Prevalence and Determinant of Stunting among Children aged 6-59 Months Old in Gondar Zuria Woreda, North West Ethiopia

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Abstract: Globally, four children die in every minute, one child in four children is stunted in the world and four in every 10 children in sub-Saharan Africa are stunted due to malnutrition. Stunting is one of the public health problems results in linear growth retardation and results from inadequate intake of food over a long period of time. In Ethiopia in general and Amhara region in particular, stunting is one of nutritional problems that affect child survival. The objective of this study is thus to examine the prevalence and determinant of stunting among children aged 6-59 months in Gondar Zuria Woreda, North West Ethiopia. In this study a cross-sectional community based research design was used. The respondents were mothers with infants 6-59 months. A total of 590 children from 6-59 months age were selected using multi-stage sampling technique. Data on stunting children were collected by measuring the height of all children age 6-59 months. Pre-tested structured questionnaire and anthropometric measurement were used. Data were analyzed using descriptive statistics: percentage and frequency table. Moreover, inferential statistics: bivariate analysis was used to see the degree of association between dependent and independent variables and binary logistic regression was used to see the determinant factors influencing stunting among children aged 6-59 months. The result revealed the proportion of stunting among children is relatively high (48 percent). The logistic regression result revealed child age, family monthly income, child received pre-lacteal feeding and maternal educational status were found to be significant predictor stunting. The finding suggests stunting among children 6-59 months is multi-dimensional and highly prevalent which continue to be a public health burden in the study area. Thus, a coordinated effort to improve the nutritional status of children by all concerned bodies needed to overcome the overridden problems of stunting among children age 6-59 months.

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Introduction

Under nutrition among children aged 6-59 months is a problem in developing countries and is considered as an important factor for illness and death, attributable to more than half of the deaths of children worldwide (Gelano T.F et al., 2015). It also poses risk to their physical and mental development, suppressing body immune system, increasing risk of non-infectious and transmissible diseases, reducing productivity and other negative social and economic consequences on individuals, households, societies and nations which result in poor level of educational achievement (Pelletier, D.L., 2006).

Globally, many children under the age of five are stunted for their age (UNICEF; WHO; World Bank, 2015). About 90% of child deaths occur in 42 countries and 25% of deaths occur before the age of five in the poorest countries (J. Rajalakshim and Getabelew, E, 2015). The major cause for this tragedy situation is under nutrition. Almost 60% of deaths of under-five children in the developing world are due to malnutrition and its interactive effects on preventable diseases. It also the cause of global burden of disease, disability, and mortality among infants and children, more commonly in sub-Saharan Africa and South Asia, particularly among those living in circumstances of extreme poverty (J. Rajalakshim and Getabelew, E, 2015).

In every minute four children die because of under nutrition, one in four is stunted in the world and four in every 10 children are stunted in sub-Saharan Africa because of lack of nutritious food. That is a total of more than 56 million children (UNICEF, 2013). Each year about 13 million infants and children under-five years of age die in developing countries and most of these deaths can be related to under nutrition (WHO, 2013).

In developing world, under nutrition is responsible for nearly 3.5 million deaths of under-five mortality, 35% of disease burden in this age categories

and 11% of the total global disability adjusted life years lost was accounted due to under-nutrition (Muller, O. and Krawinkel, M. 2005).

In Ethiopia, even though there is some success in the reduction of prevalence of under nutrition among under-five children, still the prevalence is high (Gelano, TF et al., 2015). Ethiopian mini Demographic and Health Survey of 2014 showed that prevalence of stunting among under-five children was 40%. Moreover, in Ethiopia under-nutrition is an important contributing factor for the death of 51% of all deaths before age of five (Cherinet, A., 2010; CSA, 2014).

This study find out the prevalence and the determinants of stunting among children aged less than five years in Gondar Zuria Woreda. Hopefully, the study addresses the determinants of stunting and challenges behind the problems. It may also serves as an important tool for interventions aimed at improving the nutritional status of under-five children. Findings of this study are also expected to provide baseline data for policy and program designers to develop evidence based child nutritional interventions. Thus, the main objective of this study is to examine the prevalence of stunting and its associated factors among children aged 6-59 months in Gondar Zuria woreda, North West Ethiopia.

Methods and Materials

Description of the Study Area

This study was conducted in Gondar Zuria woreda. Gondar Zuria woreda is located in North Gondar Zone of Amhara Region. According to the 2007 population and housing census, Gondar Zuria woreda have 38 kebeles (two urban and 36 rural kebeles) with a total .

population of 215,864 of which 109,795 are men and 106,069 are women. In addition, the total number of children aged 6-59 months in the kebele estimated about 39,816 (CSA, 2008).

