Prevalence and Risk Factor Associated With Childhood under 10 Age Overweight and Underweight In Jigjiga Town

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Abstract: Introduction Underweight and overweight among children remains a serious problem in impoverished populations around the world it is estimated to be the underlying cause of one-third of all deaths of children at the age of five to ten years
Aim and objectives: To assess the prevalence and risk factors associated over and underweight for pre-school aged (5-10) in Jigjiga town.
Methodology:Across- sectional comparison study was conducted in study area to determine the prevalence and risk factor associated with overweight and underweight for pre-school age (5-10) in Jigjiga town.
Results: The prevalence of overweight and underweight in study area was 58% and 27% respectively also majority of precipitant had know the impact of under and overweight 79% where know the impact and 29% where not known the impact of under and overweight those who know the impact was in terms of health, economic, psychological and social impact and their percentage where 89%,11%, 12%, 8% respectively and the staple food of their child was animal source, plant source, and both their percentage was 4%,30%, 65% respectively also their meal per day was 3-4 times per day (94%) most physical activity that they perform was no activity the percent was 55% and the other thing which is next to no activity was those playing different things their percent was 14most of child they spend their time watching TV the percent was 47% lastly but not the least the rate of normal, over and underweight was 15% , 58% and 27%respectively.
Conclusion: We are concluding the present analysis shows that overweight and underweight rates in children are increasing not just among the higher socio-economic groups but also in the lower income groups where under- weight still remains a major concern.

Keywords: Malnutrition, Children, Mortality, Morbidity, Overweight, Risk factors, Underweight

INTRODUCTION

Background:

Under and overweight among children remains a serious problem imposing the populations. Around the world it is estimated to be the underlying cause of one-third of all deaths of Children below the age of five years [1]. Inadequate nutrition, especially in the first three years of life, has been shown to have serious Short-and mid-term consequences on physical growth and health as well as on mental Development [16] in the long term, undernourished children are more likely To suffer from functional impairments in adult life, resulting in substantial reductions of their Overall health, well-being and economic productivity [8]. Parallel to persistent under-nutrition, overweight rates are rising globally, including in many lowland middle-income countries with previously very low prevalence [18]. For several decades it has been assumed that obesity in low-income countries is a disease only of the higher socioeconomic strata [14].

However, a systematic review by suggests that overweight is increasingly common in lower socioeconomic groups in developing countries Overweight (BMI > 25kg/m2) in developing countries is particularly frequent in women, but still relatively rare in men [13]. Causes for rising obesity in developing countries are complex and theories regarding these are still only speculative, but life style changes, attitudes towards overweight and body image might play a role [2]. The Barker hypothesis suggests that nutritional deprivation in the womb and in early childhood might additionally increase the susceptibility to obesity and co-

morbidities such as type 2 diabetes and cardiovascular diseases in adult life [3].

High overweight rates are a particular concern in urban areas in low-income country settings while rural areas are often less affected [9]. [20] speculate that better living conditions, access to energy denser diets and less physical activity might explain higher prevalence of overweight in urban compared to rural areas in some low- and middle-income countries overweight and its related diseases threaten to overwhelm the healthcare systems of many low income countries that are already strained by the burden of infectious diseases and HIV/AIDS. Overweight could also present a tremendous economic burden that includes costs for lost work productivity due to morbidity and premature mortality [15]. Overweight and underweight have long been treated as two separate public health problems as different underlying factors have been assumed. The paradoxical coexistence of child under-nutrition and maternal overweight within the same household, often described as the dual burden of malnutrition', is a relatively new phenomenon that has been described in studies from low- and middle-income countries including Benin, Brazil, China, Haiti, Guatemala, South Africa, Malaysia and Mexico [17].

Comparing nationally representative surveys from 42 developing countries, [7] found the prevalence of dual burden households ranging from as low as 2 per cent in Ethiopia to as high as 71 per cent in Egypt. [4] found the phenomenon to be associated with urban residence and income levels in some countries. While the dual burden was significantly associated with urban residence and higher

income in China, Indonesia, Vietnam and the USA, they found a significant In East Africa 48% of children under five are affected by stunting [21]. In Ethiopia It is estimated that malnutrition contributes to an estimated 270,000 deaths of under-five children each year [6].

