardised. The weight was accurately measured to 100 grammes using standard specifications. The weight was plotted against age on a WHO growth chart separately for boys and girls, and nutritional status was recorded. Nutritional status was categorised as Low Weight for Age and Normal (Below 2 SD).

After being checked for consistency, data was gathered and entered into an Excel data sheet. The data were examined using IBM's Statistical Program for Social Sciences (SPSS), version 23. Its organisation and presentation were done using descriptive statistics.

RESULTS

In our study, a total of 3691 children (18 years or less) were examined in the 10 camps organised in the various of district. Out of 3691 children, 1996 were males (54.1%   ) and 1695 females (45.9%). Nearly half of children (48.5%) enrolled in the camp belonged to the 1-59 months of age and only 5.3% of children were having age <1 month (Table 1).

Table 1. Age and gender distribution of children.

Age group	Total (N=3691)		Male (N=1996)		Female (N=1695)	
	Number	%	Number	%	Number	%
<1 month	195	5.3	98	4.9	97	5.7
1-59 months	1791	48.5	971	48.6	820	48.4
6-12 years	1277	34.6	730	36.6	547	32.3
13-18 years	424	11.5	197	9.9	231	13.6

In our study, fever without focus was observed in the 1.5% children (males: 1.4%, females: 1.8%) enrolled in the camp. The illness of respiratory system was noticed in 36.0% of children (males: 34.0%, females: 38.4%) and upper respiratory tract infection (URTI) was the most prevalent respiratory illness (15.2%), followed by bronchial asthma (13.1%). Illnesses related to eyes was observed among 13.5% of children (males: 12.2%, females: 14.9%) and conjunctivitis or eye discharge was among the most common eye illness (6.6%) followed by visual acuity (5.8%). The problems related to GI system was notice in 29.5% of children (males: 25.6%, females: 34.0%) and acute diarrhoeal disease (9.7%) was among the most common GI problem in children followed by helminthiasis (5.6%), and pain abdomen (4.8%). Skin diseases were observed among 23.2% of children (males: 19.9%, females: 27.1%), and pyoderma or impetigo (8.3%) and scabies (7.9%) were the most prevalent skin disorders among children (Figure 1).
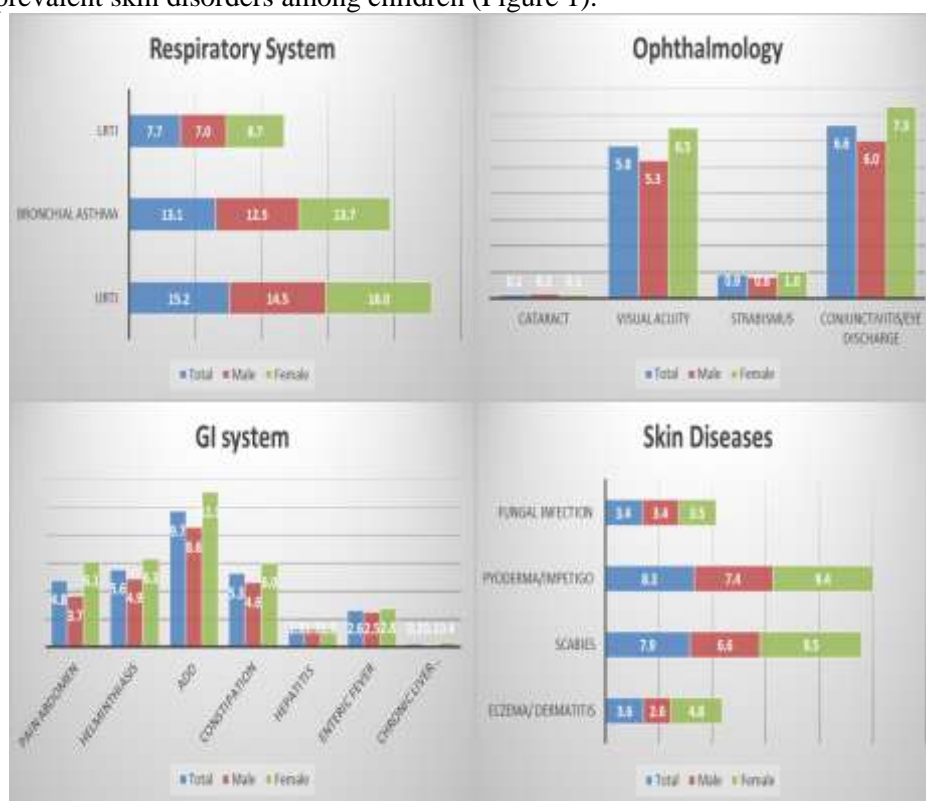

Figure 1. Distribution of Skin, GIT, Respiratory and eye related illness among children.