Study Design

In this study a community based cross-sectional study design was used to assess the prevalence and determinant factors of stunting among children aged 6-59 months.

Source Population

The source population of this study was all children aged under-five years in Gondar Zuria woreda.

Inclusion and Exclusion Criteria

Children under-five years of age and mothers (caretakers) who resided in the study area are included in this study. However, critically sick and deformed child, mothers/caretakers with mental illnesses, communication problems or other severe conditions was excluded from the study.

Sampling Procedure and Sample Size Determination

Multistage sampling technique was employed to select study subject. From the 38 rural Kebeles, 7 kebeles was selected randomly using simple random sampling technique. Individual households in the selected kebele were selected using a systematic random sampling technique and the households from the selected kebele were determined using proportionate-to-population size. The study subject in the selected household was interviewed and measurement of anthropometric indices was done. For households with more than one study

subject, only one was selected using lottery method. If the selected household was closed during data collection, but if it was known that there were eligible children, the interviewers revisit the household three times at different time intervals and if the eligible children from the selected household were not available, the household was excluded from the survey and replaced by the next nearest household. Based on this a total of 590 children were selected.

Methods of Data Collection

Primary data was collected using structured questionnaire and anthropometric measurement tools. The questionnaire was first prepared in English then translated into Amharic (local language). Seven data collectors who were able to communicate the local language were recruited from health centers and health posts in the woreda. Training was provided for data collectors and supervisor for one term 2 times per day. Moreover, anthropometric data was collected using the procedure stipulated by the WHO (2006) for taking anthropometric measurements. Before taking anthropometric data for children; their age should first determine in order to ensure the target population. A local event was used to establish the birth period. If age cannot be determined accurately a height of 65-110 cm is considered as proxy indicators.

Height measurement: Body length of children age up to 23 months were measured without shoes and the height was read to the nearest 0.1cm by using a horizontal wooden length board with the infant in recumbent position. However, height of children 24 months and above was measured using a vertical wooden height board by placing the child on the measuring board, and child standing upright in the middle of board.

Edema was checked and noted on data sheet because a child with edema was severely malnourished. In order to determine the presence of edema, normal thumb pressure was applied to the two feet for three seconds whether a shallow print or print remains on both feet when the thumb was lifted. To identify retrospective morbidity of children, mothers

were asked about any occurrence of illness during the past two weeks and one year for measles.

Variables of the Study

Dependent Variable

The dependent variable for this study was stunting. It is a dichotomous variable which takes 1 if the child is stunted or 0 otherwise.

Independent Variables

Many variables are expected to affect stunting among children aged 6 to 59 months. Review of literature and the researcher observation were used to identify the potential determinants factors of stunting. The major variables expected to have influence on stunting are listed below.

Socio-economic and demographic variables: head of household, marital status, ethnicity, religion, family size, income, education, and occupation.

Child characteristics: age, sex, birth order, place of delivery, gestational age, immunization, vitamin A supplementation, diarrhea and frequency of diarrhea.

Maternal and child caring practices: age, number of children ever born, ANC visits, health status during pregnancy, use of extra food during pregnancy and lactation, autonomy in decision-making on use of money, child feeding, level of dietary diversity.

Environmental health condition: water supply, sanitation and housing condition.

Data Processing and Analysis

Code was given to the completed questionnaire, cleaned manually and then data was entered using EPI info version 3.5.3 statistical software and then sex, age, and height transferred with edema to ENA for SMART 2011 software to convert nutritional data into Z-scores of the index; H/A using reference WHO standard and analyzed using SPSS version 16 statistical package. Tables, frequencies and percentage were used to describe the background characteristics of the respondents. In addition, bivariate analysis was used primarily to see the association between dependent and independent variables. Then, variables found to have association with the bivariate analysis was exported into multivariate analysis and run binary logistic regression and finally the variables which have significant predictor of stunting was identified using odd ratio with 95% CI and p-value of 0.05. Those variables with p-value of less than 0.05 in the multivariate analysis were considered as significant predictor of stunting.

