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HEALTH STATUS OF PRIMARY SCHOOL CHILDREN IN WEST BENGAL, INDIA

BY

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ABSTRACT

INTRODUCTION: India has the largest child population in the world. Child health is determined by three basic factors: heredity, environment and physical activity. The nutritional status depends upon the various factors like balance diet, social environment, economical background and physical activity etc. **METHODS:** The study was delimited to West Bengal state 19 districts of West Bengal, India. From each district 10 (ten) schools were selected the random sampling method following District Primary Education Program (DPEP) list. From each school 20 (twenty) students (10 boys and 10 girls) from class III & IV (age 8-9yrs) were again selected randomly and total 3694 students were surveyed in this study. The nutritional status was measured by anthropometric measurements and questionnaires were developed for the collection of data. In anthropometric measurements: standing height, body weight, body mass index were measured ,subjective health status was measured through questionnaires and personal observation. **RESULTS: T**otal boys 1833 and total girls 1821 were observed. In overall West Bengal body weight of the boys and girls group were 23.59+/-5.51 kg and 23.10 +/-5.07 kg respectively and both the weight were below the ICMR range. The overall mean BMI of West Bengal primary

school boys was 14.10+/-1.89 Kg/m^2 and in girls it was 14.04+/- 2.08 Kg/m^2 both the scores were below the reference value(cole. et. al. 2007).. In subjective health status, it was found that In whole West Bengal 7.85 % primary students were facing eye problem, 14.18 % boys and 9.50 % girls were facing nose problem , 7.91 % primary school children were facing ear problem. Boys group 41.46 % and in the girl group 38.50 % having teeth and gum problem , 8.78 % primary student were having skin disease. 7.97% boys and 6.43 %.girls was reported fiver and 30.13 % primary children were warm infected. In whole West Bengal 9.03% primary student facing jaundice in time of data collection (2008-09).

Key Ward: Children, Nutritional status, subjective health, BMI, Body Weight, and Standing Height.

INTRODUCTION

Nutritional Status is condition of the body influenced by the diet; the levels of nutrients in the body and the ability of those levels to maintain normal metabolic integrity. Children are the future of a nation. For an emerging and developing country like India, development of underprivileged children holds the key to the progress of the nation itself. Child nutritional condition is determined by three basic factors: heredity, environment and physical activity. Heredity that established a Child health endowment fund. Environment has a direct impact on the health of child and physical activity act as enzyme for adequate and ultimate growth and development of each child. The health status depends upon the various factors like balance diet, social environment, economical background and physical activity etc. Primary School is the arena where the small children develop their physical and mental qualities especially through physical activity, games and sports.

AIM

To observe the present health status of school children in the primary schools of the of the West Bengal, India

METHODS

This was a cross sectional survey study. The study was delimited to West Bengal state. The study carried out during the 2008-2009 throughout the all 19 districts of West Bengal, India. From each district 10 (ten) schools were selected the random sampling method following District Primary Education Program (DPEP) list. From each school 20 (twenty) students (10 boys and 10 girls) from class III & IV (age 8-9yrs) were again selected randomly as the subjects of study and total 3694 students were surveyed in this study In this survey 'children

health status' was measured by two methods- 1.Direct method (objective) and 2. Indirect method (subjective). In the direct method some anthropometric measurements were selected where as in the indirect method questionnaires were developed for the collection of data. In objective health status data: standing height, body weight, body mass index, measured / calculated with the help of standard international procedure. The subjective health status was measured/examine through questionnaires and personal observation. In this area, the researcher collected the data about the following areas – eye disorder, nose problem, hearing impairment, teeth and gum problem, skin problem, fiver, jaundice, and warm infection.

1. Objective Methods:

A)Standing Height

Procedure: The subjects standing without shoes with the back against a support helps of a wall. The chin is raise in slightly and the head is held erect. The scale used to form a right angle to the wall is pressed firmly on to the subject head. Care should be taken so that the upper surface is horizontal and not tilted or alter his/her position. Finally, the subject bend knees slightly when steps away, so as not to disturb the angle before the height is recorded from the measuring tape which was pasted by cello tape previously with the wall. The reading from the measuring tape was taken in centimeters.

B)Body Weight

Procedure: The subject wearing minimum cloths and giving both feet (bare) on the weighing machine and stand erect and also without any jerk. The digital score which had shown on the machine was recorded in Kg.

C)Body Mass Index (BMI)

Body mass index is a statistical measurement which is derived by using body weight in Kg. and square of standing height in meters ratio.

Procedure: Body Mass Index is derived mathematically by using the following formula. (Kansal, 1996)

$$\text{Body Mass Index} = \frac{\text{Body weight in Kg}}{(\text{Standing height in Mts})^2}$$

.

2. Subjective Methods:

To measure the subjective health Status, the researcher developed a set of questionnaires with the help of her guide and senior research scholar. Then this questionnaire were modified by the following experts in the field of Physical Education and Health Education/ Child specialist doctor in West Bengal.

Prof. Alok Kumar Banerjee, Dept. of Physical Education, Kalyani University, West Bengal.

Prof. Sudarsan Bhawmik ,Department of Physical Education, Kalyani University, West Bengal.

Prof. Parimal Debnath, Department of Physical Education, Jadevpur University, West Bengal.

Prof. Brajanath Kundu ,Department of Physical Education, Visva Bharati university, West Bengal

Prof. Sagarika Bandopadhaya, Department of Physical Education, Visva Bharati university, West Bengal

Dr. Madhujit Sardar,Child specialist, Sainthia Hospital , Birbhum, West Bengal.

Dr. Sarup Choudhury,D.G.O. Sainthia Hospital , Birbhum, West Bengal.

After modification then the question were applied in a pilot study and then again modified by the same experts. The final sets of questions were introduced in the school situation

In the subjective health status, the researcher examined following sub areas: Eye Problem, Nose Problem, Ear Problem, Teeth and gum problem, Skin problem, Fiver, Warm Infection, and Jaundice.

After collection of each and every school data, the data collection sheet was authenticated by the school authority with signature and official seal.

STATISTICAL ANALYSIS

In this study, statistical package for social science (SPSS), version 11.0 software were used for analysis. For anthropometric data, a software package based on National Center for Health Statistics (NCHS) databases provided with EPI Info-16 software was used.

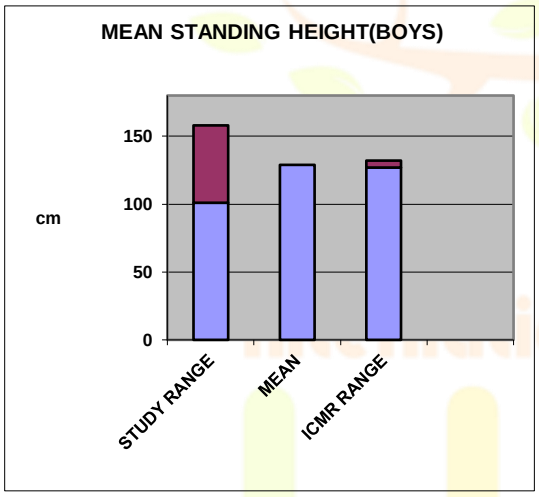
RESULTS AND DISCUSSION

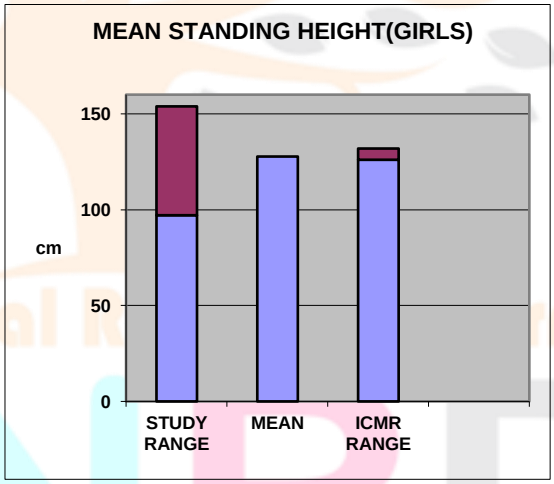
The data was analyzed with appropriate statistics. The results of that calculated data were presented in this chapter and the discussion was made accordingly. In the following, children health status and physical education teaching infrastructure results were presented with table and graph.