In our study, among screened children, musculoskeletal problems were observed among 7.3% of children (males: 5.6, females: 9.3%). Among female children, gynaecological problems were observed among 4.5% of female children. Among children, nervous system problems were observed among 9.8% of children (males: 10.4%, females: 9.1%) and post encephalitis sequalae (3.9%) and cerebral palsy or mental retardation (2.5%) were the most common nervous system diseases observed. Psychiatric disorders was observed among 6.1% of children (males: 4.6%, females: 7.9%) and headache (3.9%) was among the most common psychiatric disorder followed by mental disorders (1.6%). Diseases needing surgical intervention was notice in 2.1% of children (males: 2.9%, females: 1.2%), and hernia was the most common surgical disease (1.2%) among children. ENT problems were observed among 20.0% of children (males: 15.2%, females: 25.6%), and ASOM (8.5%), CSOM (4.2%) and deposited wax (3.7%) were the most common ENT problems (Figure 2).

Dental caries was notice in 12.2% of children (males: 10.2%, females: 14.6%). The renal problems were notice in 4.7% of children (males: 2.9%, females: 6.8%), and UTI was the most common renal problem observed in 3.0% of children. CVS problems was noticed in 4.4% of children (males: 5.1%, females: 3.6%) with cyanotic CHD (1.1%) and acyanotic CHD (1.6%) as the most common CVS problems. Endocrinological problems was notice in 5.0% of children (males: 3.6%, females: 6.5%) with rickets (1.1%) and hypothyroidism (3.2%) as the most prevalent endocrinological problems. Haematologic problems was observed in 55.3% of children (males: 43.9%, females: 68.8%) and anaemia was observed in more than half of the (54.5%) of children (Figure 3).
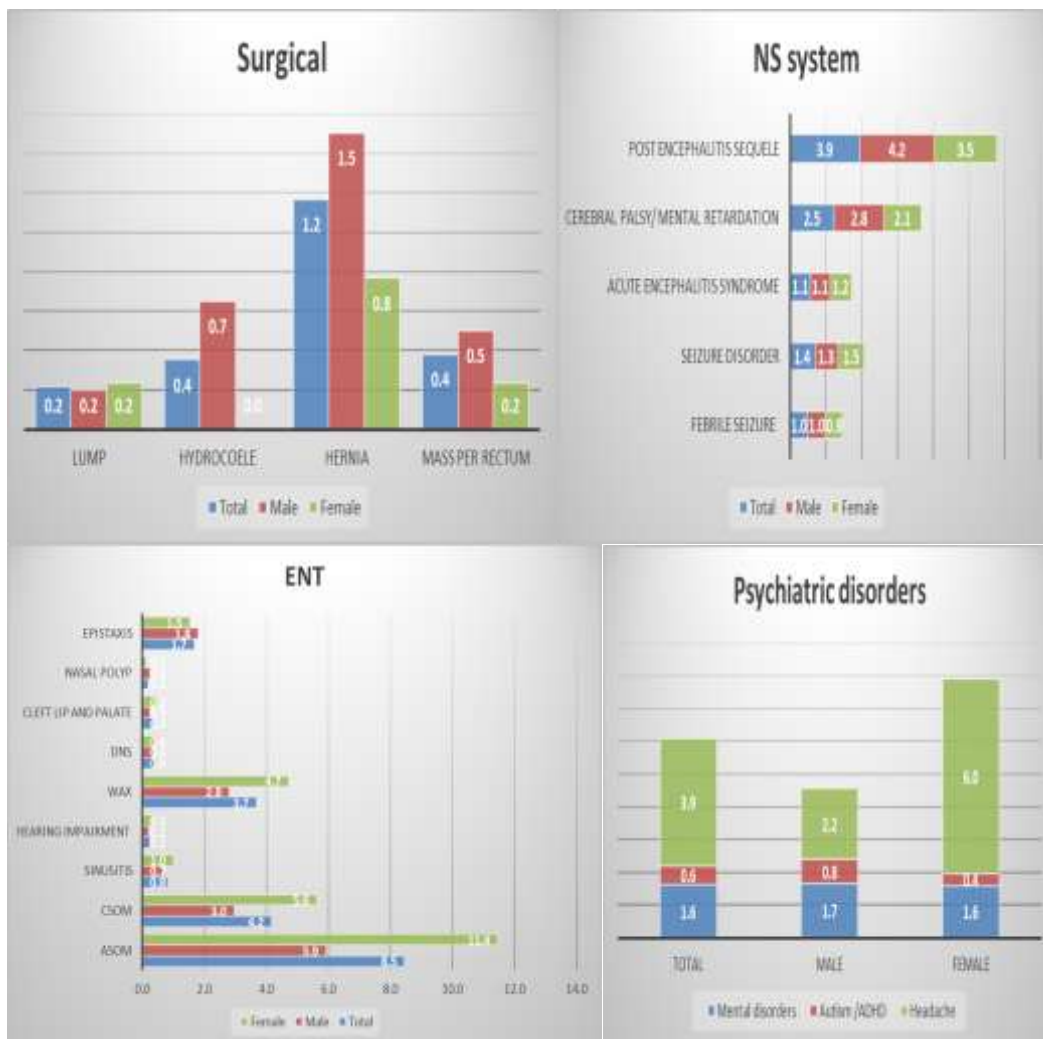