Results

Demographic and Socio-Economic Characteristics

Table 1 presents percent distribution of the demographic and socio-economic characteristics of respondents. From the total 590 study subjects complete response was obtained from 581 (98.5%). Among the total respondents 92.4% household headed by male and the remaining 7.6% are female headed. All of the respondents were Amhara ethnic group and 99% were Orthodox. Of the total respondents 62.5%had 5 and above family size while 37.5% of households have less than five family size. In addition, 66%households had one under-five child but the remaining 34% had two and above under-five years children, respectively. Concerning educational status, 58.7%and 66.4% of father and mother were illiterate, respectively. About 95.2% and 91.6 %fathers and mothers, respectively were farmer and house wife. Of the total respondents 73.7% of households earn monthly income of less than 600 Birr.

Table 1. Demographic and socio-economic characteristics of children families in Gondar Zuria Woreda

Variable	Frequency	Percent
Head of HH		
Male	537	92.4
Female	44	7.6
Religion		
Orthodox	575	99
Muslim	6	1
Others	0	0
Ethnicity		
Amhara	581	100
Others	0	0
Family size		
<5	218	37.5
>5	363	62.5
Number of Under-five children in the HH		
One child	385	66.3
Two and above	196	33.7
Maternal Education		

Variable	Frequency	Percent
Can't read and write	374	66.3
Can read and write (informal)	161	27.7
Primary Education	31	5.3
Secondary Education and above	15	2.5
Paternal Education		
Can't read and write	345	64.24
Can read and write (informal)	184	34.26
Primary Education	4	0.74
Secondary Education and above	4	0.74
Occupation of Mother		
Housewife	553	95.2
Student	23	4.0
Merchant (trade)	5	0.8
Occupation of Father		
Farmer	509	94.78
Student	14	2.6
Merchant (trade)	11	2.0
Government worker	3	0
Monthly income of the Household in Birr		
< 600	428	73.7
>600	153	26.3

Source: Field Survey, 2016

Children Characteristics and Caring Practice

Table 2 presents percent distribution of children characteristics and caring practice. From the total children 52% and 48% were male and female, respectively. Concerning child age 21.2% were between 6-11 months and 20.3% were among 48-59 months. On other hand, 56.6% of children were born at home, 85% of children were immunized and 83% got vitamin A supplementation. In addition, 69.7% of children faced diarrhea at different level of frequency.

Table 2. Children characteristics and caring practices in Gondar Zuria Woreda

Variable	Frequency	Percent
Child Sex		
Male	302	52.0
Female	279	48.0
Child's age in month		
6-11	123	21.2
12-23	117	20.1
24-35	115	19.8
36-47	108	18.6
48-59	118	20.3
Place of delivery		
Home	328	56.4
Health institution	253	43.5
Gestational age at birth		
<9 month	26	4.4
At 9 month	525	90.3
>9 month	30	5.1
Child ever been immunized		
Yes	487	83.82
No	94	16.18
Vitamin A supplementation in the past six months		
Yes	405	69.7
No	176	30.3
Diarrhea		
Yes	405	69.7

No	176	30.3
Frequency of Diarrhea		
1episode	217	37.3
2 episode	180	30.9
3-4 episode	157	27.0
>5 episode	27	4.6
Birth Order		
1-2	210	36.3
3-4	211	36.3
>5	160	27.5

Source: Field Survey, 2016

Maternal Characteristics and Child Caring Practice

Table 3 presents percent distribution of maternal characteristics and child caring practice at Gondar Zuria Woreda. The result revealed that 38.5%practiced breastfeeding immediately after birth but majority (42.9%) were taken after one day. In addition, 59.6% received pre-lactation food or fluids; out of which 34.5% used butter as a pre-lacteal food/fluid and 64% were started complementary food at less than six months. In case of breast feeding majority (39.9%) fed their child <8 times per day and concerning methods of feeding 44.4% fed their child with cup. Besides, the duration of breast feeding varies however majority (42.2%) of the respondents practiced breastfeeding with age range of 25-36 months.

