

Women Empowerment and Frequency of Meal Intake Among Children in Ghana

Louis Kobina Dadzie (✉ louis.dadzie1@stu.ucc.edu.gh)

University of Cape Coast <https://orcid.org/0000-0003-4764-7605>

Joshua Amo-Adjei

University of Cape Coast

Kobina Esia-Donkoh

University of Cape Coast

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Abstract

Background

Quality nutrition is an important basis of health and well-being, especially for children as their bodies need to grow, develop and reach their physical and mental potential. Women's empowerment is not only important for women's human rights, but also improves nutrition outcomes of both mothers and their children. This study sought to investigate the association between women's empowerment and minimum meal frequency in Ghana.

Methods

The study used data from the 2014 Ghana Demographic and Health Survey (GDHS). A sample of 1,640 mother-child (6-23 months) dyad was used and univariate and multiple linear regression techniques were applied.

Results

Decisions on large household purchases ($\beta=0.351$, $p<0.01$) and family visits ($\beta=0.743$, $p<0.01$), ownership over house ($\beta=-0.245$, $p<0.10$), age of child ($\beta=1.387$, $p<0.01$), mother's educational attainment ($\beta=0.496$, $p<0.10$) and residence ($\beta=-0.298$, $p<0.10$) were significantly associated with minimum meal frequency in Ghana.

Conclusion

Minimum meal frequency was largely influenced by economic and socio-familial empowerment of women as decisions on large household purchases and family visits showed association with minimum meal frequency. Interventional programs should target households and mothers with lower socio-demographics characteristics such as lower educational level.

Key Messages

1. Minimum meal frequency is influenced by various dimensions of empowerment of women such as economic and socio-familial empowerment.
2. There is the need for improved advocacy for women to be involved in decision on family visits and large household purchases as it promotes frequent meal attainment of children
3. Interventional programs should target households and mothers with lower socio-demographics characteristics such as lower educational level and those residing in rural areas to improve feeding at least the minimum frequency of children.

Introduction

Quality nutrition is an important basis of health and well-being, especially for children for physical and mental development [1]. Accordingly, The Convention on the Rights of the Child recognizes that every infant and child has the right to good nutrition [2]. This has also found expression in the SDG Goal 2 (“End hunger, achieve food security and improved nutrition and promote sustainable agriculture”) and 3 (“Ensure healthy lives and promote wellbeing for all at all ages”).

Infant and young child feeding (IYCF) is considered a key area to improving child survival and promoting healthy growth and development [3] [4] [5] [6]. Improved child nutrition is protective against several childhood illnesses, including gastrointestinal infections and malnutrition and fosters better development overall [7]. In pursuit of this, the WHO and the UNICEF recommend the introduction of nutritionally adequate and safe complementary (solid) foods from six months together with continued breastfeeding up to two years of age or beyond [8]. Consequently, the WHO designed the IYCF tool with the view to improve and protect, promote, and support optimal infant and young child feeding [9]. One of such indicators is the minimum meal frequency which can be defined as minimum number of meals to be consumed in a day [9] [10] [11].

Despite the immense benefits of children achieving minimum meal frequency, few children receive nutritionally adequate and safe complementary foods appropriate to their age [12]. Evidence shows that about 52 percent of all children 6–23 months of age are not receiving the minimum recommended number of meals a day with South Asia and sub-Saharan Africa having the lowest rates of minimum meal frequency of all [9]. In Ghana, only 43 percent of children within 6–23 months are fed with the minimum number of meals in a day. Many factors account for the inability of caregivers to provide adequate nutrition for children. These include poverty, food insecurity, maternal ill health and stressful mealtimes [13] [14].

Challenges associated with child feeding practices and undernutrition in Ghana results from poverty, lack of financial support from husbands or partners, cultural beliefs/ practices, workload on the part of the caregivers and interference of grandmothers [15] [16]. Some scholars (e.g. Mulenga et al., 2019 [17]) contend that underlying these issues is the lack of women’s empowerment. Women and girls constantly face various forms of disempowerment in many respects: health, economic, social and politics which, to a large extent, create discriminatory tendencies and distortions in the human development pathways [18] [19]. In essence, women’s empowerment is not only important for women’s human rights, but also improves nutrition outcomes of both mothers and their children [20] [21].