Standing Height

Height is a good indicator of health status. In this survey, total 3654 West Bengal Primary School Students of class III & IV were studied. The mean age was 8.5 years. Total 1833 boys and 1821 girls were observed. The mean height of primary level boys was 128.85+/-7.82cm and the mean height of girls was 127.75+/-8.00cm. The boys mean height was in-between the Indian Council of Medical Research (ICMR) standard scale. Also the mean height of girls was within the ICMR range. The range of height incorporated in graph. (Plate No -1)

Plate no : 1 Mean standing height



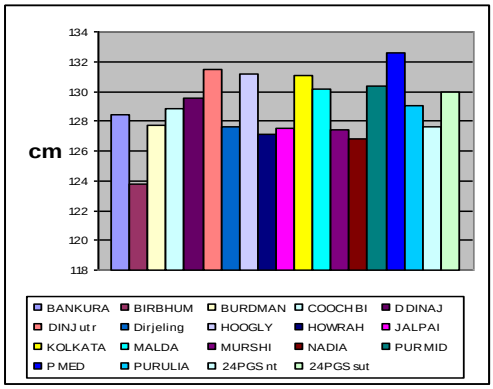


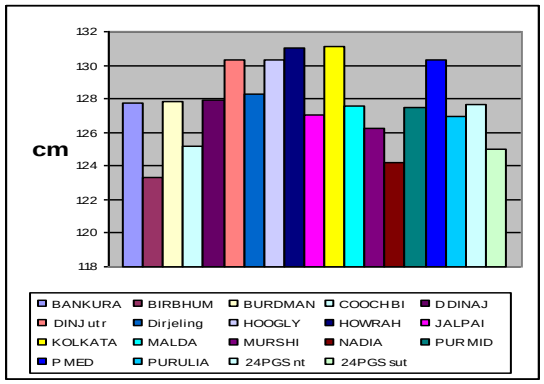
	STUDY	MEAN	ICMR
MIN	101cm	128.85cm	127cm
MAX	158cm		132cm

GIRLS	STUDY	MEAN	ICMR
MIN	97 cm	127.75cm	126 cm
MAX	154 cm		132 cm

The mean boys height of each districts were presented in the Plate no- 2. It was found that in the mean boys' height of Paschim Madinapur district was highest 132.62+/-7.55cm and mean boys' height of Birbhum district recorded lowest 123.82+/-7.08cm. Where as in girls height Birbhum represented lowest score 123.3 +/-6.18cm and Kolkata was the highest 131.13+/-9.46cm.-0 (Plate No -2)

Plate No- 2 : Standing Height (All district)

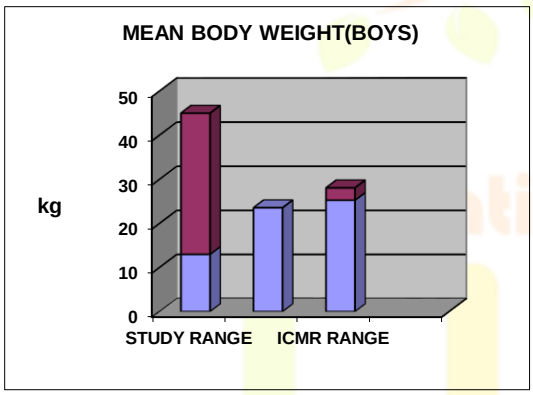


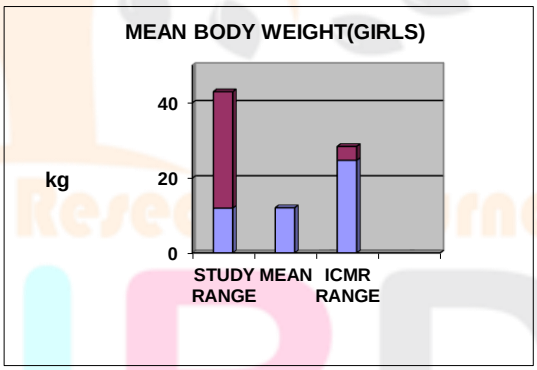


Body Weight

Body weight also a very good indicator of real health status measurement. According to age the underweight and overweight can be detected from the current body weight. In this study, the researcher collected body weight through standard procedure. In West Bengal, overall body weight of the primary level boys and girls group ware 23.59+/-5.51 Kg and 23.10 +/-5.07 kg respectively. Both the group body weight was below the ICMR standard norms for Indian elementary level boys and girls. The recorded mean data with range and ICMR standard range presented in the plate No.3.

Plate No- 3: Body Weight



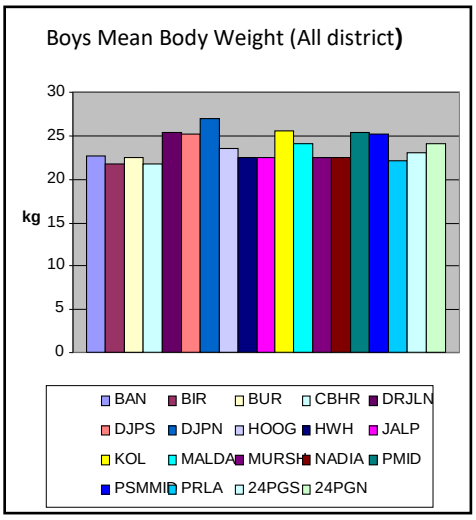


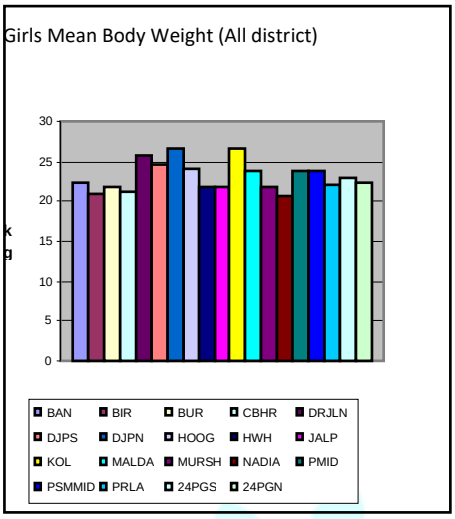
BOYS	STUDY	MEAN	ICMR
MIN	13 kg	23.59 kg	25.3 kg
MAX	45 kg		28.1 kg

GIRLS	STUDY	MEAN	ICMR
MIN	12 kg	23.1 kg	24.8 kg
MAX	43 kg		28.5 kg

When the boys body weight was consider district wise, it was found that North Dinajpur was observed higher 26.87+/- 4.56 kg where as in the Birbhum it was lowest (21.69+/- 3.48 kg). In the girls group, mean body weight found highest in the North Dinajpur(26.55+/-5.32 kg) and lowest in Nadia Dist (20.61+/-4.14 kg) The graphical representation of each district presented below in the plate No-4

