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A Study on Nutritional Status and Morbidity of Adolescence in a Slum of Burdwan

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Abstract-
Background- *Adolescent ,constitute 21% world population, is a vibrating phase of human life and effective age group of physical ,psychological and social development of man .In the present study- assess the nutritional and morbidity status of adolescents residing at kalabagan ,slum area of alamganjburdwan .****Materials & Methods-*** *The descriptive observational & cross sectional design study was conducted at kalabagan slum at alamganj , Burdwan , among 366 adolescents , from October to December 2014 with the help of the predesigned pretested semi structured questionnaires , anthropometric measurement , clinical assessment and health records .****Results-*** *The present study we found 266 adolescents out of which 138(51.88%)were boys and 128 (48.12%)were girls. Mean age of the adolescent was 14.57±1.99 .Addiction are more common among boys (56.52%) than girls (20.29%) & lare adolescents group(58.33%) than early group(21.64%) and in both cases differences are statistically significant . 186(69.92%) were wasted ; more girls were (83.6%) wasted than boys(57.25%)and these diference is statistically significant (p=.0000054) and late adolescent age group were observed to be higher risk of underweight significantly more 83.33% (p<0.001)compared to early adolescent 54.22% , 125(47%) adolescents were stunted , girls(53.95%) were more stunted than boys(45.05%) . 84.21% adolescents were suffering from one or more illness at the time of examination . 40.6% adolescent had pallor and more girls(59.37%) had pallor than boys(23.18%) and statistically significant(p=.00002).****Conclusion-*** *From this study we conclude that there was significant nutritional problems and morbidities among slum adolescents and these should addressed effectively and efficiently for future productive citizens .*
Key Word – *Adolescents, Nutritional Status, Morbidity,Addiction.*

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I. Introduction

World Health Organization (WHO) has defined adolescence as the age group of 10-19 years[1,2].Adolescence is transitional stage of human being from childhood to adult one and constitutes 21% of worlds population .[3] Adolescence is a vibrating phase of human life .In this phase proper physical ,psychological and social development make complete effective and purposive human being .

In adolescence a second period of rapid growth may serve as a window of opportunity for compensating for early childhood growth failure . During adolescence , the relatively uniform growth of childhood is suddenly altered by an increase in the velocity of growth . Growth is faster than any other time in the individual s life except the first year (Brasel 1982) .Over 80% of adolescent growth (attained weight and height)is completed early adolescence (10-15 years)with a marked deceleration in weight and height in the post pubertal phase .

Adolescence is an intense anabolic period when requirements for all nutrients increase. During adolescence, 20% of final adult height and 50% of adult weight are attained, bone mass increases of 45% and dramatic bone remodelling occur and soft tissues, organs, and even red blood cell mass increase in size .

If adolescent are well nourished they can make optimal use of their skills ,talents and energies today and be healthy and responsible citizens and parents of healthy babies tomorrow . To accomplish such a task and in order to break the intergenerational cycle of malnutrition a special focus for overcoming adolescent malnutrition is needed .

Adolescent have been neglected because considered less vulnerable to disease than children and older age group .Their health attracted global attention since last decade .But very limited information are available about their nutritional and morbidity status specially in developing countries like India.

In this context this study ie nutritional and morbidity status of adolescent in a slum had been carried out to supplement information.

II. Objectives

1) To assess the socio demographic profile of the adolescent at slum area Burdwan ,Rural Field Practice Area ,Community Medicine Department .
2) To assess the nutritional status of the study subjects
3) To find out morbidity of the Study Subjects
4) To find out the relationship between socio demographic profile and Nutritional & Morbidity status of study subjects if any .

III. Materials and Method

The present study was a community based observational descriptive study conducted at a slum area Kalabagan , Alamganj , Urban Field Practice Area of Community Medicine Department , Burdwan Medical College , from October to December 2014.The study was conducted among adolescents resides in that slum continuously before one year of the study ie since January 2014 and nor seriously ill , gave informed consent either by self or by their parents in case of minor and present during data collection .266 adolescents (138 boys & 128 girls) were taken for as study subjects who were satisfied inclusion & exclusion criteria .Predesigned pretested semistructured open ended questionnaire , health records of individual(if available) ,birth certificate , weighing machine, non stretchable measuring tape, stethoscope were used for data collection . we followed WHO criteria for classification of weight(normal, ±2SD deviation for under /overweight,) ; Height(normal & stunted), BMI(thinness,normal ,overweight).We interviewed the adolescent along with their parents , and also anthropometrical measurement & clinical examination of the study subject was done .We also review the available health records and other relevant records of the concerned study subjects .Body weight was measured (to the nearest 1 kg) with the subject standing motionless on the standing weighing machine and with the weight distributed equally on each leg .Checks on the scale were made routinely before recording the of each subject and point was adjusted to zero with the help of the screw provided. Each subject was allowed to weight with bare footed .