Figure 2. Distribution of nervous system, ENT, psychiatric and surgery related illness among children.
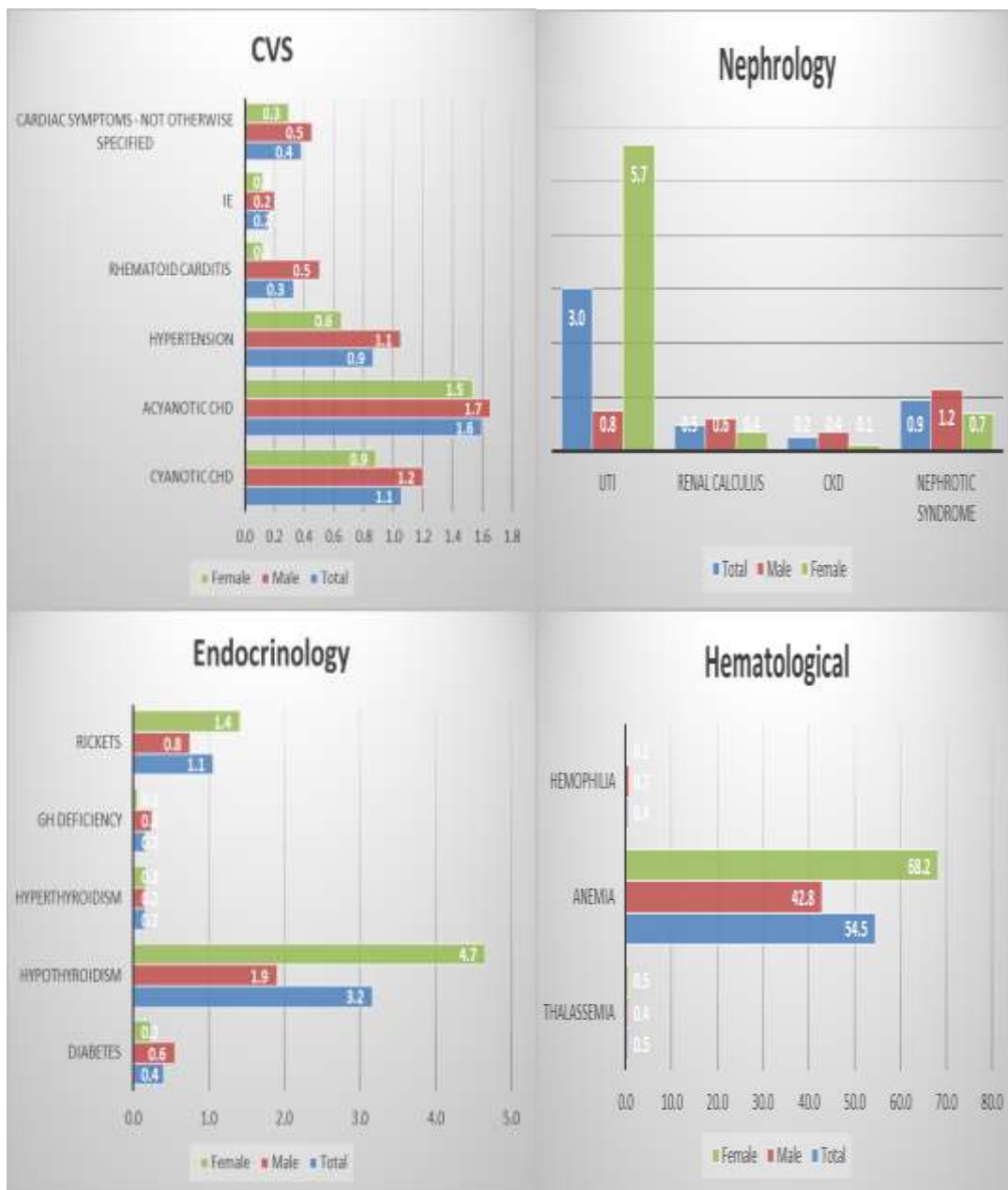
Figure 3. Distribution of CVS, endocrinological, nephrological and haematological illness among children.