Plate No- 4: Body Weight (All district)





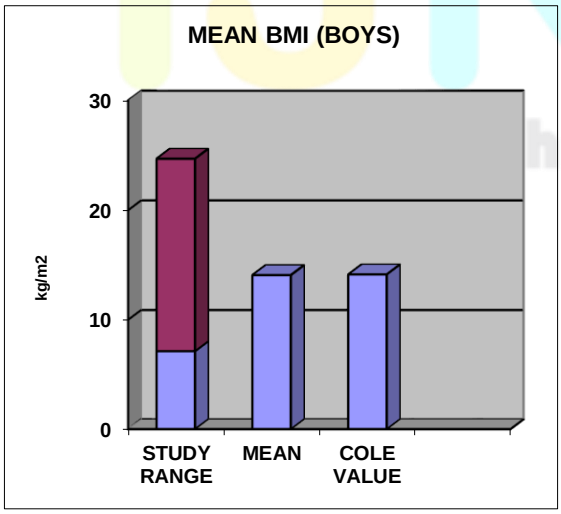
Body Mass Index (BMI)

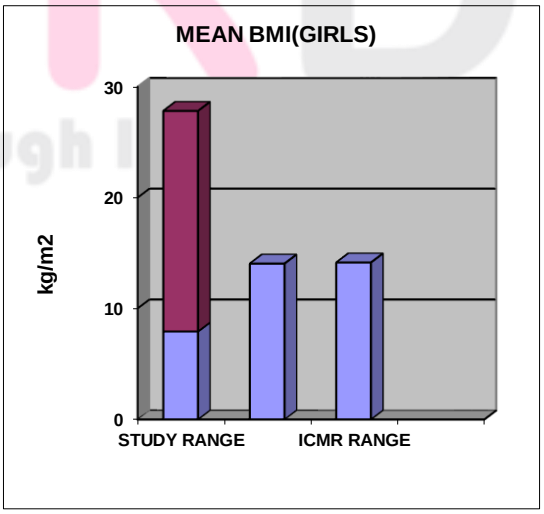
Body mass index is an internationally accepted norm for measuring health status with minimum requirement and calculation. It is a ratio of body weight and standing height.

$$BMI = \frac{\text{Body weight in kg}}{(\text{standing height in mts})^2}$$

The over all mean BMI of West Bengal primary school boys was 14.10+/-1.89 Kg/m^2 and in the girls group it was 14.04+/- 2.08 Kg/m^2. Both the scores were below the WHO reference value (Cole et. al. 2007), presented in the table no-No-3. Also the range of BMI in boys and girls group mentioned for ready reference. (plate no-5).

Plate No- 5: Body Mass Index





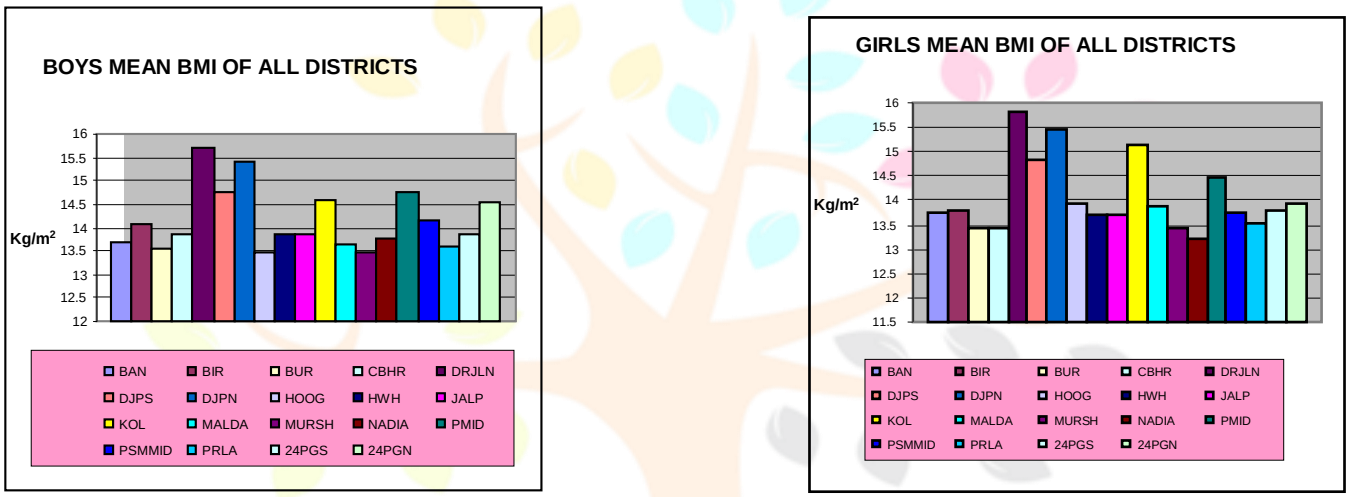
BOYS	STUDY	MEAN	Ref.
MIN	7.14 kg/m^2	14.10 kg/m^2	14.16 kg/m^2
MAX	24.7 kg/m^2		

When the

BOYS	STUDY	MEAN	Ref.
MIN	7.93	14.04kg/m^2	14.14kg/m^2
MAX	27.10		

BMI was considered district wise, it was found in the Boys group, Darjeeling was highest (15.68+/- 1.39 Kg/m^2), where as Hoogly was lowest 13.46+/- 2.32 Kg/m^2. In the girls group also Darjeeling recorded 15.80+/- 1.54 Kg/m^2, the highest and Nadia recorded 13.23 +/-2.13 Kg/m^2, the lowest. District wise BMI for boys and girls presented in the (plate no-6).

Plate No -6: Body Mass Index All district)



Discussion on Height, Weight and BMI

The state of health of school going children in India is far from satisfactory level despite the fact that school health programme along with other nutritional programme have been in operation for several years. School going children constitute a sizeable section of Indian population that is about 27%, which is easily accessible and also receptive (Khan et. al..2004). An early and convenient method of assessing nutritional and socioeconomic status of growing children is anthropometry. Physical growth in terms of weight and height is considered an important parameter reflecting the pattern of growth and development in the community. In the developing countries, the growing children by and large are deprived of their poor socioeconomic status, ignorance and lack of health promotional facilities. (khan et. al..2004).

In this study the researcher measured height, weight and BMI of the primary school children of West Bengal State, India. Total 183 schools ware selected randomly and from that schools total 3654 subjects were

participated in this study. The result indicated that body weight of West Bengal primary school children was below ICMR (1990) norms. Khan et. al. (2004) observed the rural school going children in the Uttar Pradesh state of India and found that the values of height and weight for both sexes were less than the ICMR standard. Medhi et. al. (2006) observed school age children of Assam and reported that their (8-9yrs) body weight was below ICMR standard. Bharati et. al. (2005) studied school children of Karnataka state in India and reported that 8-9 years boys and girls height and weight were lower than the ICMR standard. Panda et. al. (2005) studied school children in Ludhiana city, Punjab and observed that in the age of 8 and 9 the height and body weight of boys and girls group were lower than the ICMR standard. Semwal et. al. (2006) reported school children of Deharadun district, Uttarkhand state of India. They observed that mean height and weight of age group of 8 and 9 years were below the ICMR recommended standard. In the present study, the height and weight comparison has made with the ICMR standard because it is more relevant to taking into consideration into India standard. Deficit of the body weight in the children studied present can be attributed to the low socio economic status.