Table 3. Maternal characteristics and child caring practice in Gondar Zuria Woreda

Variable	Frequency	Percent
First put the child on Breast feeding		
Immediately	224	38.5
1-24 Hours	108	18.6
After one day	249	42.9
Child received Pre-lactation food		
Yes	235	40.4
No	346	59.6
Kinds of Pre-lactation food/fluid		
Water	32	5.5
Butter	200	34.4
Others	3	0.5
No	346	59.5
Age complimentary food started		
<6 month	373	64
At 6 month	208	36
Complimentary food in the last 24 hours in addition to BF		
Yes	453	77
No	128	22
Frequency of Breast milk per day		
< 4 times	165	28.3
4-6 times	105	18.0
6-8 times	232	39.9
9-12 times	79	13.5
Methods of feeding		
Bottle	100	17.2
Cup	258	44.4
Spoon	23	3.9
By hand	200	34.4
Duration of breast feeding		
6 months	51	8.7
7-12 months	103	17.7
13-24 months	162	27.8
25-36months	246	42.2
37 months and above	19	3.3

Source: Field survey, 2016

Environmental Health Characteristics

Table 4 presents percent distributions of environmental health characteristics of the households. Accordingly, the result demonstrated that most of households used unprotected spring (38.8%) and river (34.3%) as the main source of drinking water. In addition, majority (78.3%) of the households required more than 30 minutes to fetch water and 43.9% of households were consumed an average of 25-40 liters of water per day. Regarding treatment of drinking water majority (80.4%) of households did not treat water and 90.7% of households had wooden slap of latrine and 73.5% households washed their hand before preparing food and 60.8%% of the household did not used any materials to clean their hands. With reference to waste disposal system, majority (77.3%) of households disposed their garbage in the open field.

Table 4 Environmental health characteristics of households in Gondar Zuria Woreda

Variable	Frequency	Percent
Source of drinking water		
River	200	34.3
Un protected spring	226	38.8
Protected spring	120	20.6
Public tap	35	5.9
Water consumption per day		
< 20 litters	240	41.3
25-40 litters	255	43.9
>40 litters	86	14.5
Time to fetch drinking water		
<15 minutes	44	7.6
15-30 minutes	82	14.5
>30 minutes	455	78.3
HHs treat water by any means		
Yes	114	19.6
No	467	80.4
Time to wash hands		
After latrine	47	8.1
Before preparing food	427	73.2
Before serving food	84	14.4
After cleaning child fasces	23	3.9
Materials used to wash hands		
Using water only	353	60.8
Using soap some times	150	25.8
Using soap always	78	13.4
Method of garbage disposal of HHs		
Open field disposal	449	77
High land	17	2.9
River	7	1.2
Compost	72	12.3
Burning	36	6.2
Availability of latrine		
Yes	556	95.6
No	24	4.1

Source: Field Survey, 2016

Prevalence of Stunting among Children aged 6-59 months

The study revealed the prevalence of stunting in the study area was about 48%. The highest prevalence of stunting was found in male children than female (the value of prevalence analysis by using ENA software). Comparing stunting with different age groups, the highest prevalence of stunting was among children age 24-35 months followed by children aged 36-47 months. However, the lowest prevalence of stunting was observed among children aged 6-11 months.

Bivariate Analysis between stunting and the different independent variables

Table 5 revealed the association between dependent variable (stunting) and the different independent variables. The result showed that there was no significant association between stunting and head of households (p=0.369), family size (p=0.708), number of children at age of 6-59 months (p=0.417), educational status of father (p=0.244), decision making (p=0.353), presence or absence of agricultural land (p=0.120), place of delivery (p=0.564), child took vaccination (p=0.862), child took vitamin A (p=0.137), time to wash hand (p=0.608), mothers age at first birth (p=0.714), age of complimentary feeding (p=0.113), source of drinking water (p=0.374), types of house (p= 0.584), while the rest are associated with stunting and presented in table 5.

Table 5 Association between stunting and independent variables

	Stunting			
Predictor Variable	**Yes**	**No**	χ^2	**P-value**
Child Sex				
Male	145	157	21.918	0.021**
Female	134	145		
Child Age group				
6-11	19	140		
12-23	56	61		
24-35	83	32	49.220	0.000***
36 and above -47	121	95		
Family monthly income				
<550	168	108		
600-800	98	170	32.568	0.000***
>800	13	24		
Feeding during pregnancy				
Yes	203	59	29.654	0.010***
No	76	243		
Pre-lactation feeding				
Yes	67	253	12.456	0.000***
No	212	49		
Maternal education				
Have formal education	253	282	13.543	0.000***
Have no formal education	26	20		
Birth order				
1st	104	106		
2nd	96	115	32.651	0.000***
3rd	80	80		
Duration of Excusive breast feeding				
< = 12	32	121		
13-18	30	35	78.325	0.000***
>18	217	146		

