

Nutritional Status among Adolescent Girls in Urban Slums of South Chennai and the Impact of Information, Education and Communication on Their Nutritional Knowledge and Practices

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ABSTRACT

The aim of the study is to assess and study the nutritional status and prevalence of anemia among adolescent girls in urban slums of south Chennai. With the help of various findings, concluded that the prevalence of under nutrition and over nutrition was high in the study area. This will help the health care providers to identify the problem faced by the adolescent girls in the study and also to implement effective intervention measure to correct the nutritional deficiencies.

Key words: Adolescent girls, Anemia, Nutrition

HOW TO CITE THIS ARTICLE: Jeyaprabha V, Nutritional Status among Adolescent Girls in Urban Slums of South Chennai and the Impact of Information, Education and Communication on Their Nutritional Knowledge and Practices, J Res Med Dent Sci, 2022, 10 (5): 99-102.

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Received: 04-April-2022, Manuscript No. JRMDs-22-53391;

Editor assigned: 06-April-2022, PreQC No. JRMDs-22-53391 (PQ);

Reviewed: 20-April-2022, QC No. JRMDs-22-53391;

Revised: 25-April-2022, Manuscript No. JRMDs-22-53391 (R);

Published: 02-May-2022

INTRODUCTION

Adolescence is originated from the Latin word adolescent meaning to grow into adulthood or maturity [1]. Adolescence is the phase of transition from the child to adult and is characterized by major physical, behavioral and psychological changes. In India, 20.07% of the total population is adolescents (10-19 years) i.e. more than 200 million. In India Adolescents represent over one fifth of population [2]. About one tenth of Indians is constituted by adolescent girls and they are one of the crucial segments in the communities of developing nations. Adolescent girls are worst hit by various forms of nutritional deficiencies and malnutrition due to their low social power and increased nutritional demands during the growing phases of life. Adolescent girls are future mothers and their nutritional status significantly contributes to the community's nutritional status [3]. The 2nd leading cause of morbidity and disability all over the world is anemia. India has recorded higher prevalence of anemia in adolescent girls compared to other developing countries of the world and the prevalence is on a rise [4]. Among the adolescent girls in rural areas prevalence of anemia is 51% which is slightly higher than urban adolescent girls (49%). India was

recently placed third in the global load of obesity. The National Family Health Survey round 4 (NFHS-4) has revealed that the prevalence of obesity among children including adolescents in India in the year 2016 was 2%, compared to 0.3% in the year 2000 [5]. In Tamilnadu, the percentage of persons in the age group of 15-19 years who were overweight or obese was 6.7% in girls [6]. On an average anemia prevalence is 25.6% and 24.9% for rural and urban adolescent girls in Tamilnadu.

MATERIALS AND METHODS

Study design

Cross-sectional descriptive study

Study area

The current study was conducted in the 6 urban slums (Vijayarapuram, Kannigapuram, Mettu kuppam, Sreedevi kuppam, Nerkundram, and Venkatesapuram) in Southern part of Chennai district, Tamilnadu.

Inclusion criteria

The inclusion criteria for the study were adolescent girls aged 10-19 years who are residing in the study area and willing to participate in the study were included.

Exclusion criteria

The exclusion criteria for the study were

- ✓ Critically ill adolescent girls.
- ✓ Those who did not give consent to participate in the study.
- ✓ Adolescent girls who were not been able to be contacted even after 2 visits were excluded.

RESULTS

Underweight was significantly associated with lower socioeconomic status (p value < 0.0001, OR-33.88), non- nuclear family type (p value 0.018, OR-1.70), larger family size (p value 0.0001, OR-2.36) and Kutcha type of house (p value <0.0001, OR-10.69) (Tables 1-3).

Table 1: Mean and standard deviation for selected variables.

S.No	Variable	Mean	Standard deviation
1	Age	14.6	3.4
2	Height	152.9	6.6
3	Weight	44.7	9.7
4	BMI	20.8	3.1
5	Hemoglobin	11.2	1.9

Table 2: Association between socio demographic variables and underweight (N-420).

S.No	Character	Total frequency	Underweight		P value	Odds ratio (95% CI)
			Yes (142)	No (278)		
Age						
1	10-14 years	148	48	100	0.659	0.90(0.59-1.39)
	15-19 years	272	94	178		
Socioeconomic status						
2	Middle class(lower middle)	51	47	4	<0.0001**	33.88(11.89-96.57)
	Lower class(upper lower, lower)	369	95	274		
Family type						
3	Nuclear	112	48	64	0.018*	1.70(1.09-2.66)
	Joint / Three generation	308	94	214		
Family size						
4	≤ 6	159	73	86	0.0001**	2.36(1.55-3.58)
	> 6	261	69	192		
Birth order						
5	≤ 3	194	62	132	0.457	0.85(0.57-1.28)
	> 3	226	80	146		
Mothers education						
6	< High school	320	102	218	0.134	0.70(0.44-1.11)
	≥ High school	100	40	60		
Mothers employment						
7	Yes	157	50	107	0.51	0.86(0.57-1.32)
	No	263	92	171		
Type of house						
8	Kutcha	166	106	60	<0.0001**	10.69(6.66-17.18)
	Pucca / SemiPucca	254	36	218		

*P-value< 0.05 is significant and p value<0.01 is highly significant

Table 3: Association between socio demographic variables and overweight /obesity (N-420).