Choudhary et. al. (2006) studied tribal children of West Bengal, India. They found in 8 years mean BMI was 14.19+/-0.17 kg/mt^2 in boys and 14.39+/-0.25 kg/mt^2 in girls and in 9 years it was 15.25+/-0.35 kg/mt^2 and 14.33+/-0.19 kg/mt^2 for boys and girls respectively. Bose et. al. (2007) studied school children in Kolkata, West Bengal, India. They observed BMI 20.17 kg/mt^2 in 8 years and 22.86 kg/mt^2 in the age of 9 years boys. Bose et. al. (2009) studied rural school children and found in 8 years BMI of boys was 14.5+/-1.3 kg/mt^2 and girls 13.9+/-1.0 kg/mt^2 In 9 years BMI was 14.5+/-1.0 in boys and 14.5+/_1.7 in girls. Mandal and Sen (2010) investigated rural primary school going children in Darjeeling district of West Bengal state, India. They studied total 2111 children aged between 5-12 years. They found the overall BMI among boys and girls were 14.01+/-1.57 kg/mt^2 and 14.17+/-1.87 kg/mt^2 respectively. The present researcher found in her study that BMI of 8-9 years boys was 14.10 kg/mt^2 and girls was 14.14 kg/mt^2 which were below the normal WHO range (Cole et. al.. 2007). The relatively high prevalence of under nutrition observed among school children located in the different parts of West Bengal may be due to inadequate dietary intake of food. Alongside the fact that most of this children were from parents of low socioeconomic background, who themselves attended poor school (government aided school) and lived in poor houses where unhygienic living standard, unsafe drinking water and less amount of balance diet. Such environmental factors contributed to the survival of disease agents such as parasites, bacteria, and viruses. After being infected by this organism, the children lose the protein, energy, iron, and vitamin intake

to the benefit of these disease agents which later adversely affect the growth and nutritional status of the individual.

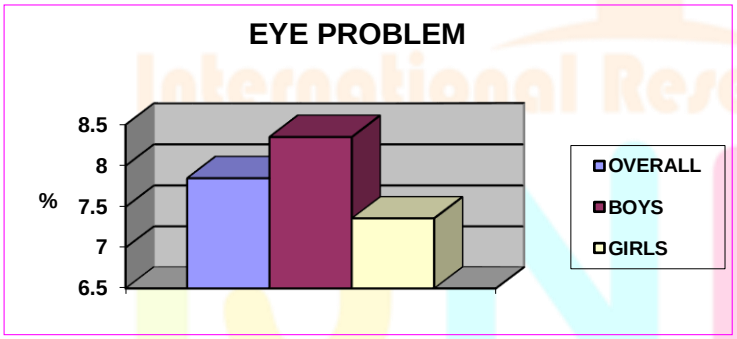
Subjective Health Status

The subjective health status was measured through questionnaires and personal observation. In this area, the researcher is presenting the report about the following areas – Eye Problem , Nose Problem , Ear Problem , Teeth and gum Problem, Skin Problem, Fiver, Jaundice, and warm infection.

Eye Problem

Different kinds of eye problem may come in the early childhood such as short sight, night blindness, color blindness, eye infection etc. The problem may come from the malnutrition, heredity and other environmental factors. In the present study, the researcher collected data of this area through questioning and personal observations. It was observed that in the whole West Bengal 7.85 % primary student were facing eye problem. When it expressed in boys and girls group: the boys were 8.35 % and girls were 7.36 % presently facing eye problem. (Plate No-7)

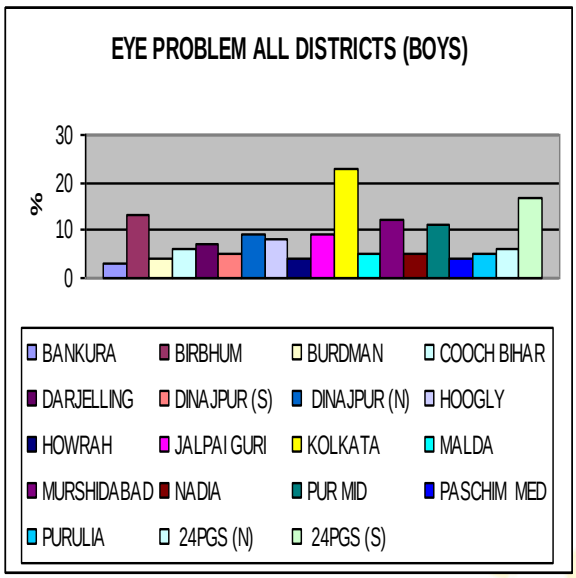
Plate No-7: Eye Problem

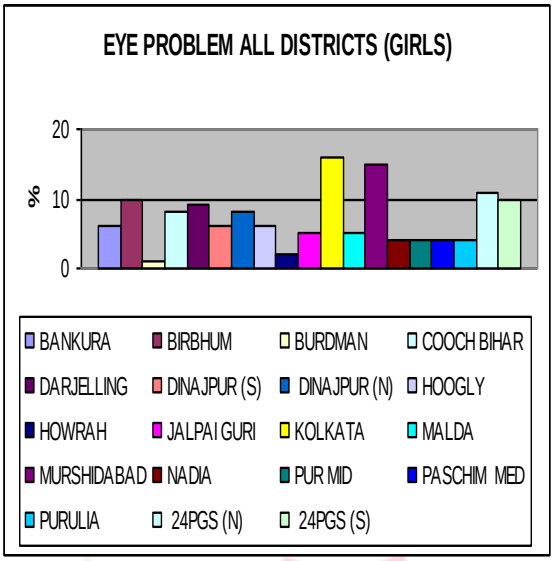


Categories	Eye problem
OVERALL	7.85%
BOYS	8.35%
GIRLS	7.36%

The percentage data of the each district in West Bengal presented below (Plate No-24). It was found that in boys group maximum eye problem was recorded (23 %) in the Kolkata district and the minimum eye problem was recorded (3%) in the Bankura district.

Plate No-8: Eye Problem (All district)

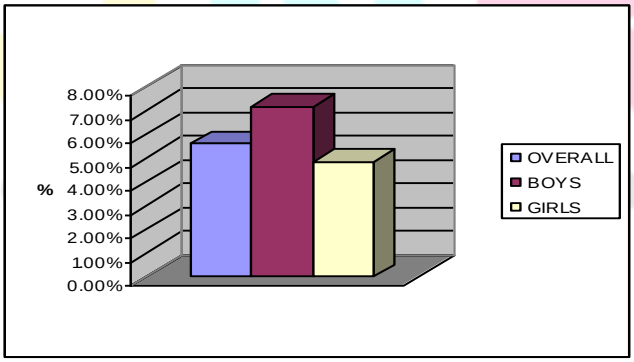




Nose problem:

Nose is the very vital sensory organ of the human body. Through it breathing is possible and also the sensation of smell can be recognized. This region may face different type of problems particularly in the early childhood such as running nose, sneezing, blocking of nose, infection in the mucus layer etc. In this survey, the researcher and her team member cheeked and interviewed all the subjects about this problem. West Bengal primary school children were facing 11.82 % nose problem. When it was compared in boys and girls group, it was seen that 14.18 % boys and 9.50 % girls were facing this problem. The percentage graph of overall, boys and girls nose problem presented in the plate no-9.