Many nutritional studies have demonstrated that malnutrition in Ethiopia is serious and 44% of children were stunted, 10% overweight and 29% underweight with wide regional variations, in Somali National Regional State stunting, overweight and underweight were found as 32%, 5.9% and 33.4%, respectively [6].

Statement of the Problem:

However, there is information available on the stated problem in Jigjiga we took a sample for certain kebeles like 05 kebele. This study is, therefore, aimed at assessing the information gab on nutritional status and associated factors among Children in Somali Regional State in Jigjiga town in 05 Kebele.

Overweight and underweight continues to be a public health problem in Jigjiga town. It is risk factor for the burden of disease causing about 300, 000 deaths per year directly and indirectly responsible for more than half of all deaths in children. Malnutrition at the early stages of life can lower child resistance to infections, increase child morbidity and mortality, and decrease mental development and cognitive achievement and nutritional status is the best global indicator of well-being in children Reducing underweight among childhood remains a huge challenge in Jigjiga council. An estimated 23,520 under-five children are believed to be chronically malnourished in Jigjiga council Similarly about 34% of deaths among children of this age group are believed to be associated with malnutrition in Jigjiga council.

Significance of the study:

- ❖ The study will generate information that may be useful to the personnel and other organizations related working in child health survival programs. The information could be useful in designing appropriate interventions to improve risk factors associated with childhood overweight and underweight thus mitigating child malnutrition in the target area and other similar areas.
- ❖ The study will contribute knowledge to ongoing research efforts on risk factors associated with childhood overweight and underweight
- ❖ The study will also contribute knowledge to the people living around 01 in Jigjiga town
- ❖ The study will also enable the policy makers to take action to correct this problem

Objectives:

General Objectives:

- ❖ To assess the prevalence and risk factors associated with childhood over and underweight in Jigjiga town

Specific objective:

- ➢ To assess the prevalence of children to over and underweight in 05 kebele
- ➢ To assess the risk factor associated with children under and over weight in 05

Kebele

MATERIALS AND METHODS

Study Area:

This study conducted in 05 kebele in Jigjiga town which is the capital city of Somali regional state. It is located east and lies between 9° 21' latitude N, 42°48' longitude" E of the country covers areas which have an elevation of 1609 m above sea level. The weather of the city is nearly hot and the temperature ranges 18^0C to 33^0C. Jigjiga is 630 km east far from the capital city, Addis Ababa. Jigjiga city is sub divided in to 20 kebeles. The study area was selected from these kebeles. According to National Census report of the Central Statistics Agency [8], the city has a total population of 276,818 of whom 148,862 are men and 127,954 are women; 151,232 (54.63 percent) are rural and 125,584 (45.47percent) are urban dwellers [8]. The dominant ethnic group living in the town was Somali (99.0%), the next 3 largest groups were the Amhara (0.25%), the Oromo (0.44%), and the Gurage (0.30%); all other ethnic groups made up 0.08% of the population. Various forms of Christianity (Orthodox, Protestant and Catholic), Islam and other beliefs are commonly practiced in the town. The main staple food is cereal based dishes, the dominant crop grown widely in the Jigjiga are maize, sorghum, rice, fruit, and vegetable.

Study Design:

Community based cross sectional study

Population:

The total population of the selected kebele of 05 is 11260. Of which 4122 is children of under our scope or our concern are found in our kebele

Sample Size Determination:

Since Jigjiga council contains 20 kebeles, we selected one kebele which is kebele 05 by simple random sampling and the sample size will be calculated using the following formula:
a) The level of confidence of the study 95%,
b) Margin of error is 5%
c) The proportion (P) is 52.4% which estimates the proportion of.
Accordingly, by using the following single population formula of the sample size

$$ni = \frac{(Z_{1-\frac{\alpha}{2}})^2 * p * (1-P)}{d^2}$$

$\dots \dots \dots \dots \dots$

Where:
ni = (1.95) 2 x 0.5(1- 0.5)
(0.05)2
d= marginal error = 0.05
P= prevalence rate = 0.524~ 0.5
$Z_{1-\alpha/2}$= confidence interval (95%) = 1.95
Nf=ni*N/ni+N
Where Nf= exact sample size
ni= calculated sample size
N= sample population