The miscellaneous diseases were seen in 23.8% of children which included Head Lice (18.7%), Injuries (1.0%), Poisoning (0.2%) and Lymphadenopathy (4.0%) (Table 2).

Table 2. Distribution of miscellaneous diseases among children.

Miscellaneous	Total (N=3691)		Male (N=1996)		Female (N=1695)	
	Number	%	Number	%	Number	%
Head Lice (Pediculosis)	690	18.7	137	6.9	553	32.6
Injuries	38	1.0	19	1.0	19	1.1
Poisoning	6	0.2	2	0.1	4	0.2
Lymphadenopathy	146	4.0	46	2.3	100	5.9
Overall	880	23.8	204	10.2	676	39.9

Growth retardation was observed in 51.6% of children (males: 47.9   %, females: 55.9%), with stunting and wasting (39.4%) as the most prevalent growth retardation problem. Vaccine preventable diseases (VPDs) was notice in 3.5% of children (males: 2.8%, females: 4.4%) with measles (0.9%) and chicken pox (1.8%) as the most prevalent VPDs. Vitamin deficiency signs were noticed in 1.5% of children (males: 1.3%, females: 1.8%) as Vit A deficiency (0.9%) and scurvy (0.6%). The syndromes were notice in 0.7% of children (males: 0.7%, females: 0.6%) with down syndrome (0.5%) as the most prevalent one (Figure 4).

