



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health, Nutrition & Indigenous Medicine

231, de Saram Place, Colombo 01000, Sri Lanka

Tele: + 94 11 2695112, Fax: +94 11 2696583, E mail: epidunit@sltnet.lk

Epidemiologist: +94 11 2681548, E mail: chepid@sltnet.lk

Web: <http://www.epid.gov.lk>

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Childhood Obesity

Introduction

Obesity among children is a growing nutritional concern, specially in high income countries. In children under 5 years of age, obesity is defined as weight for height more than 3 standard deviations above the World Health organization (WHO) growth standard median. In children between 5 to 19 years, obesity refers to Body Mass Index (BMI= weight in kg/ height in meters²) for age more than 2 standard deviations above the WHO growth reference median.

However, weight measurement or calculating BMI do not determine the proportion of abdominal fat, which poses a significant health risk. To measure the body fat and lean mass, dual energy x ray absorptiometry, Magnetic resonance Imaging and body impedance techniques can be used. However, these techniques are costly and beyond the scope of population based survey.

Burden

Obesity is estimated to be affecting nearly 41 million children below 5 years of age in 2014. Nearly 170 million children under 18 years are estimated to be overweight. Prevalence of overweight and obesity is highest in upper middle income countries and lowest in lower income countries. However, prevalence is increasing in almost all countries where increment of prevalence rate is fastest in lower middle income countries. In fact, in Africa, population affected by obesity has doubled since 1990.

According to WHO region, in 2014, highest prevalence of obesity and overweight of 12% to 14% was seen in the European region. Lowest prevalence rate of 4% to 6% was seen in African, South East Asian and Western Pacific regions.

According to the world bank income group, countries with upper middle income have shown the highest prevalence of obesity of 7%.

Globally, number of obese children has increased from 32 million in 1990 to 42 million in 2013. It is estimated that if the current trend continues, there will be 70 million of obese children world wide in 2025.

Causes

Several factors contribute to produce obesity in childhood, among which most important are environmental factors and changes of behavior related to diet and physical activity.

Dietary factors begin to influence even before the birth of the child. Poor maternal nutrition can cause under nutrition in the child. Under nourished children in early ages who undergo change of dietary pattern in later life are at increased risk of becoming obese. Gestational diabetes mellitus of the mother causes increased fat deposition and foetal macrosomia, thus increasing the risk of obesity in the baby.

Food preferences are established in infancy. Poor dietary practices like consuming energy dense, high fat, high sugar, high salt containing food items like fast foods and processed foods

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lead the way to obesity. Lack of knowledge among care givers about healthy diet and poor affordability and availability of healthy food items provide the platform on which poor dietary practices are established. Apart from this, more advertising of fast foods and processed foods is also a contributory factor.

The other arm of behavioral factors is physical inactivity due to which children's energy expenditure has become less. Children spend more time in front of small screens (video games, mobile phones, computers and televisions) rather than outdoor playing. Being obese itself has become a limiting factor to playing outside which in turn increases body weight.

These behavioral influences tend to continue through generations. Children can inherit socio economic status, cultural norms which believe that obese children are healthy, family eating and physical activity behaviours which contribute to obesity and overweight.

On the other hand, there are several syndromes and disease conditions where body weight increases. Usually due to over nutrition linear growth increases along with body weight. Therefore, if the child is short and obese it is important to exclude other possibilities like Cushing's syndrome and hypothyroidism. In these conditions height velocity decreases and height remains static.

Consequences

Being obese itself is an adverse health outcome. Other than that obesity poses a lot of consequences of long term and short term effect.

Obese children can develop derangements in their bones and joints. Slipped Upper Femoral Epiphysis which is common in adolescent age group is particularly seen among obese children. Tibia Vara or bow legs, abnormal foot structure and function are also common in children who are obese. Obese children are also vulnerable to develop Idiopathic Intracranial Hypertension and Hypoventilation syndrome. Hypoventilation syndrome consists of daytime somnolence, sleep apnoea, snoring, hypercapnia and heart failure. Gall bladder diseases and Poly Cystic Ovarian Syndrome are among the other diseases common in obesity.

