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Differentials in vitamin A capsule supplementation and its association with morbidity status among aged children in Ethiopia: Evidence from the Demographic and Health Survey 2011

Abstract

Background: Evidences showed that there is variation in childhood vitamin A supplementation and its association with morbidity status of under five children. Therefore this study aimed to identify the associated factors for childhood vitamin A supplementation and its association with morbidity status of under five children in Ethiopia.

Methods: A quantitative nationally representative population based cross-sectional study was carried out based on the secondary data of the Ethiopia Demographic Health Survey (EDHS) 2011. Data of a total of 9276 children aged 6-59 months were included in the analysis. Binary and multivariable logistic regression model were used. Both crude and adjusted odd ratios were reported with 95% confidence interval.

Results: Those children found in the poorest wealth index category [AOR=0.60, 95% CI: (0.47-0.77)], mothers who had no antenatal care (ANC) attendance [AOR=0.56, 95% CI: 0.48-0.67], infants who were in the age group of 6-11 months [AOR= 0.52, 95% CI, (0.42-0.65)mothers who attended at facility after delivery [AOR=0.69, 95% CI, (0.56-0.86)] and mothers not engaged in working [AOR= 0.86, 95% CI: (0.76-0.97)] were associated with lower chance of receiving vitamin A capsule in the last 6 months. Vitamin A supplementation was not associated with diarrheal and fever morbidity [OR= 0.93, 95% CI, (0.841-1.034)]. However it was found protective for cough in the last two weeks [OR= .858, 95% CI, (0.774-0.951)]

Conclusion: Childhood vitamin A supplementation was not associated with fever and diarrhea illness but associated with cough. Absence of check up after delivery, ANC attendance, being in the poorest wealth index, mothers not engaged in working and being in the youngest age group were the significant negative predictors of receiving vitamin A capsule for the last 6 months. Provision and promotion of ANC, postnatal care and strengthen routine intervention especially for youngest age group were recommended to increase the childhood vitamin A supplementation coverage.

Background: Vitamin A deficiency is a serious public health problem in Ethiopia. The national prevalence rates of Bitot's spots and night-blindness were 1.7% and 0.8% among children respectively, and 37.7% of children had deficient in serum retinol levels (Demissie, Ali et al. 2010). Improving vitamin A status of children increases their resistance to disease, and thus in countries like Ethiopia, where diarrhea, acute respiratory infection, and measles are among the major causes of child mortality, improved vitamin A status will play a critical role in reducing child mortality (FMOH 2004). This study aimed to identify the factors associated with childhood vitamin A supplementation and its association with morbidity status of under five children in Ethiopia.

Conclusions

Absence of check up after delivery, ANC attendance, being in the poorest wealth index, women working status and being in the youngest age group were the significant predictors of receiving vitamin A capsule for the last 6 months. Vitamin A supplementation was not associated with childhood illness such as diarrhea and fever but it was found protective for cough in the last two weeks. Provision and promotion of ANC, postnatal care and strengthen routine supplementation and encouraging women empowerments through different modality were recommended to increase the childhood vitamin A supplementation coverage. Further research with strong design about the effect of vitamin A on child morbidity status is recommended

Study design and setting

EDHS 2011 was designed to provide a population and health indicators at the national levels.

The analysis for this study was done for children of age 6-59 months which were 9276 children only.

This is a quantitative cross-sectional study based on secondary data of Ethiopia DHS 2011 (CentralStatisticalAgency(CSA) 2011).

Statistical analysis

Descriptive statistics, binary and multivariable logistic regression were used in the statistical analysis. Both crude and adjusted odds Ratios were presented with 95% Confidence interval. All tests were two-sided and a p value < 0.05 was considered statistically significant.

Ethical consideration

The original DHS data were collected in confirmation with international and national ethical guidelines

Results

TABLE 1. BINARY AND MULTIVARIABLE LOGISTIC REGRESSION TO IDENTIFY FACTORS ASSOCIATED WITH CHILDHOOD VITAMIN A SUPPLEMENTATION IN ETHIOPIA: EDHS 2011