Despite efforts of health workers to increase the number of children attaining the recommended practices, not much success has been achieved. This is because, feeding practices are often difficult to change as they are directly related to varied economic, socio-cultural and religious factors in the community and to various dynamics prevailing at the household level [22]. While the study acknowledges that there has been an increasing and impressive scholarship on IYCF in Ghana, available evidence shows that previous studies have focused largely on nutritional knowledge [23] [24], stunting [25] [26] and child dietary diversity [27] [28] with little or no link to empowerment.

This study, therefore, sought to determine the association between women's empowerment and minimum meal frequency in Ghana. This is important given that several development interventions have explicitly aimed at women's empowerment [29]. Some of these programmes have targeted micro credit for women as an economic empowerment valve as well as formal education [30] [31]. Empowerment theory [32] assumes that personal, interpersonal and environmental resources are needed to increase and improve the skills, knowledge and motivation of people to achieve valid roles. They propose strategies for capacity building, awareness building and skill development to improve the status of the marginalized. This theory suggests that when women are denied access to resources needed for good health, interpersonal skills and valued social roles, they are rendered powerless and their functioning is undermined.

Methods

Source of Data and Sampling Procedure

The study used data from the 2014 Ghana Demographic and Health Survey (GDHS). The GDHS is a cross-sectional nationwide survey designed and conducted every five years since 1988. The data is collected on fertility, antenatal care, delivery care and postnatal care, contraceptive use, child health, and family planning. The GDHS generally focuses on child and maternal health, and is designed to provide adequate data to monitor the population and health situation in Ghana. That notwithstanding, data on men are collected at each round to provide a context to understand women and children's health. The 2014 GDHS interviewed 9,396 women aged 15-49 from 12,831 households, covering 427 clusters throughout Ghana [33]. The 2014 GDHS followed a two-stage sample design. The first stage involved selecting sample points (clusters) consisting of enumeration areas (EAs) delineated for the 2010 PHC. A total of 427 clusters were selected, 216 in urban areas and 211 in rural areas. The second stage involved the systematic sampling of households. A household listing operation was undertaken in all the selected EAs in January-March 2014, and households to be included in the survey were randomly selected from the list. About 30 households were selected from each cluster to constitute the total sample size of 12,831 households.

Study Population and Sample Selection

Dyads of mothers and children aged 6-23 months extracted from the women's questionnaire constituted the population for analysis. This study employed this group because it forms the basis of the WHO recommendation in calculating the IYCF indicators. The study sample (1640) was selected out of all (1740) children 6-23 months old. The sample selection is indicated in Figure below.

Figure 1: Study population and sample selection

Acquisition of Data

The data for the study was acquired online from the Measure DHS. A registration form was filled to register with Measure DHS. A brief proposal of the study indicating what the data set was going to be used for was sent to Measure DHS. Then, an approval was given to download the dataset.

Description and definition of variables

The study used minimum meal frequency as the dependent variable. This indicator for appropriate complementary feeding was created in accordance to the WHO guidelines [34]. Minimum meal frequency was defined as children 6–23 months of age who received solid, semi-solid or soft foods a minimum number of times in the previous day. The minimum required frequency varied by child age and breast-feeding status [22]. In the DHS set of questions, one of it was for the respondent to state the number of times the child received solid, semi-solid or soft food in the past day. Three questions assessed the feeding frequency of infant formula, milk and yoghurt. These frequencies were used to calculate the number of milk feeds which were all found in the women's questionnaire of the GDHS.

The independent variables for the study were: age of child, sex of child, age of mother, mother's educational attainment, residence, household wealth status, number of children less than five years, control over women's income, decision on large household purchases, mother's occupation, decision on family visits, decision on own health, attitude to violence, ownership of house and ownership of land.

Three dimensions of women's empowerment: (i) economic empowerment (control over women's income, decision making on large household purchases, work) (ii) socio-familial empowerment (decision making regarding family visits, women's own health, and attitude towards domestic violence under five scenarios) and (iii) legal empowerment (women's judicial and legislative entitlements over land and over house) are used in this study.

Age of child was recoded into 6-8 months, 9-11 months, 12-17 months and 18-23 months. Sex of the child was categorical (male/female). The number of children less than five years and mothers' age were captured as a continuous variable in the multivariate analysis. Control over women's income, large household purchases decision on family visits and own health was recoded as respondent alone, respondent and husband /partner, and husband /partner alone. Mother's occupation was recoded as "Not working", "Agricultural/labour" and "White collar". Attitude towards violence comprised a blend of questions on violence combined and the response variable was recoded as "Don't know", "No" and "Yes".