The height was measured with help of standardized non stretchable measuring tape (1cm interval marking) .Each subject was asked to stand barefooted over flat surface with weight distributed evenly on both feet heels together and positioned so that the line of vision perpendicular to the body and his/her head ,shoulder ,both buttocks and both heels touch the concrete wall.and height The height of the top most point of the head with sufficient pressure to compress hair at the time of deep inhalation with help of flat hard cardboard marked against the vertical wall and after height was measured by non stretchable measuring tape

Statistical Analysis Data were entered in Microsoft Office Excel 2010 and analyzed the data using Microsoft Office Excel 2010 and IBMSPSS19.0 .Mean and standard deviation were ca lculated for continous variables .Chi square value was used for testing statistical significance.

IV. Result

A total 266 adolescent participated in the study. Out of which 138(51.88%)were boys and 128 (48.12%)were girls. Mean age of the adolescent was 14.57±1.99 .

Table 1 Distribution of adolescent according to socio demographic profile N = 266

		Boys	Girls	Total
House Type	Kutcha	12(8.69%)	14(10.94%)	26(9.77%)
	Pucca	22(15.94%)	18(14.06%)	40(15.04%)
	Mixed	104(75.87%)	96(75%)	200(75.19%)
Family Type	Nuclear	84(60.67%)	82(64.06%)	166(62.41%)
	Joint	54(39.33%)	46(35.94%)	100(37.59%)
Religion	Hinduism	138(100%)	128(100%)	266(100%)
Caste	General	26(18.84%)	22(17.19%)	48(18.05%)
	SC	92(66.66%)	82(64.06%)	174(65.41%)
	ST	20(14.45%)	24(18.75%)	44(16.54%)
Adolescent	Early(10-14yr)	77(55.8%)	57(44.53%)	134(50.38%)
	Late(15-19yr)	61(44.2%)	71(55.47%)	132(49.62%)
Educational qualification	Illiterate	4(2.89%)		4(1.5%)
	Primary	36(26.09%)	46(35.93%)	82(30.83%)
	Secondary	88(63.76%)	70(54.69%).	158(59.4%)
	Higher Secondary	10(7.24%)	10(7.81%)	20(7.52%)

Working Status (Multiple Response)	Student	96(69.56%)	84(65.62%)	180(67.67%)
	Helping House work	64(46.38%)	98(76.56%)	162(60.9%)
	Working	42(30.44%)	10 (7.81%)	52(19.55%)
Marital Status	Unmarried	138(100%)	115(89.84%)	253(95.11%)
	Married		13(10.16%)	13((4.89%)
Addiction (Multiple Response)	Tobacco	78(56.52%)	18(14.06%)	96(36.09%)
	Alcohol	28(20.29)	3(2.34%)	31(11.65%)

104(75.8%) boys and 96(75%) girls resided In mixed type house and 84(60.67%) boys and 82(64.06%) girls had nuclear family .All were hindus but 92(66.66%)boys and 82(64.06%)girls were belong were schedule caste. 88(63.76%) boys and 70(54.69%) girls were then at secondary level .

186(69.92%) out of 266 adolescent were wasted and 80(30.08%) were normal as per weight for age; more girls were (83.6%) wasted than boys(57.25%)and these diference is statistically significant (p=.0000054)and late adolescent age group were observed to be higher risk of underweight significantly more 83.33% (p<0.001)compared to early adolescent 54.22%(table-2)

Table2 : Gender and Type of adolescent wise distribution in respect to their antropometric measurement n=266

		Weight				Hight				BMI				Addiction(All types)			
		Normal	Abnormal	Total	Chi sq , df, p	Normal	Abnormal	Total	Chi sq , df, p	Normal	Abnormal	Total	Chi sq , df, p	Normal	Abnormal	Total	Chi sq, df,p
Gender	Boys	59(42.75 %)	79(57.25%)	138 (100%)	20.68	82(59.42%)	56(40.58)	138(100%)	4.21	73((52.9%)	65(47.1%)	138(100%)	6,38	78(56.52%	60(43.48%)	138(100%)	33.25
	Girls	21(16.4 %)	107(83.6%)	128 (100%)	1	59(46.09%)	69(53.9%)	128(100%)	1	47(36.72%)	81(63.28%)	128(100%)	1	28(20.29%)	100(79.71%)	128(100%)	1
	Total	80(30.08 %)	186(69.92%)	266 (100%)	.0000054	141(53%)	125(47.%)	266(100%)	0.04	120(45.11%)	146(54.89%)	266(100$)	0.011	106(39.85%).	160	266(100%)	<.00 0001
Adolescent	Early	60(44.78 %)	74(55.22%)	134(100%)	26.35	86(64.18%)	48(35.82%)	134(100%)	12.64	75(55.97%)	59(44.03%)	134(100%)	11.98	29(21.64%)	105(78.36%).	134(1%)	37.34
	Late	20(16.67 %)	112(83.33%)	132(100%)	1	55(41.67%)	77(58.34%)	132(100%)	1	45(3.09 %)	83(65.91%)	132(100%)	1	77(58.-33%)	55(41.67%)	132(100%)	1
	Total	80(30.08 %)	186(69.92%)	266(100%)	0.00000028	141(53%)	125(47%)	266(100%)	0.00037	120(45,11%)	146(54.89%)	266(100%)	0.0005	106(39.85%)	160(60.15%)	266(100%)	<.00 0001