Source: Field Survey, 2016 and significant at *p<0.1, **p<0.05 and ***p<0.01

Table 5 illustrated that there is a significant association between stunting and sex. Accordingly, males were more affected than females and the difference was statistically significant at (χ^2 = 21.918, P< 0.05). Concerning child age, children from 6-11 months were less likely to be stunted and those age group between 24-35 months were highly vulnerable than others and the difference was statistically significant at (χ^2=49.220, 0.000). Study participants who were in the low income category are exposed to stunting and the difference was statistically significant at (χ^2 =32.5, P< 0.01). Similarly, those children who took pre-lactation feeding were more likely to be stunted than others and the association is significant at (χ^2= 12.456 p< 0.01). As far as mother educational status, children from illiterate mother were more likely to be stunted than literate and the difference was statistically significant at (χ^2= 13.543, p< 0.01). Furthermore, children birth order also related to stunting, as birth order increase the probability of being stunted decreases and statistically significant at (χ^2= 32.568, p< 0.01).

Determinant of Stunting

A binary logistic regression was used to identify the determinant factors influencing stunting. Results from the logistic regression show that stunting was

determined by child sex, age, family monthly income, maternal education, and frequency of diarrhea, birth order and feeding habit during pregnancy and during lactation, children who received pre-lacteal were significantly associated with stunting. But, after controlling for possible confounders, the result of multivariate analysis reveals that only child age, family monthly income, pre-lacteal feeding and maternal educational status were statistically significant determinant of stunting.

The model result revealed children age 12-23 months were 1.7 times more likely to be stunted than the reference category (AOR=1.78; 95%, CI=0.047-0.677). In addition, children whose household monthly income 600-800 Birr were 1.4 times more likely to be stunted compared to their counterparts (AOR=1.482; 95%, CI=0.487-4.516). Pre-lacteal feeding considered as a predictor of stunting, the result revealed children who fed pre-lacteal 2.8 times more likely to be stunted compared to children who were not received pre-lacteal feeding by their mothers/care taker (AOR=2.83; 95% CI=14.9-54.090). Moreover, maternal education is considered as an important predictor of stunting and the result revealed children who were from illiterate mother were 3 times more likely to be stunted compared to the reference category (AOR=3.022; 95% CI= 0.76-11.89).

Table 5 Determinant of stunting among children age 6-59 months in Gondar Zuria Woreda

Explanatory variable	Stunting Yes	No	COR (95%CI)	AOR (95%CI)	Sign.
Child Sex					
Male [RC]	145	157	1	1	
Female	134	145	0.999(0.722-1.384)	1.869(1.066-3.277)	0.406
Child Age					
6-11 [RC]	19	140	1	1	
12-23	56	61	5.025(2.734-9.238)	1.78(0.47-0677)	
24-35	83	32	14.197(7.511-26.838)	0.882(0.379-2.050)**	
36-47	31	47	7.104(3.823-13.200)	1.674(0.761-3.683)	0.01
48-59	60	58	5.662(3.084-10.398)	1.284(0.586-2.812)**	
Family Monthly Income					
<550	168	180	0.371(0.262-0.524)	5.655(1.806-17.703)	
600-800	98	107	0.348(0.170-0.713)	1.482(0.487-4.516)**	
>800 [RC]	13	24	1	1	0.003
Feeding During Pregnancy					
Yes	203	59	0.91(0.62-1.34)	0.060(0.32-0.114)	
No [RC]	76	243	1	1	0.043
Pre-lactation fluid/food for child			8.456	0.000	
Yes	67	253	16.337(10.830-24.646)	2.8394(14.904-54.092)***	
No [RC]	212	49	1	1	0.000
Maternal education					
Have formal education [RC]	253	282	1	1	
Have no formal education	26	20	1.449(0.790-2.659)	3.022(0.76-11.89)***	0.000
Frequency of diarrhea					
>3 episodes [RC]	153	143	1	1	
<3 episodes	126	159	3.273(0.324-33.035)	0.494(0.264-0.925)	0.689
Birth order					
1st [RC]	104	106	1	1	
2nd	115	115	0.81(0.555-1.198)	2.631(1.277-5.432)	
3rd	80	80	1.032(0.684-1.556)	1.233(0.133-1.192)	0.754