Statistical Analysis

Descriptive statistics were run to show the nature of independent variables. Multiple linear regression was applied to determine the association of the independent variables on the dependent variable. This was because our dependent variable (meal frequency) was continuous [35] [36]. Four models in total were estimated to demonstrate the associations between the various dimensions of women empowerment as well as socio-demographic factors and IYCF practices. Model 1 constituted the economic empowerment variables; control over women's income, decision on large household purchases and maternal occupation.

In Model 2, socio-familial variables; decision on family visits, decision on own health and attitude to violence were added to model 1. Model 3 now included the legal empowerment variables of ownership of house and land to the Model 2. The last model now included the demographic characteristics comprising; the age of child, sex of child, age of mother, mother's educational attainment, residence, household wealth status and number of children less than five years. The data processing was accomplished using Stata version 13.0 software. The statistical significance level was set at $P < 0.10$, $P < 0.05$ and $P < 0.01$.

Results

Background Characteristics of Respondents

More than half (52%) of the infant and young children were males. The highest percentage (34%) of the children was within the ages of 12–17 months. Mothers' ages showed low proportions for age groups 15–19 (6%), 40–44 (6%) and 45–49 (2%) years; mothers within the ages of 25–29 years had the highest proportion (28%). Most (55%) of the respondents were residents in rural areas. Few (4.4%) of them were better educated (post-secondary education) while about one-fourth (26.55%) had no education. The highest (50.30%) proportion of mothers had secondary education. The results also showed that the highest proportion (23%) of the respondents were in the poorest category while those in the richest quintile had the lowest proportion (17.44%) (Table 1).

Table 1
Background characteristics of the respondents,
categorical variables

Variable	n = 1640	Freq.	Percent (%)
Sex of child			
Male		851	51.88
Female		789	48.12
Age of mother			
15–19		95	5.81
20–24		296	18.01
25–29		466	28.4
30–34		372	22.7
35–39		281	17.13
40–44		104	6.37
45–49		26	1.58
Place of residence			
Urban		739	45.09
Rural		901	54.91
Educational level			
No education		435	26.55
Primary		308	18.75
Secondary		825	50.3
Higher		72	4.4
Age of child			
6 to 8		309	18.87
9 to 11		270	16.46
12 to 17		563	34.35
18 to 23		498	30.32
Wealth			
Poorest		365	22.26

Variable	n = 1640	Freq.	Percent (%)
Poorer		353	21.55
Middle		303	18.45
Richer		333	20.3
Richest		286	17.44
Source; Computed for GDHS 2014			

Association Between Women Empowerment And Minimum Meal Frequency

The findings show that women empowerment had significant association with minimum meal frequency. Children of mothers who made decisions with their partners concerning large household purchases were reported to have increased minimum meal frequency compared to those who had their partners/others make decisions ($\beta = 0.351, p < 0.01$). With respect to decisions on family visits, a positive association was found with meeting minimum meal frequency for children of mothers who made decisions on visits alone compared with those whose decisions were made by partners or other persons aside themselves ($\beta = 0.743, p < 0.01$).

The results further shows positive significant association with attaining minimum meal frequency and women's disapproval of violence against women ($\beta = 1.171, p < 0.10$). Unexpectedly, mothers who jointly owned houses with their partners had their children unlikely to attain minimum meal frequency as compared to mothers who did not own houses ($\beta = -0.245, p < 0.10$). Land ownership showed varying levels of significance. For instance, a woman's joint ownership of land had significant positive association with attainment of minimum meal frequency for children than their counterparts who did not own lands ($\beta = 0.470, p < 0.01$). (Table 2)

Again, increasing child's age (18–23 months) was positively associated ($\beta = 1.387, p < 0.01$) with meeting the required meal frequency. The results also show a positive association between educational attainment of mothers and the minimum meal frequency of their children. Mothers with higher education ($\beta = 0.496, p < 0.10$) reported increased meal frequency for their children. A negative significant relationship with minimum meal frequency was found for women with primary education ($\beta = -0.325, p < 0.10$). Rural residence ($\beta = -0.298, p < 0.10$) was negatively associated with attaining minimum meal frequency among children (Table 2).