The neonate's examination showed that feeding difficulty was noticed in 19.0% of children <1 month of age, Cradle cap and nappy rash were observed in 17.9% and 15.4% of children. There were 16.9% of children (<1 month of age) who came to camp for HIE follow up. Abdominal colic was notice in 21.5% of children <1 month of age (Table 3).
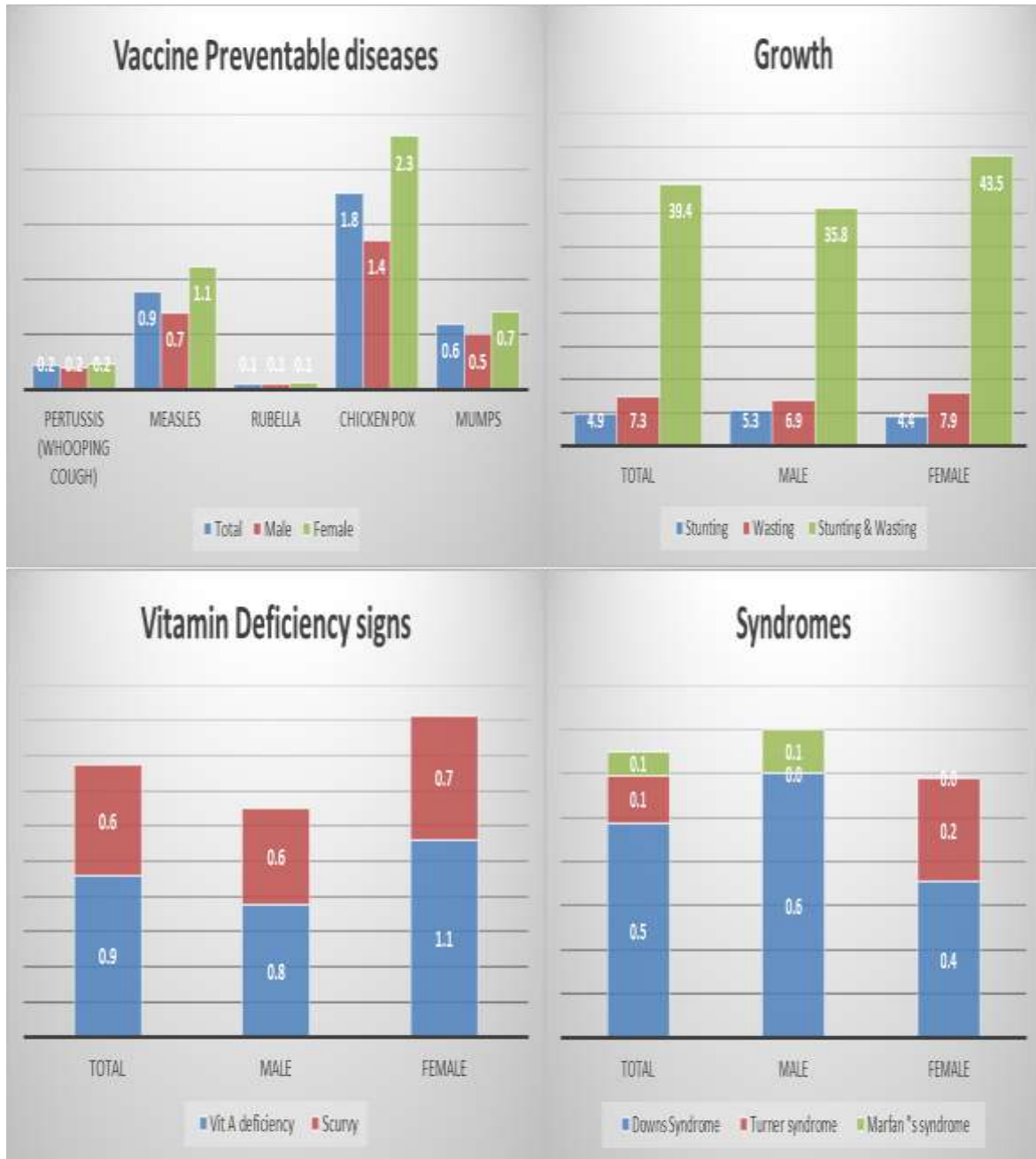

Figure 4. Distribution of Vit deficiency, syndromes, VPDs, and growth retardation among children.

Table 3. Distribution of disease among children <1 month of age.

Neonatology	Total (N=304)		Male (N=169)		Female (N=135)	
	Number	%	Number	%	Number	%
Feeding difficulty	37	19.0	21	21.4	16	16.5
Neonatal Hyperbilirubinemia	17	8.7	9	9.2	8	8.2
IUGR /LBW	21	10.8	11	11.2	10	10.3
Failure to thrive	7	3.6	3	3.1	4	4.1
HIE follow up	33	16.9	22	22.4	11	11.3
Abdominal colic	42	21.5	25	25.5	17	17.5
Infantile pustular melanosis	21	10.8	9	9.2	12	12.4
Subconjunctival Haemorrhages	5	2.6	3	3.1	2	2.1
Breast engorgement	4	2.1	0	0.0	4	4.1
Vaginal bleeding	4	2.1	0	0.0	4	4.1
Cephalhematoma	18	9.2	9	9.2	9	9.3
CTEV	4	2.1	1	1.0	3	3.1
Developmental dysplasia of hip	1	0.5	0	0.0	1	1.0
Cradle cap	35	17.9	24	24.5	11	11.3
Nappy Rash	30	15.4	16	16.3	14	14.4
Umbilical Hernia	21	10.8	13	13.3	8	8.2
Umbilical Granuloma	4	2.1	3	3.1	1	1.0

DISCUSSION

In the current study, 66.2% of children had some sort of health issue. These numbers were both greater and lower than those reported by Talukdar et al., (57.4%) and Kaushik et al., (85.3%). [8,9] The distribution of illness by gender reveals that female children had greater rates of morbidity than male children. Morbidity among male children is higher than among female children, according to a study by Mhaske et al. [10]