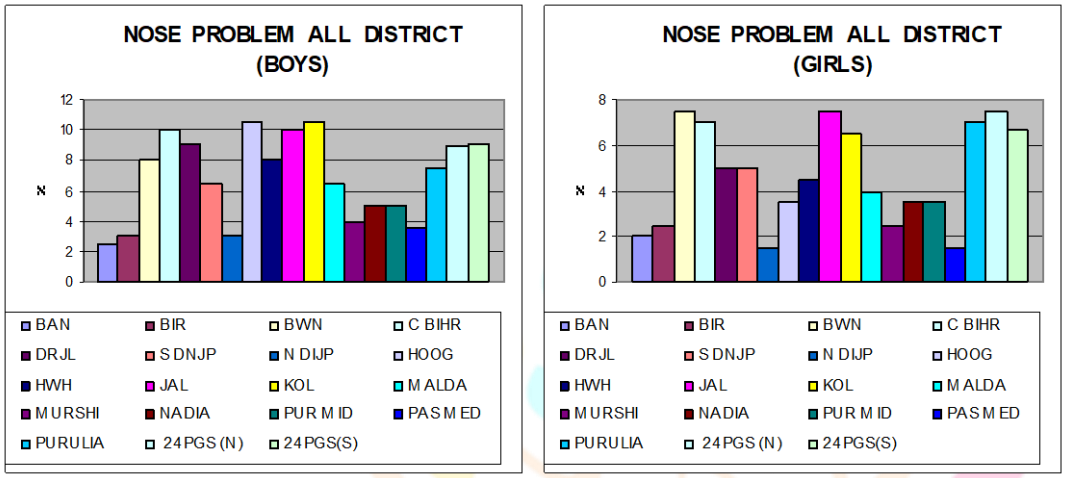
Plate No-9: Nose Problem



CATEGORY	NOSE PROBLEM
OVERALL	5.60%
BOYS	7.14%
GIRLS	4.87%

The result of all the districts presented in the plate no-10. In the boys group Kolkata and Hoogly districts were reported highest (10.5 %) and Bankura district lowest (2.5%) nose problem. In the girls, Burdwan district (8%) reported highest and North Dinajpur and Paschimmidnapur district(1.5 %) reported lowest nose problem.

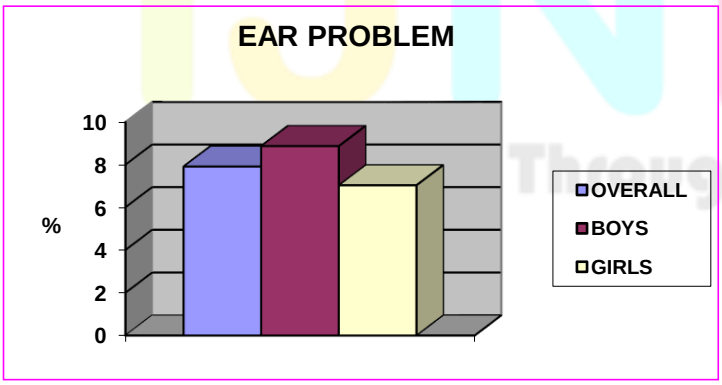
Plate No- 10: Nose Problem (All district)



Ear Problem

Perfect hearing may be possible through the clear ears. In teaching and learning eye and ear are very vital. The problem of ear may hamper learning process. Ear wax, whole in the eardrum, puss in ear, infection in ear are the common ear problem in early childhood. The researcher with her team collected information about ear problem. It was observed that overall 7.91 % primary school children were facing ear problem. In the boys category it was 8.78 % and in girls it was 7.03 % (Plate No - 11).

Plate No –11 : EAR PROBLEM

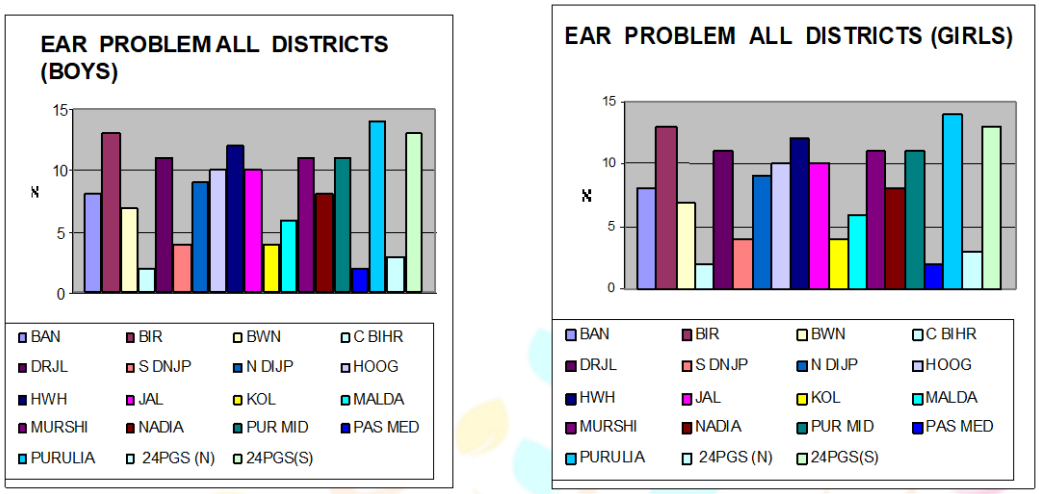


CATEGORY	EAR PROBLEM
OVERALL	7.91%
BOYS	8.87%
GIRLS	7.03%

When the data of ear problem compared within all districts, for boys it was observed that the highest ear problem (17%) recorded in Birbhum district and lowest (2%) in Choochbihar district. Where as in the girls group Purulia

district (3%) reported lowest and South 24Paragana district (13 %) reported highest ear problem. The graphical representation of all the districts ear problem in both the children group are presented Plate No-12.

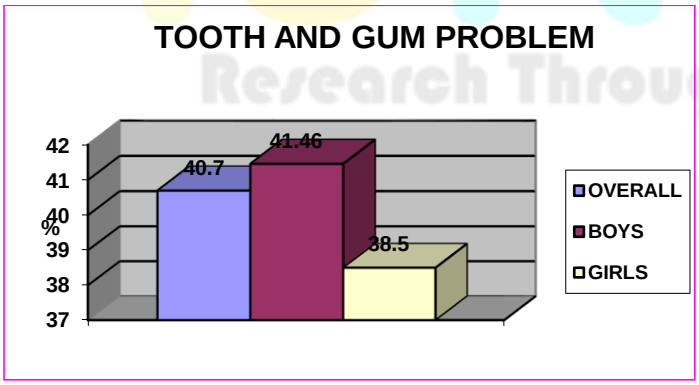
Plate No-12: Ear Problem(All district)



Tooth and Gum Problem

Childhood is the time when the second time tooth (permanent tooth) comes out, for that reason the children are facing pain in the gum, bleeding, puss formation etc. In the early childhood they also like to take lot of sweet products that may aggravate the tooth problems by increasing the bacterial growth. Tooth and gum problem is one of the major problem, the children are facing in the primary school days. The researcher observed that there were a remarkable tooth problem, 40.70 % (overall) in the primary school student in West Bengal. When it is compared in boys and girls group it was found that in boys group 41.46 % and in the girls group 38.50 % having tooth and gum problem (Plate No-13).