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Nf=ni*N/ni+N=380*4122/380+4122=1566360/4122=347=3
47*35/100=121
Total sample size =calculated sample size+10%
(contingency)
=121+12
=133

Inclusion and Exclusion Criteria:

Inclusion Criteria:

All children whose age under 10 age who are permanent resident in the Jigjiga town

Exclusion Criteria:

All children whose age under 10age who are not permanent resident in the study area will be excluded and those children who are critical ill and also those who are special needs who live in the study Area

Sampling Procedure:

Systematic random sampling (interval sampling means that there is a gap or interval between each selected unit in the sample) will employed to select study participants from the source population and, List of the children10 of age which systematic random sampling is employed will be obtained from 05 Kebeles and then sample representative will be chosen by K interval method.

Instruments and Data Collection Procure:

Instrument:

Data will collected by using primary data the Primary data will be collected structured questionnaire (is the formalized set of questions for obtaining information from respondent) the questionnaires will be first prepared in English language and then translated to Somali language. Data collection carried out will be by the researchers then the questionnaires back to again into English.

Study Variables:

Dependent Variable:

The risk prevalence of under and overweight child hood

Independent Variables:

Socio-demographic Factor**s**- age, residence, educational status of the mother, and husbands, occupation and monthly income and knowledge of their BMI, and food habit in each meal and number of the family members.

RESULT AND DISCUSSION

Result:

Socio-Demographic Variables:

Socio- economic and demographic characteristics of the parents/caregivers of the133 parents 17.8% were ≤19 years, 53.0% were 20- 35 years while 29.2% were >35 years old.

Majority of the parents (82.2%) were adults above 20 years. Most of the parents (79%) were married, while (3%) were widowed, (18%) were divorced or separated and 24% of the parents had attained Primary school education. (17%) of the parent had attained secondary schools 13.7% of the parents had attained diploma level (9%) of the parents had attained degree level 43% of the parents had attained informal education (23%) of the parents had no attained both formal and informal education Majority of the households (62.6%) had a family size of 3 – 4 people small proportion of the households (9.1%) had family sizes of 1–2 people, 20.1% had family sizes of 5 – 6 people while only 8.2% of the households had large families of more than 6 people 21% of the parents were daily labor and (25%) were businesswomen and 45% of the parents/guardians were house wife only 45% of the parents earned incomes ranging from 2000- 3000 while 12% earned incomes above 3000 This income distribution indicated that, 39.0% of the parents/guardians earned incomes that were equivalent or less than the minimum government wage of 2500 per month the majority of the households (71.3%) were headed by men while the rest were headed by females.

Table 1: Socio economic characteristics of the students' parents/guardians (n = 133)

S/N	Questions	Parameters	Frequency	Percent (%)
Q1	What is your age?	1. 20-30	99	74.4
		2. 31-40	31	23.3
		3. Total	133	100%
Q2	What is your ethnicity?	1. Somali	93	69.9
		2. Amhara	35	26
		3. Oromo	13	9.7
		5. Total	133	100%
Q3	What is your religion?	1. Muslim	102	76.6
		2. Orthodox	28	21
		3. Protestant	6	4.5
		5. Total	133	100%
Q4	Have you ever attend	1. Yes	58	43.6
	Informal school?	2. No	82	82