In our study, children with skin problems made up 23.2% of the population (males: 19.9%, females: 27.1%). The prevalence of skin conditions was lower than that reported by Saluja et al., (59%) in the current study. [11] In our study, impetigo or pyoderma (8.3%) was the most common skin condition among youngsters, but fungal infections were the most common skin condition according to studies by Kaushik et al., (12.9%) and Sehgal R et al., (2.61%). [9,12] 7.9% of students had cases of scabies, which is comparable to the percentages reported by Sehgal et al., (3.09%), Berard et al., (2.8%), and Sambo et al., (2.9%). [12,13,14]

In our study, 36.0% of children (males: 34.0%, females: 38.4%) had respiratory system illnesses, with upper respiratory tract infections (URTIs) being the most common (15.2%), followed by bronchial asthma (13.1%), which was higher than the rates reported by Saluja et al., (23.4%) and Karikatti et al., (22.57%). [11,15] The majority of ENT issues in children were ASOM (8.5%), CSOM (4.2%), and deposited wax (3.7%); ear discharge in our study was higher than that reported by Sehgal et al., (2.85%), Ananthakrishnan et al., (3.1%), but significantly lower than that reported by Kaushik et al., (13.6%) and Tiwari et al., (21.5%). [9,12,16,17]

Dental caries were found in 12.2% of children in our study (males: 10.2%, females: 14.6%), which is comparable to the 23.1% reported by Panda et al. [18] The magnitude was smaller than what Sehgal et al., (41.33%), Kaushik et al., (46%), Mhaske et al., (65.1%), Rani et al., (36.25%), and Dhar et al., (46.75%) had recorded. [9,10,12,19,20]

In our study, 13.5% of children were found to have eye-related illnesses (males: 12.2%, females: 14.9%), with conjunctivitis or eye discharge being the most prevalent (6.6%) and visual acuity the second-most prevalent (5.8%). In studies by Gupta et al., and Rao et al., however, and lower in studies by Aspatwar et al., Bai et al., and Padhye et al., deficient visual acuity was discovered to be higher among youngsters, at 22% and 12%, respectively. [21,22,23,24,25] In order to avoid long-term disability, Mukerjee et al., stressed the significance of early detection and treatment of refractive defects. [26]

Stunting and wasting (39.4%) was the most common type of growth retardation, which was similar to the study of Bai et al., (47%), which found that growth retardation affected 51.6% of children (males: 47.9%, females: 55.9%). [24]

More than half of the children (54.5%) had anaemia, which was higher than the percentages reported by Bai et al., (43%), Tiwari et al., (33.9%), Panda et al., (26%), Hassan et al., (24.8%), and Semwal et al., (28.4%), but equal to the percentage reported by Devi et al., (50.15%).

[17,18,24,27,28,29] More female children than male children experienced pallor in our study, and comparable results were seen in all other investigations as well.

1.5% of youngsters (males: 1.3%, females: 1.8%) showed signs of vitamin deficiency, including Vit A deficiency (0.9%) and scurvy (0.6%). Children in India exhibit a significant rate of vitamin-A insufficiency, according to other studies. [30,31]

It is important to monitor children's health since it can reveal the extent of malnutrition and morbidity in a certain area.[32,33]

Since these health issues make learning challenging and may significantly impede a child's education and intellectual development. Moreover, this may result in low enrolment, early dropout, excessive absenteeism, and subpar academic performance. According to the study, children's nutrition and health criteria are still significantly behind those set by the ICMR, which calls for large-scale multicentric research to pinpoint the shortcomings and inadequacies of the programmes that are now in place. To enhance personal cleanliness, unsanitary habits, and to give nutritional supplements like iron and vitamin-A as well as recurring deworming in the community, health education methods should be incorporated into various initiatives.

CONCLUSION

Childhood is crucial for encouraging young people's safety and health and for assisting them in developing lifelong good behaviour patterns. It is simpler and more efficient to improve each child's cognitive, physical, social, and emotional development during childhood by establishing healthy practises. The most prevalent paediatric conditions in the current study were anaemia, Skin diseases , oral disorders, and stunting/wasting. The improvement of children's diet and personal hygiene through health programmes is regarded to be necessary in terms of disease prevention. The majority of morbidities seen in children can be avoided, and with prompt treatment, a child's health can be improved. The health programme is an appropriate tool for managing and diagnosing health on an individual basis.

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