Source: Model Output, 2016 Significant: ***p<0.001, **p<0.01, p<0.05

Discussions

The multivariate analysis indicated that child age, family monthly income, feeding during pregnancy, child received pre-lacteal feeds and maternal education were found to be statistically significant determinant factors of stunting. According to WHO (2006) cut-off values if the prevalence of stunting ≥ 40% in a given population, stunting in that population is a public health problem. Accordingly, the result showed that prevalence of stunting in the

woreda was higher (48%). The finding of this study is consistent with studies conducted in Bule-Hora District, Gondar, Haromya, Tigray, Hidabu Abote, and Gojjam (Asfaw, ST and Goitom, L, 2015; Gelano, T.F et al., 2015; Yisak, et al., 2015; Mulugeta, A et al., 2015; Megistu, K et al., 2013; Woldehana, T. et al., 2011 and Yalew, 2014). This could be due to poor economic status of the population, environmental or cultural influence and educational status or accessibility basic goods; poor health service delivery exposes children for recurrent infection and leads to stunting. In contrast, the result of this study revealed that the prevalence of stunting was lower than studies done in Afar region, Kunama ethnic group, Shire Indaselasie (Mekides et al., 2015). This variation could be due to agro-pastoral nature of the population. Moreover, the finding of present study also revealed that family monthly income is one of the determinants of stunting. This result was consistent with study conducted in Hidabu Abote district, Ethiopia (Mengistu, K. et al., 2013). As the family income was increased stunting among children aged 6-59 months also decreased. Similarly, the present study indicate that children born from household their monthly income between 600-800 Birr were more likely to be affected by stunting as compared with children whose family monthly income greater than 800 Birr. Finding of this study was in line with the study conducted in Gumbrit, Ethiopia (Melkie, E., 2007), Somali (Demissie, S. Worku, et al., 2013), in which household income was strong determinant of stunting. Children belonging to the low-income group were at a higher risk of being stunted than children of better income households. Although the economic differentials seem to be silent in rural population it appears to be an important predictor of childhood nutritional status. Low income families limit the kinds and the amounts of food available for consumption. Low income also increases the likelihood of infection through such mechanisms as inadequate personal and environmental hygiene. However, finding of this study was not in agreement with the study finding in Gojjam (Teshome, B, 2009) and Ludhiana (Paramita, S., et al., 2013) in which household income was not associated with stunting. What is more, pre-lacteal feeding was one of the determinants of stunting. Children who received pre-lacteal feeding were 2.8 times more likely to be stunted than children who did not receive pre-lacteal feeding at the time of birth by their mothers/caretaker or birth attendants. The finding of the present study was consistent with study done in food surplus region of Ethiopia in which pre-lacteal feeding was significantly associated with stunting. However, the finding was not in agreement with the study finding in Gumbrit (Melkie, E., 2007), Bete-Israel (Asres, G., 2011) and Nepal (Ruwalia, D., 2011). This might be due to poor awareness about traditional pre-lacteal feeding. This bad tradition exposed the child for stunting. Maternal educational status was another determinant of stunting. Children of uneducated mother were more likely to be stunted compared with children of educated mother. The finding of this study indicated that children who born from illiterate mother 3 times more likely to be stunted than the educated one. This is consistent with study conducted in Ethiopia (Getahun, A., 2011) and Bangladesh (Nure, A., 2011) which showed children from illiterate mother were strong determinants of stunting. It is argued that mother with higher educational status in the society have the ability to make decisions that improve the nutritional status of children compared with low educational status (Getahun, A., 2011).

Conclusions and Policy Implications

This study examined the prevalence and determinants of stunting among children 6-59 months of rural households in Gondar Zuria Woreda. Even though the prevalence of stunting decreases significantly in the study woreda it remains a major public health problem. Stunting among children is multi-dimensional and influenced by demographic and socio-economic factors. The result revealed the prevalence of stunting in the study area was high. The highest prevalence of stunting found in male children than female and comparing stunting with different age groups, the highest prevalence of stunting was among children age 24-35 months followed by children aged 36-47 months. In addition, the multivariate analysis revealed that child age, family income, pre-lactation feeding, feeding during pregnancy and maternal education were the significant determinants of stunting. To improve the nutritional status of children in the study area factors that are significantly associated should be addressed. Thus, based on the findings of this study, the following points are recommended for planners, administrators, researchers, and other concerned bodies to address stunting among children aged 6-59 months.

- Nutrition surveillance needs to be done continuously and special attention should be given to stunted children;
- Community based nutrition program should be strengthened to tackle the problem of stunting depending on the severity of stunting;
- Nutritional education by health extension workers should be strengthened to improve the feeding practice of parents on appropriate children feeding;
- Woreda health office should be collaborated with others sectors and stakeholders to prevent pre-lacteal feeding by empowering women;
- Educating the community how to treat drinking water since one of the causes of child mortality in the study area is water born disease.

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