			3. Total	133	100%
Q5	Have you ever attend		1. Yes	72	54
	Formal school?		2. No	61	45.8
			3. Total	133	100
Q6	If you attend what is the highest grade you completed		1. Primary school	32	24
			2. Secondary school	23	17
			3. Diploma	18	13.5
			4. Degree	9	6.7
			5. Total	82	**100%**
Q7	What is your current marital status		1. Married	105	79
			2. Divorced	24	18
			3. Widowed	4	3
			5. Total	133	100%
Q8	What is your current occupational status		1. Business	33	25
			2. Daily labor	28	21
			3. House wife	60	45
			4. Other	7	9
			5. Total	133	100%
Q9	How many children did you have		1. One	31	23
			2. Two	67	50
			3. Three	29	22
			4. More	16	12
			5. Total	133	100%
Q10	What is your average monthly income under the age of 10 year		1. 1000 birr/month	8	6
			2. 2000 birr/month	50	38
			3. 3000 birr/month	59	44
			4. More	16	12
			5. Total	133	100%

The Prevalence and Risk Factors Associated With Underweight and Overweight:

The majority of this study participants had known underweight and overweight and most of them had gotten this information from TV, radio, kebele and others and their percentage where 39%,8.5%,24% and 29% respectively also majority of precipitant had know the impact of under and overweight79% where know the impact and 29% where not known the impact of under and overweight those who know the impact was in terms of health, economic, psychological and social impact and their percentage where 89%,11%, 12%, 8%respectivelyand the staple food of their child was animal source, plant source, and both their percentage was 4%,30%, 65% respectively also their meal per day was 3-4 times per day (78%) most physical activity that they perform was playing the percent was 55% and the other thing which is next to playing was those watching TV the percent was 47% lastly but not the least the rate of normal, over and underweight was 15% ,58% and 27%respectively.

Table 2: Questions prepared to assess the prevalence and risk associated over and underweight

S.No	Questions	Parameters	Frequency	Percent %
1	Did you know overweight and under weight	1. Yes	133	100
		2. No	0	0
		3. Total	133	100
2	If yes Where did you hear from	1. TV	52	39
		2. Radio	10	8.5

		3. Kebele	32	24
		4. Others	39	29
		5. Total	133	100%
3	Did you know that under and overweight has impact	1. Yes	105	79
		2. No	28	21
		3. Total	133	100%
4	If yes what can of impact did you know	1. Health impact	118	89
		2. Economical impact	15	11
		3. Psychological impact	16	12
		4. Social impact	11	8
		6. Total	133	100%
5	Did you know that overweight and underweight are, increase child Morbidity and mortality, and decrease mental development	1. Yes	74	56
		2. No	59	44
		3. Total	133	100%
6	Did you know the basic cause of under and overweight	1. Physical inactivity	31	23
		2. Economical	15	11
		3. Food habit	91	68
		5. Total	133	100%
7	What is your child staple food	1. Animal source	6	4
		2. Plant source	40	30
		3. Both	87	65
		4. Total	133	100%
8	If its animal source what kind of source does your child eat	1. Animal meat	74	56
		2. Fish meat	0	0
		3. Milk and milk products	0	0
		4. All	59	44
		5. Total	133	100%
9	If its plant source what kind of plant does your child consume	1. Cereal	46	35
		2. Fruit and vegetable	7	5
		3. Green plant	5	4
		4. All	75	56
		5. Total	133	100%
10	How many times does your child have meals per day (including snacks)?	1. One meal per day	3	2
		2. Two meal per day	100	75
		3. Three meal per day	25	19
		4. Four meal per day	5	4
		5. Total	133	100%
11	What type of physical activity does your child perform	1. Walking	27	20
		2. Playing	73	55
		3. No activity	19	14
		4. Other(specify)	14	11
		5. Total	133	100%
12	Which transport does your child use	1. Car	12	9
		2. Bajaj	37	28
		3. Other(specify)	84	63

		4. Total	133	100%
13	How does your child spend their free time	1. Reading books	15	11
		2. Watching TV	63	47
		3. Computer	2	2
		4. Playing games	27	20
		5. Total	133	100%
14	Did you know weight and height of your child	1. Yes	94	71
		2. No	34	26
		3. Total	133	100%
15	If yes your child BMI is	1. Normal	20	15
		2. Over weight	77	58
		3. Under weight	36	27
		4. Obese	0	0
		5. Total	133	100%

DISCUSSION

The study has shown prevalence of overweight among girls and boys in kebele 05 were higher than that of their underweight. Prevalence for overweight among girls was slightly more than that of boys in kebele 05. The proportion of overweight, normal and underweight as indicated the result (Table 1) were 58%, 27 and 15% respectively.