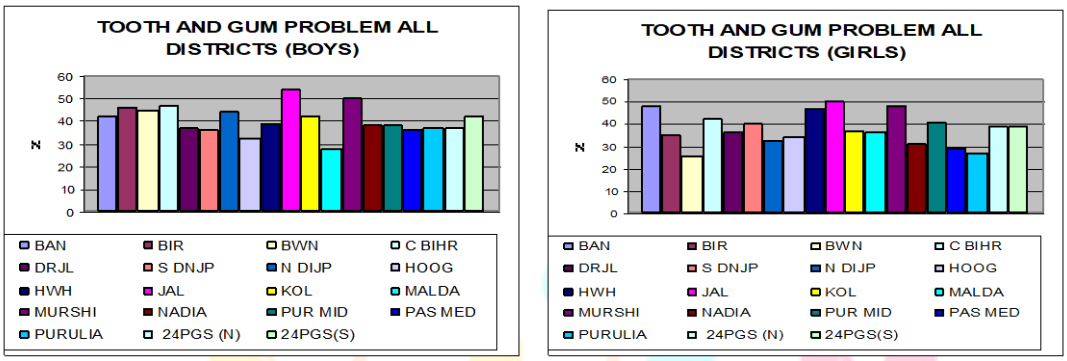
Plate No-13: Tooth and Gum problem



CATEGORY	Tooth and Gum Problem
OVERALL	40.7%
BOYS	41.46%
GIRLS	38.5%

When the data interpreted in each district, the girls group reported highest in Jaipaiguri district (50%) and lowest percentage in Burdwan (26%). Where as in the Boys group showed highest Jaipaiguri district (54%) and lowest in Malda district (28%). The result of all the districts presented in the Plate No-14.

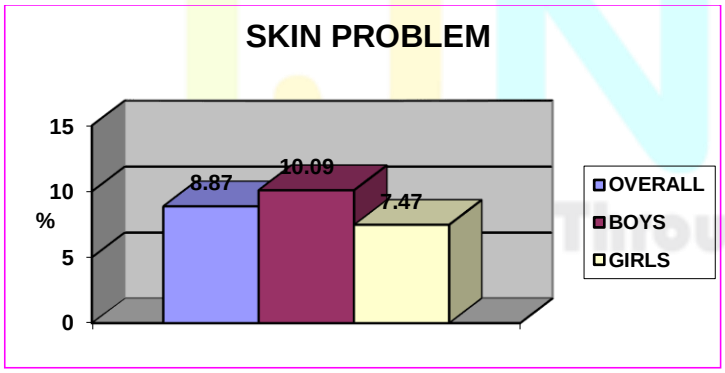
Plate No-14: Tooth and Gum Problem (All district)



Skin Problem

Skin is a cover of the whole body. It is considered as a system of the human body. The name of the system is integumentary system. It protect the body from the environment and each and every charges in the external environment may be adjusted through the skin, at the same time it maintain the internal environment. The researcher collected data about the information of skin through questionnaires and personal examination. It was found that in West Bengal 8.78 % primary student were having skin disease. In the boys it was 10.09 % and in girls it was 7.47 %.(Plate No 15)

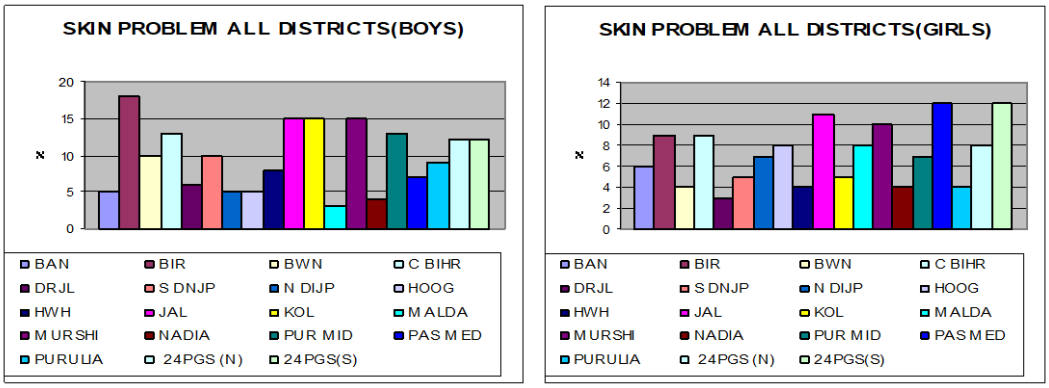
Plate No-15: SKIN PROBLM



CATEGORY	SKIN PROBLEM
OVERALL	8.87%
BOYS	10.00%
GIRLS	7.47%

When the data were compared with each district in boys and girls category, boys group reported highest(18%) in Birbhum district and Malda district (3%) reported lowest skin problem. In the girls, PurbaMidnapur and South 24paragana district (12 %) reported highest and Darjeeling district reported(3%) lowest skin problem . (Plate No -16).

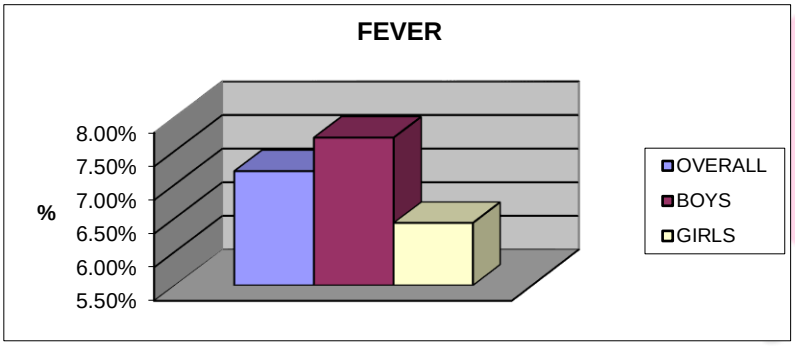
Plate No-16: SKIN PROBLM (ALL DRISTRICT)



Fever

Fever is a very common defense mechanism in the human body. It may come through the infection of bacteria, fungus, virus etc. Also from psychological problem fever may come. The researcher with her team members asked the student about their recent fever and frequency of fever. It also verified by the concern school teacher. It was found that, in the whole West Bengal 7.20 % primary school student were having fever in the period of date collection (2008–2009). In the boys category fever was reported 7.97% and in girls category it was 6.43 %. The data presented in Plate No 17.

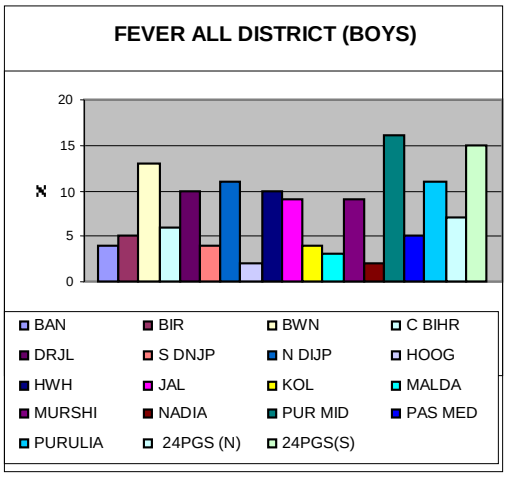
Plate No-17: FEVER

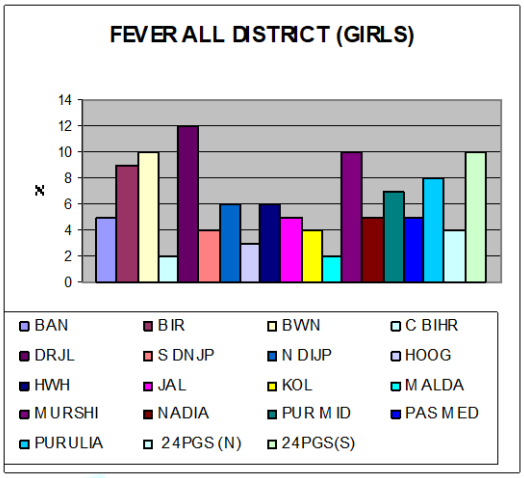


CATEGORY	FEVER
OVERALL	7.2%
BOYS	7.70%
GIRLS	6.43 %

In district comparison for boys, Purba Midnapur district was reported highest (16 %) fever infection and Nadia & Hoogly district found lowest (2%). In girls group, the highest was reported in Darjeeling district (12%) and lowest was in Malda District (2%).All district graphical representation of fever presented in Plate No -18.