Variables	Vitamin A supplementation		COR(95% CI)	AOR(95% CI)	
	Yes	No			
Wealth index	Poorest	1246(44.5)	1554(55.5)	0.46(0.40-0.52)	0.60(0.47-0.77)
	Poorer	931(55.4%)	749(44.6%)	0.71(0.62-0.81)	0.84(0.65-1.09)
	Middle	809(55.1%)	659(44.9%)	0.70(0.61-0.80)	0.83(0.64-1.07)
	Richer	916(60.9%)	588(39.1%)	0.89(0.77-1.02)	0.95(0.74-1.21)
	Richest	1093(63.8%)	621(36.2%)	1	1
Place of residence	Urban	963(62.0%)	591(38.0%)	1.45(1.29-1.62)	0.74(0.58-0.94)
	Rural	4032(53.0%)	3580(47.0%)	1	1
Educational status of the mother	No education	3276(50.8%)	3169(49.2%)	0.37(0.26-0.52)	0.98(0.61-1.57)
	Primary	1409(62.1%)	861(37.9%)	0.58(0.40-0.83)	1.24(0.78-1.97)
	Secondary	194(66.0%)	100(34.0%)	0.69(0.45-1.05)	0.89(0.54-1.47)
	Higher	116(73.9%)	41(26.1%)	1	1
Religion	Orthodox	1983(68.7)	905(31.3)	3.65(2.25-5.92)	2.91(1.53-5.52)
	Catholic	39(48.1)	42(51.9)	1.55(0.811-2.95)	1.32(0.58-3.0)
	Protestant	937(52.6)	846(47.4)	1.85(1.14-3.001)	1.69(0.89-3.21)
	Muslim	1976(46.7)	2253(53.3)	1.46(0.90-2.36)	1.45(0.77-2.75)
	Traditional	27(37.5)	45(62.5)	1	1
Family size	≤4	1258(55.9)	992(44.1)	1.30(1.04-1.63)	0.89(0.65-1.23)
	5-7	255(155.1)	2077(44.9)	1.26(1.02-1.56)	1.10(0.80-1.51)
	8-10	1008(52.3)	919(47.7)	1.13(0.901-1.412)	1.03(0.74-1.44)
	≥11	178(49.3)	183(50.7)	1	1
Sex of the house hold head	Male	4138(54.9)	3399(45.1)	1.10(0.99-1.221)	
	Female	857(52.6)	772(47.4)	1	
	Never married	36(73.5)	13(26.5)	1.87(0.91-3.84)	
Marital status	Married	4345(54.0)	3699(46.0)	0.79(0.56-1.12)	
	Living together	249(54.2)	210(45.8)	0.80(0.54-1.18)	
	Widowed	108(61.7)	67(38.3)	1.09(0.69-1.72)	
	Divorced	174(58.0)	126(42.0)	0.93(0.62-1.40)	
	separated	83(59.7)	56(40.3)	1	
Respondent currently working	No	3309(52.1)	3037(47.9)	0.74(0.67-0.81)	0.86(0.76-0.97)
	Yes	1675(59.7)	1131(40.3)	1	1
Husband educational status	No education	2402(50.9)	2315(49.1)	0.49(0.39-0.61)	0.91(0.64-1.27)
	Primary education	1878(56.5)	1445(43.5)	0.61(0.49-0.77)	0.83(0.60-1.15)
	Secondary	374(61.6)	233(38.4)	0.76(0.58-1.00)	0.87(0.610-1.24)
	Higher	248(67.9)	117(32.1)	1	1
Sex of child	Male	2510(53.9)	2146(46.1)	0.95(0.88-1.04)	
	Female	2485(55.1)	2025(44.9)	1	
Age of child months	6-11 months	462(44.8)	570(55.2)	0.70(0.60-0.81)	0.52(0.42-0.65)
	12-23 months	1080(57.7)	792(42.3)	1.18(1.04-1.34)	0.91(0.74-1.11)
	24-35 months	1144(56.9)	865(43.1)	1.14(1.01-1.29)	1.02(0.83-1.25)
	36-47 months	1203(54.9)	988(45.1)	1.05(0.93-1.19)	1.00(0.802-1.243)
	48-59 months	1106(53.6)	956(46.4)	1	1
Age of mothers	15-19	165(51.4)	156(48.6)	1.05(0.74-1.48)	
	20-24	954(54.7)	789(45.3)	1.20(0.90-1.59)	
	25-29	1541(53.3)	1352(46.7)	1.13(0.85-1.49)	
	30-34	1100(56.2)	857(43.8)	1.27(0.96-1.69)	
	35-39	816(56.8)	620(43.2)	1.30(0.98-1.74)	
	40-44	313(51.7)	292(48.3)	1.06(0.78-1.45)	
	45-49	106(50.2)	105(49.8)	1	
Ante natal care	Never attend	1616(49.5)	1646(50.5)	0.41(0.36-0.47)	0.56(0.48-0.67)
	1-3 times	842(63.5)	484(36.5)	0.73(0.62-0.86)	0.87(0.73-1.05)
	≥4 times	984(70.4)	414(29.6)	1	1
	Yes	2855(55.4)	2303(44.6)	0.50(0.43-0.59)	0.69(0.56-0.86)
Place of delivery	Home	4127(52.5)	3732(47.5)	0.56(0.50-0.63)	1.06(0.85-1.32)
	Health institution	868(66.4)	439(33.6)	1	1
Birth order	1	1053(58.8)	739(41.2)	1.37(1.19-1.57)	0.99(0.83-1.19)
	2	1568(54.0)	1338(46.0)	1.13(1.00-1.27)	0.97(0.81-1.16)
	3	1581(54.3)	1331(45.7)	1.14(1.01-1.29)	1.00(0.83-1.19)
	4+	793(51.0)	762(49.0)	1	1

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