The proportion of overweight (6 - 9 years) in kebele 05 was (63.8%) and that of underweight in same age group in kebele 05 was (29%, n =133)What makes the prevalence of overweight higher than that of underweight was certain factors including meal in take per day because of most of meal intake of 05 kebele children was four meal per day in other word (57% n=133) have more than three meal per day the other factor which is next to meal intake per day is physical activity the children in 05 kebele the number of child who does not perform physical activity was (67% n=133) and the transportation they use is car also income is the factors affecting the prevalence of overweight and underweight the number of house hold which is their income generate above 3000birr is (71% n=133) the size of the family has maximum of 3-5 members including mom and dad's the when we compare that of other papers it was Childhood over and underweight has reached epidemic proportions in the 21St century with rising rates in both developed and developing countries [6]; [19]. Lifestyle transition and socio-economic improvement have contributed enormously to the escalating problem of overweight and overweight among children in developing countries [10]. Socio- economic and demographic factors such as parental education level, age and income have been associated with the increasing prevalence of overweight and obesity among children in low- income countries [10]; [14]. Majority of parents in this study (60.9%) had attained only primary school education while only a few had attained post- secondary vocational training (5.7%) or university education (3.5%). A study conducted in Canada [5] showed that, children who lived in communities with high unemployment rates, low family income or low educational levels were at a greater risk of being overweight or obese.

[12] reported that, the proportions of adult women and men who were overweight (BMI > 25) were inversely related to household income and education level. Families like those of office employees and the businessmen/women may have high income and could afford to purchase nutritious foods, however, due to low education level in nutrition they may decide to purchase foods that are high in energy and low in essential nutrients. Since all members share the food Purchased by the family, children are more likely to be affected by the high fat, high calorie Foods than other members of the family In addition; parents have a strong influence on the Nutritional status of their children since they are the food providers and the role models for the children. Parental monitoring reduces the number of less- nutritious food items chosen and the overall amount of energy taken [11]. Dietary intake Patterns within the family determine the nutritional status of both children and parents. It has been demonstrated that, children of obese parents normally consume a higher Proportion of energy from fat than do children with none - obese parents [3].

The prevalence of underweight in this age group in Indonesia also decreased over the period of the survey, to 21.4% at wave 4. A recent review of the prevalence of moderate to severe under- weight in children under five in Asian countries showed marked variations in prevalence ranging from 8.0% in China, 11.0% in Malaysia, 18.0% in Thailand, 28.0% in the Philippines, to 47.0% in India and 48.0% in both Nepal and Bangladesh [11]. The prevalence of under-weight in under-five children in Mexico, Guatemala, and Colombia are 2.8%, 1.0%, and 3.4%, respectively [5]

CONCLUSION

The present analysis shows that overweight and underweight rates in children are increasing not just among the higher socio-economic groups but also in the lower income groups where under- weight still remain as a major concern. This suggests the need for a balanced and sensitive approach addressing economic and nutrition transitions to effectively tackle this double burden paradox in Jigjiga town. In addition to useful experiences and observations made during

the field work, the results presented in this study generated several issues that warrant further evaluation we noticing the Governmental and NGO's and other organizations to solve or bring a solution that government strategic programs are effective in addressing underweight and overweight children in Jigjiga town.

ABBREVIATION

WHO ……………………….. World health organization
IYCF ………………….....….Infant and young child feeding
EDHS …………………….   Ethiopian demographic health survey
FMOH ………………….......…Federal ministry of health
CSA ……………………   Central Statical agency
KM ………………………Kilo miter
UNICEF ………… ……….   United Nations International Children's Emergency Fund
CSA…………………………Central statically agency

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REFRENCE

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