Plate No-18: FEVER (ALL DRISTRICT)

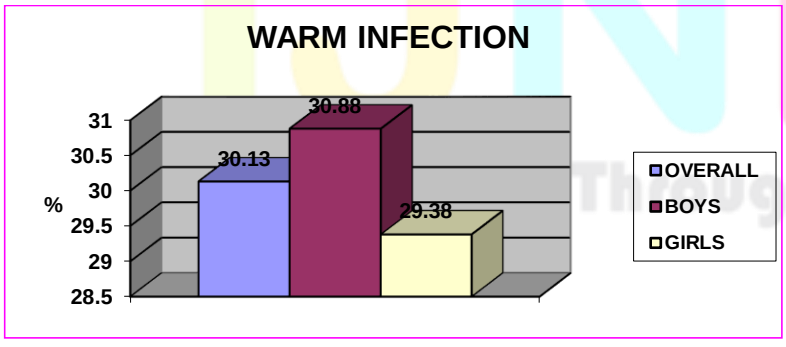




Warm Infection

Warm may came in the child body through raw vegetable, impure water, toxic foods etc. which the children may take knowingly and unknowingly. This warms take the liquid foods from the body and multiply them. It is one of the main causes of malnutrition. The researcher collected information through question and personal interview to the student. It was found that in whole West Bengal 30.13 % primary children were warm infected. In the boys, it was 30.88% and in girls 29.38% warm affected children were found. The data presented in the Plate No-19.

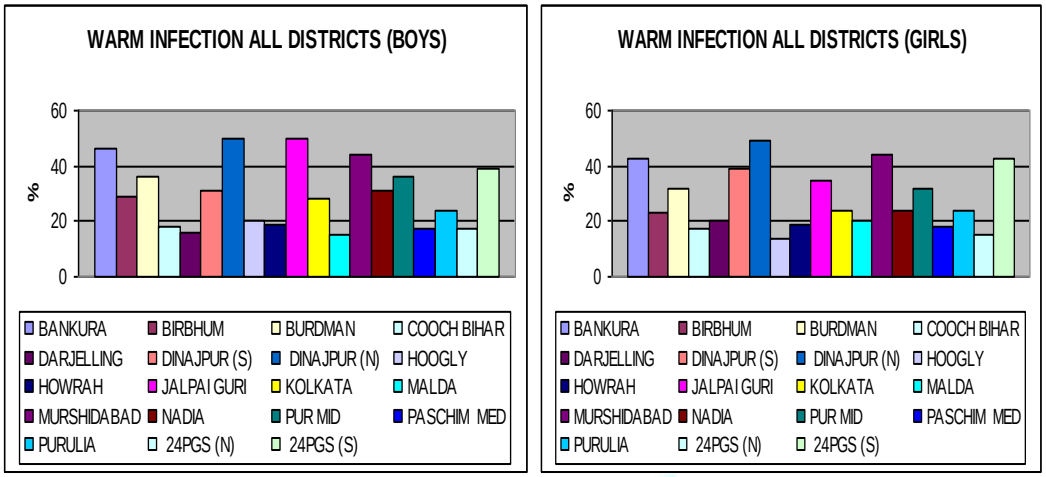
Plate No-19: WARM INFECTION



CATEGORY	WARM
OVERALL	30.43%
BOYS	30.88%
GIRLS	29.38 %

The districts situation presented in Plate No-20, where it was found that in boys Uttar Dinajpur and Jaipaiguri district having the highest (50%) and Malda district having lowest (15%) warm infected primary children. Where as maximum infected girls children were found in Uttar Dinajpur district (49 %) and minimum was in Hoogly district (14 %).

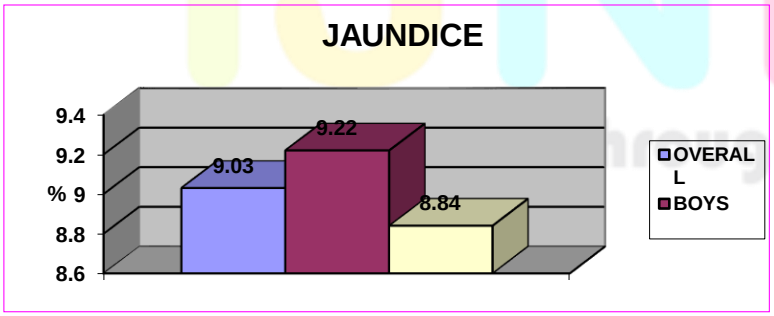
Plate No-20: WARM INFECTION(ALL DRISTRICT)



Jaundice

The National Institutes of health (NIH) define jaundice as a liver condition that allows the biliruvin (an agent that assists in red blood cell creation) level in the blood to become higher than normal. This creates a yellowish skin color. Jaundice has many causes. Newborn babies frequently experience this condition before the liver becomes fully operational. Adult jaundice usually is related to a medical condition. Liver is store house of glucose (liver glycogen). This glycogen provides essential energy to the each and every cell. If the liverbecome infected the energy production may hamper and body become pale and weak. The present researcher collected information about this disease in primary school children through questionnaires, personal interview and information form teacher. It was found that in West Bengal overall 9.03 % primary school student facing jaundice in time of data collection (2008-09). In boys it was observed 9.22 % and in girls it was 8.84 % (plate No-21)

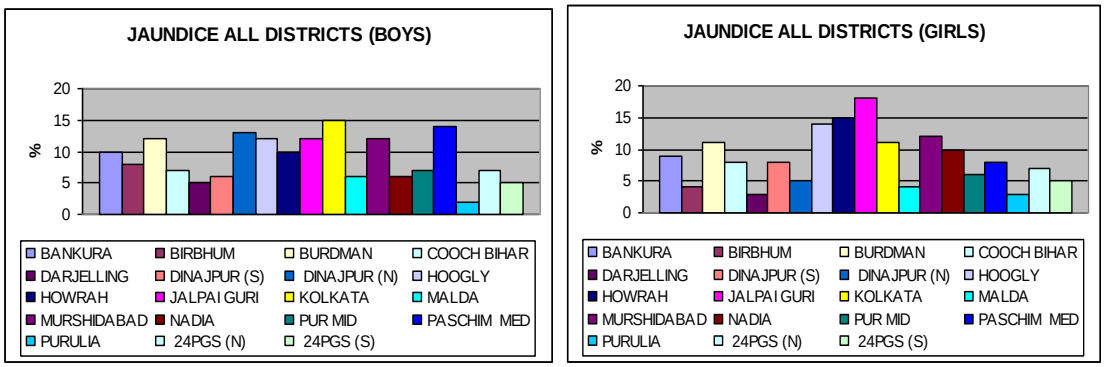
Plate No-21: JAUNDICE(ALL DRISTRICT)



CATEGORY	WARM
OVERALL	9.03%
BOYS	9.22%
GIRLS	8.84 %

Districts data are presented in Plate No-38. When compare the jaundice in each district of West Bengal, it was found that in boys Kolkata district(15%) was highest and Purulia district(2%) was lowest. But in girls Howrah district reported highest(17%) and Darjeeling and Purulia district (3%) showed lowest percentage of jaundice.