125(47%) adolescents were stunted girls(53.95%) were more stunted than boys(45.05%) and it was statistically significant (p<0.04). Late adolescents(58.34%) were more stunted than early adolescents (35.82%) and it was also statistically significant(p<0.00037) (table-2).
As per Body Mass Index 112(84.21%) adolescents were normal and 20 adolescents(15.03%) were thin and one boy was noted as obese. Out of 20 thinned 68.42% boys and 31.58% girls and late adolescents (60%)were more. 84.21% adolescents were suffering from one or more illness at the time of examination .40.6% adolescent had pallor and more girls(59.37%) had pallor than boys(23.18%) and difference statistically significant(p=.00002) .Girls were suffering more from vit B deficiency(14.06%) dental carries (25%), RTI(14.06%), Fungal dermatological disorder(15.62%) compared to boys and these difference are statistically significant ..At the same time boys were suffered more from Refractive error (10.14%) ,hypertension (5.07%)than girls and these differences are statistically significant .

Table 3 Distribution of study subject according totheir morbidity Status(N=266)

Diseases		Boys(69) %		Girls(64) %		Total(133) %		
Nutrition	Pallor	32	23.18%	76	59.37%	108	40.6%	18.028,.00002
	Vit A Def	4	2.89%	6	4.66%	5	3.75%	.29,.58
	Vit B comp Def	4	2.89%	18	14.06%	22	8.27%	5.45,.019
ENT	Tonsilitis	6	4.34%	12	9.37%	18	6.76%	2.66, 0.102
	Pharyngitis	10	7.24%	12	9.37%	22	8.27%	.396, .528
	CSOM	10	7.24%	12	9.37%	22	8.27%	.396,.528
	Wax in Ear	4	2.89%	8	6.25%	12	4.51%	1.73,.188
EYE	Refractive Error	14	10.14%	4	3.12%	18	6.76%	5.18,.022
Skin	Pyoderma	12	8.69%	14	10.93%	26	9.77%	.37,.57

	Scabies	16	11.59%	14	10.93%	30	11.27%	.028,.86
	Fungal Disease	6	4.34%	20	15.62%	26	9.77%	9.576,.0019
Dental	Carries	39	28,26%	51	39.84%	90	33.83%	3.97,.046
Gastro intestinal system		29	21.01%	33	25.78%	62	23.31%	.844,.358
Respiratory	Br Asthma	1	1.44%			1	0.75%	
	Other(common cold/URTI/RTI)	21	15.22%	19	14.84%	40	15.04%	.007,.93
	Tuberculosis	3	2.17%	-	-	3	1.13%	
RTI/UTI		12	8.69%	18	14.06%	30	11.27%	1.91,.166
Mensturation	Dysmenorrhoea			16	24.24%	16		
	Other							
Hypertension		7	5.07%	1	0.78%	8	3.01%%	4.19,.0406
Diaberes		2	1.45%	1	0.78%	3	1.13%	.26,.606

V. Discussion

The present study was conducted among adolescents at kalabagan slum area of alamganj Burdwan from October to December 2014 . Adolescence is a period of nutritional requirement and adolescent anthropometry varies signficantlyworld wide[4,5,6]. This study was highlighted prevalence of addiction ,wasting ,stunting and thinness and common morbidities .Nutritional status evaluated by using anthropometric indicators recommended by WHO expert committee. The present study reveals that 39.85% adolescents were addicted which is closely related to the study conducted at Sambalpur slums (43.4%) by Sarangilisa et al [7] and far less than study at Bangalore slums(70.1%) by Venegal . [8]

In this study it was seen 69.92% adolescents were wasted which was more than it was seen in the study of DambhareDG,Bharambe BS ,Mehendale AM et al(51.7%)(9), Wodstuff et al(10-12)] and two keneyan studies (61%)[13] and 57%[14] . 40.6% of adolescent had pallor and more girls(59.37%) had pallor and results were much more than several studies conducred in india[9,15-18] In the study of DambhareDG,Bhar.ambe BS ,Mehendale AM et al the same was seen .The present study showed that thinness was more in boys.The same was seen in Rao et al and Medhi GK, Hazarika NC ,Mahanta J s study. But Desmukh et al showed that thinness was more in girls.

The prevalence of stunting in the present study was 68.42% which was much more than theHaboubi et al study [19], Seema et al study [20] and M.Kalhan et al study[21]. The Prevalence of stunting was more among late adolescents but in Varanasi and Haboubi et al study it was seen in early adolescents group .

VI. Conclusion

The poor nutritional status of adolescents, especially girls, has important implications in terms of physical work capacity and adverse reproductive outcomes [8]. Significant no of girls had pallor (59.37%).Boys had alarmingly high addiction habits and injuries/accidents etc. Also gross nutritional status regarding wasting , stunting were alarmingly high and it should be addressed effectively and efficiently .

- Proper counselling of adolescents regarding addiction
- Promote and proper implement National Nutritional Programmes .
- Iron folic acid supplementation specially for girls .
- Awareness about lifestyle modification

CONFLICT OF INTEREST – There is no conflict of interest.

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