In the long run, obese children unless properly managed, grow into obese adults. Obesity which is also a component of metabolic syndrome, increases the risk of developing type 2 Diabetes Mellitus, Cardio Vascular Disease, Stroke, Hyperlipidaemia and Hypertension. On the other hand, obesity is a risk factor

for several malignancies such as Endometrial, Breast and Colonic carcinoma.

Not only the physical Sequelae, obesity is a reason for adverse psychological outcome. Obese children frequently get subjected to bullying and teasing among peers. This can lead to low self esteem and social isolation.

Prevention and treatment

There are several aspects to prevention of childhood obesity. Interventions to prevent obesity should be started from the preconceptional stage.

Nutritional interventions should be implemented with the target of reducing undernutrition in adolescent girls. It will help to replenish their nutritional stores as they proceed into pregnancy thus preventing undernutrition in their babies. Early diagnosis and treatment of gestational diabetes mellitus is also important to prevent nutritional derangements in their babies. Maintaining optimal preconceptional BMI and regular monitoring of gestational weight gain is also important.

Next most essential step is to establish healthy dietary practices in infancy and maintain them throughout the childhood. It is important to promote breast feeding in the initial stages followed by timely commencement of complementary feeding. Along with improving knowledge among caregivers about the adequate diet of less fat and more fruit and vegetable consumption, policies should be implemented at national level to increase the availability of healthy food items. Ensuring that only healthy foods, beverages and snacks are served in formal child care settings and institutions is also essential.

Promoting physical activities in children include encouragement of outdoor playing, including physical activities into school curriculum, providing facilities for outdoor games and reducing time spent in front of small screens.

Surgical and medical treatments are considered specially in children with extreme obesity.

Sources

World Health Organization official website

Ending childhood obesity available at http://apps.who.int/iris/bitstream/10665/204176/1/9789241510066_eng.pdf

Population based approaches to childhood obesity prevention available at http://apps.who.int/iris/bitstream/10665/80149/1/9789241504782_eng.pdf?ua=1