S.No	Character	Total frequency	Overweight/Obesity		P value	Odds ratio (95%CI)
			Yes (75)	No (345)		
Age						
1	10-14years	148	42	106	0.0001**	2.86(1.72-4.77)
	15-19years	272	33	239		
Socioeconomic status						
2	Middle class(lower middle)	51	11	40	0.461	1.31(0.63-2.69)
	Lower class(upper lower, lower)	369	64	305		
Family type						
3	Nuclear	112	19	93	0.773	0.91 (0.51-1.62)
	Joint / Three generation	308	56	252		
Family size						
4	≤ 6	159	21	138	0.053	0.58(0.33-1.00)
	> 6	261	54	207		
Birth order						
5	≤ 3	194	30	164	0.236	0.73(0.44-1.22)
	> 3	226	45	181		
Mothers education						
6	< High school	320	73	247	0.0002**	14.48(3.48-60.1)
	≥ High school	100	2	98		
Mothers employment						
7	Yes	157	22	135	0.113	0.64(0.37-1.11)
	No	263	53	210		

Increased consumption of fast food						
8	Yes	257	65	192	<0.0001**	5.17(2.57-10.41)
	No	163	10	153		

* p value< 0.05 is significant and p value<0.01 is highly significant

Table 4: Association between socio demographic variables and anemia (N-420).

S.No	Character	Total frequency			Anemia	
			Yes (150)	No (270)	P value	Odds ratio (95%CI)
Age						
1	10-14 years	148	84	64	<0.0001**	4.09 (2.67-6.28)
	15-19 years	272	66	206		
Socioeconomic status						
2	Middle class (lower middle)	51	18	33	0.946	0.97 (0.53-1.80)
	Lower class(upper lower, lower)	369	132	237		
Family type						
3	Nuclear	112	36	76	0.357	0.80(0.50-1.27)
	Joint / Three generation	308	114	194		
Family size						
4	≤ 6	159	55	104	0.707	0.92(0.61-1.39)
	> 6	261	95	166		
Birth order						
5	>3	226	101	125	<0.0001**	2.391(1.576-3.627)
	≤ 3	194	49	145		
Mothers education						
6	< High school	320	108	212	0.133	0.70(0.44-1.11)
	≥ High school	100	42	58		
Mothers employment						
7	Employed	157	87	70	<0.0001**	3.94(2.58-6.02)
	Not employed	263	63	200		
Open air defecation						
8	Yes	107	102	5	<0.0001**	112.62(43.60-209.91)
	No	313	48	265		

* p value< 0.05 is significant and **p value < 0.01 is highly significant

Table 3 shows variables significantly associated with overweight/obesity were early adolescent age (p value 0.0001, OR-2.86), lower educational status of mother (p value 0.0002, OR-14.48) and increased consumption of fast foods (p value<0.0001, OR-5.17) (Table 4).

Table 4 shows anemia among adolescent girls was significantly associated with early adolescent age group (p value <0.0001, OR-4.09), higher birth order (p value<0.0001, OR-2.391), working mother (p value<0.0001, OR- 3.94) and open air defecation practice (p value<0.0001, OR - 112.62).

DISCUSSION

Among 420 adolescent girls, 44.5% belonged to 17 -19 years of age and only 18.8% were in 10 -13 years of age category. The mean age was 14.6±3.4 years. In the current study, Underweight is significantly associated with lower socioeconomic status, joint and three generation family types, larger family size and Kutcha type of house and overweight was associated with early adolescent age, educational status of adolescent girls, lower educational status of mother and increased consumption of fast foods. Jayatissa et al study done in Srilanka observed that Underweight was significantly associated with age and sex. Overweight was significantly associated with age

[7]. Compared to normal and underweight counterparts overweight and obese individual consumed more carbohydrates and less dietary fiber in previous study done in Italy [8]. In the current study, Anemia among adolescent girls was significantly associated with early adolescent age group, higher birth order, working mother and open air defecation practice. Whereas in Yerpude et al study done in south India significant association between anemia and menstrual cycle, history of menorrhagia and Body mass index was found [9]. Anemia was more in late adolescent girls and lower socioeconomic status adolescent girls in Chandrakumari et al study done at rural area of Tamilnadu [10].

CONCLUSION

Underweight is significantly associated with lower socioeconomic status, joint and three generation family types, larger family size) and Kutcha type of house. Anemia among adolescent girls was significantly associated with early adolescent age group, higher birth order, working mother and open air defecation practice. From the findings of the study, it can be concluded that the prevalence of under nutrition and over nutrition was high in the study area. The level of awareness among the study participants about diet, nutrition and

nutritional practice was lower than expected which is quite alarming. Though there are programs to address the nutritional status of adolescent girls there are few lacunae identified in this study. All these lacunae must be bridged by effective interventions.

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