Plate No-22: JAUNDICE(ALL DRISTRICT)



DISCUSSION ON SUBJECTIVE HEALTH STATUS

The subject health status was assessed through questionnaires and personal observation. The present researcher reported headache; eye; ear; nose problem; teeth and gum problem; skin problem; fever; jaundice and warm infections. Several researchers reported in their study about this very vital health information of school children. Desai et. al. (1977) studied eye diseases in primary school children in Joudhpur district, Rajasthan state India. They observed 4900 primary school children (3288 boys and 1612girls) among them 92.86% were found to be suffering for eye diseases. It was observed that 68.77% of children were suffering from trachoma, 11.03% conjunctivitis, 2.67%xerosis, 2.67% squint, 2.04% bitot's spots 1.43% refractive errors, 1.43% phthiriasis palpebrarum and 2.86% miscellaneous eye diseases which include corneal opacity, subconjunctival cyst, dacryocystitis stye and chalazion and 7.14% children were free from any disease. Also Sing et. al. (1974) found 64.24%of primary school going children suffering from eye disease in Patiala city. Pal (1966) found that 42.20% eye problem in New Delhi city India.

Rao et. al. (1999) observed 1161 students up to the age, of 12 years comprising of 828 male and 333 females. Among these 890(76.65%) students were found to have skin disorders, out of 828 male examined 625(78.74%) had skin disorders and of 333 female examined 238(71.47%) had dermatoses. Most of the dermatoses were asymptomatic and were diagnosed in the routine examination. Nevoid condition were seen in 255(21.96%) students. Communicable dermatoses were noted in 221(19%) students and nutritional deficiencies were seen in 78(6.71%) students. Out of 78 nutritional deficiencies, 73 had phrynoderma and 5 had angular cheilitis. Valia et. al. (1991) studied school children in Varanashi, India. They also found 53.6% children had one or more skin disease.

Panda et. al. (2005) observed health status of school children. They examined medical history and general physical condition. They reported total 776 children (boys 462 and girls314). They found that anemia 26.0%, caries tooth 23.1%, tonsillitis (14.4%) pharyngitis (0.8%) nasal discharge0.8%, squint 0.2%, conjunctivitis 0.1%, and skin disease1.1%. Patil et. al. (2009) observed very high prevalence of dental caries in Maharastra state, India. The other studies conducted in India (Raw and Bharambe, 1993; Bhowate et. al. (1994); Raw (1996) were also found similar results in dental caries.

Chandra and Sehgal (1994) studied prevalence of deficiency diseases among school children, of 6-9 years. They reported 35% of total school children showed presence of night blindness which is one of the first symptoms appearing due to vitamin A deficiency. Greater percentage of boys (38%) than girls (33%) showed signs of night blindness. 9% total school children showed symptoms of conjunctiva was present in greater percentage of boys (11 %) than girls (7%). 14% of total school children showed the presence of Bitot's spots. Higher percentage of boys (16%) than girls (15%) showed the presence of Bitot's spots. One of the reasons for the deficiency of vitamin A may be poor intake of vegetables and animal foods. It has been reported that 56% of school children from drought affected areas showed signs of vitamin A deficiency. It has also been reported that vitamin A deficiency is a public health problem in underprivileged school age children. 24% to 34.8 % of school age children suffered from vitamin A deficiency diseases in India. 26% of total school children showed lack of lustre in their hair. Greater percentage of boys (28%) than girls (25%) showed lack of lustre in their hair. 24% of total school children showed thinness and sparseness of hair. Greater percentage of boys (26%) than girls (22%) showed thinness and sparseness of hair. Easy pluckability of hair was observed in very few children. These signs indicated that school children were malnourished. This may be due to inadequate intake of protein in their diet. They reported that 17% of school children were acutely malnourished and 16.8% suffered from chronic malnutrition. As regards to B-complex deficiency signs, naso labial seborrhoea and naso labial dyssebacea was present in 7% of school children. Greater percentage of girls (8%) than boys (6%) were having naso labial seborrhoea and naso labial dyssebacea. Angular stomatitis due to riboflavin deficiency was observed in 10% of school children. Almost similar percentage of boys and girls of 6-9 years showed signs of angular stomatitis. Angular scars and cheilosis was observed in 9% of total school children. Greater percentage of girls (9%) than boys (8%) showed signs of angular scars and cheilosis. One of the reasons for riboflavin deficiency may be due to poor intake of pulses and cereals. Raw and magenta tongue was observed in very few children. Glossitis was observed in 8 per cent of school children and was higher in girls (9%) than boys (6%). Pellagrous dermatosis

was observed in 13% of school children. Greater percentage of boys (15%) than girls (12%) showed signs of pellagrous dermatosis. These differences with regard to thinness of hair, B-complex (riboflavin) deficiency has also been reported. Spongy bleeding gums (vitamin C deficiency) was observed in 15% of school children. 26% cent of boys and 14% of girls showed signs of spongy bleeding gums. Ecchymosis was observed in 6% of school children. Prevalence was almost similar in boys and girls. One of the reasons for vitamin C deficiency may be poor intake of citrus fruits. Prevalence of vitamin C deficiency has been reported in Rajasthan and Southern part of India. Xeroxis of skin was observed in 16 per cent of school children. Greater percentage of boys (18%) than girls (14%) showed signs of xerosis of skin. Koilonychia due to iron deficiency was observed in 11 % of school children, 12% of boys and 11 % of girls showed signs of koilonychia. Pale conjunctiva was observed in 34% of school children. Higher percentage of boys (37%) than girls (31%) showed signs of pale conjunctiva. One of the reasons for iron deficiency may be poor consumption of green leafy vegetables. Similar prevalence of iron deficiency In school children has been reported.

The report of the present study and previous studies has a very close proximity. From the above discussion it may postulated that malnutrition and nutritional deficiencies are the main cause of different diseases in the primary school student of West Bengal, India. Inclusion of more foodstuff, vegetables, milk and milk products in daily diet of school children for improving their nutritional status. Nutrition counseling and health education to the mother should be important component of health services which will help to decrease the effect of ignorance and family practices. Lastly to eradicate this social problem full flagged effort should be undertaken from all corners of government and nongovernmental agencies.

CONCLUSION

Health status of primary school children was studied all over the world in a extensive manner. When it was studied in the developed and rich countries, the result were one type for example increase of body weight, body fat, blood sugar, cholesterol etc in the child group. When the data collected from the developing, under developing and poor countries, the result reflects in other way, for example lower body weight, malnutrition, different types of diseases like skin, eyes, ears etc. India is a developing country so the result found in this research was very much similar with other developing countries. The researcher observed lower body weight, chronic and acute malnutrition and thinness present in an alarming level in the primary school children of West

Bengal, India .The researcher compared all this data with ICMR/WHO norms and found that it was below the normal standard.

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