Compiled by Dr. S.A.I.K. Sudasinghe of the Epidemiology Unit

Table 1: Selected notifiable diseases reported by Medical Officers of Health 06th - 12th Aug 2016 (33th Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	347	11633	2	117	0	7	0	44	0	27	5	175	0	7	1	27	0	0	6	321	1	38	0	0	88	100
Gampaha	82	4471	1	97	0	11	1	20	0	25	3	233	0	12	0	29	1	1	2	261	1	33	0	7	33	87
Kalutara	44	2533	2	73	0	7	0	26	0	25	5	330	0	7	0	20	0	0	1	194	1	58	0	0	71	86
Kandy	127	2855	4	120	0	15	0	14	0	29	0	93	2	66	2	42	0	0	7	132	1	32	0	8	78	100
Matale	21	649	0	45	0	1	0	11	0	4	1	69	0	17	0	14	0	1	1	27	0	48	0	17	62	100
NuwaraEliya	13	316	2	69	0	1	1	43	0	15	2	41	1	57	3	31	0	0	2	94	1	32	0	0	92	100
Galle	49	1417	1	102	0	8	0	6	1	8	1	201	1	72	0	7	0	0	1	213	1	30	0	3	50	95
Hambantota	7	587	2	43	0	1	0	3	0	54	0	86	2	48	9	48	0	0	5	168	2	14	8	226	100	100
Matara	48	856	1	91	0	13	0	6	0	35	3	135	0	38	2	25	0	0	2	129	1	19	7	149	100	100
Jaffna	32	1613	14	186	0	3	1	64	0	51	0	10	5	573	0	8	0	0	5	132	2	40	0	1	83	92
Kilinochchi	3	64	0	31	0	0	0	34	0	5	0	12	0	24	0	0	0	0	0	10	0	10	0	0	25	75
Mannar	0	106	0	18	0	4	0	20	0	7	0	9	0	38	0	0	0	0	0	7	0	1	0	0	100	100
Vavuniya	3	190	0	11	0	3	3	74	1	31	0	12	1	10	0	6	0	0	0	23	0	8	0	6	75	100
Mullaitivu	2	144	0	23	0	2	0	17	0	39	0	23	1	6	1	2	0	0	0	15	0	6	0	4	80	80
Batticaloa	9	405	1	219	0	0	2	31	2	91	0	37	0	5	1	10	0	0	0	73	0	10	0	1	43	93
Ampara	0	188	0	37	0	1	0	0	0	20	0	24	0	0	0	8	0	0	1	107	0	4	0	5	29	86
Trincomalee	4	330	2	49	0	2	1	11	0	24	0	26	0	23	0	32	0	1	1	125	0	10	0	5	75	83
Kurunegala	55	1890	0	236	0	10	0	1	0	13	4	122	2	31	0	19	0	2	10	228	0	43	3	63	72	93
Puttalam	14	828	1	60	0	4	0	4	0	0	0	34	0	59	0	0	0	0	2	61	2	34	1	3	54	85
Anuradhapura	6	482	0	61	0	3	0	5	0	26	2	233	0	24	0	15	0	0	3	172	1	32	1	157	47	100
Polonnaruwa	5	342	1	27	0	3	0	10	0	12	0	81	0	1	0	2	0	0	1	83	0	14	0	95	43	100
Badulla	16	567	7	93	1	13	1	8	2	24	1	102	1	78	2	97	0	0	3	160	9	143	0	3	71	94
Monaragala	21	290	4	45	0	1	0	2	0	10	2	154	4	94	2	110	0	2	0	51	0	18	0	33	91	100
Ratnapura	44	2179	3	273	0	26	1	24	0	23	3	401	1	26	1	104	0	0	4	154	2	109	0	1	72	83
Kegalle	21	1044	0	64	0	18	1	26	0	47	1	144	0	23	0	18	0	0	3	223	2	38	1	2	55	100
Kalmune	1	394	2	62	0	3	0	5	0	43	0	14	0	0	0	3	0	4	5	63	0	18	0	0	54	100
94SRILANKA	974	36373	50	2252	1	160	12	509	6	688	33	2801	21	1339	24	677	1	11	65	3226	27	842	21	789	68	94

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 12th August, 2016. Total number of reporting units 339. Number of reporting units data provided for the current week: 324. C** -Completeness
A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

06th - 12th Aug 2016 (33th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2016	Number of cases during same week in 2015	Total number of cases to date in 2016	Total number of cases to date in 2015	Difference between the number of cases to date in 2016 & 2015
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	00	00	00	00	00	03	46	48	-4.1%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	01	00	03	00	01	00	00	00	00	05	06	266	250	+6.4%
Measles	02	00	00	00	00	00	00	00	00	02	56	312	1845	-83.0%
Rubella	01	00	00	00	00	00	00	00	00	01	00	07	07	0%
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Tetanus	00	00	00	00	00	00	00	00	00	00	01	07	13	-46.1%
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	12	07	+71.4%
Whooping Cough	01	00	01	00	00	00	02	00	00	04	00	45	57	-21.0%
Tuberculosis	119	19	15	03	04	27	05	09	15	216	291	6061	6429	-5.7%

Key to Table 1 & 2

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.
 RDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

Data Sources:
 Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,
 Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis
 CRS** =Congenital Rubella Syndrome
 AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

Dengue Prevention and Control Health Messages

Look for plants such as bamboo, bohemia, rampe and banana in your surroundings and maintain them

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk. **Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

Dr. P. PALIHAWADANA
 CHIEF EPIDEMIOLOGIST
 EPIDEMIOLOGY UNIT
 231, DE SARAM PLACE
 COLOMBO 10