Table 2

Regression analysis of women empowerment and demographics on minimum meal frequency

Independent variables	Model 1	Model 2	Model 3	Model 4
Economic factors				
Control over women's income				
Respondent alone	-0.0528	-0.0953	-0.152	-0.068
	[-0.618,0.513]	[-0.670,0.479]	[-0.727,0.423]	[-0.595,0.459]
Respondent and husband/partner	-0.0819	-0.029	-0.119	-0.1
	[-0.671,0.507]	[-0.638,0.580]	[-0.729,0.491]	[-0.668,0.468]
Husband/Partner or other alone	Ref	Ref	Ref	Ref
Decision on large household purchases				
Respondent alone	0.251	0.118	0.0807	-0.186
	[-0.109,0.612]	[-0.268,0.505]	[-0.305,0.466]	[-0.542,0.169]
Respondent and husband/partner	0.118	0.273*	0.275*	0.351***
	[-0.123,0.360]	[-0.00830,0.554]	[-0.00675,0.556]	[0.0851,0.617]
Husband/Partner or other alone	Ref	Ref	Ref	Ref
Mothers occupation				
Not working	Ref	Ref	Ref	Ref
White collar	0.0859	0.128	0.132	0.0543
	[-0.143,0.315]	[-0.111,0.367]	[-0.106,0.371]	[-0.191,0.299]
Agricultural/labour	Ref	Ref	Ref	Ref
Socio-familial empowerment				
Family visit decision				
Respondent alone		0.514**	0.551**	0.743***
		[0.0792,0.949]	[0.116,0.986]	[0.329,1.157]
Respondent and husband/partner		0.248	0.241	0.304

Independent variables	Model 1	Model 2	Model 3	Model 4
		[-0.152,0.648]	[-0.159,0.641]	[-0.0638,0.672]
Husband/Partner or other alone		Ref	Ref	Ref
Own health				
Respondent alone		-0.059	-0.0424	-0.0127
		[-0.418,0.300]	[-0.402,0.318]	[-0.343,0.318]
Respondent and husband/partner		-0.141	-0.16	-0.238
		[-0.505,0.222]	[-0.527,0.207]	[-0.585,0.109]
Husband/Partner or other alone		Ref	Ref	Ref
Attitude towards violence				
Don't know		Ref	Ref	Ref
No		1.169*	0.866	0.243
		[-0.114,2.451]	[-0.422,2.155]	[-0.978,1.464]
Yes		1.458**	1.171*	0.467
		[0.156,2.761]	[-0.135,2.477]	[-0.785,1.719]
Legal Empowerment				
House				
Does not own			Ref	Ref
Alone only			0.135	0.118
			[-0.385,0.654]	[-0.375,0.611]
Jointly only			-0.345**	-0.245*
			[-0.664,-0.0265]	[-0.535,0.0440]
Both alone and jointly			-0.198	-0.357
			[-0.885,0.489]	[-0.984,0.269]
Land				
Does not own			Ref	Ref
Alone only			-0.129	-0.358*

Independent variables	Model 1	Model 2	Model 3	Model 4
			[-0.545,0.287]	[-0.738,0.0221]
Jointly only			0.579***	0.470***
			[0.239,0.919]	[0.154,0.785]
Both alone and jointly			0.191	0.263
			[-0.509,0.891]	[-0.380,0.905]
Demographic factors				
Age of child				
6 to 8				Ref
9 to 11				1.179***
				[0.781,1.577]
12 to 17				0.646***
				[0.361,0.932]
18 to 23				1.387***
				[1.094,1.681]
Sex of child				
Male				Ref
Female				-0.0885
				[-0.302,0.125]
Mother's age				
				0.000872
				[-0.0179,0.0196]
Highest Educational level				
No education				Ref
Primary				-0.325*
				[-0.707,0.0574]
Secondary				-0.172
				[-0.520,0.176]
Higher				0.496*
				[-0.0170,1.008]

Independent variables	Model 1	Model 2	Model 3	Model 4
<i>Residence</i>				
Urban				Ref
Rural				-0.298*
				[-0.600,0.00450]
Household wealth				
Poorest				Ref
Poorer				-0.0412
				[-0.429,0.346]
Middle				-0.163
				[-0.599,0.274]
Richer				-0.0345
				[-0.513,0.444]
Richest				-0.238
				[-0.808,0.332]
Number of children less than 5yrs				-0.0163
				[-0.159,0.127]
_cons	3.407***	1.942***	2.306***	2.465***
	[2.834,3.980]	[0.516,3.369]	[0.866,3.747]	[0.812,4.118]
R-sq	0.006	0.041	0.073	0.289
adj. R^2	-0.004	0.016	0.034	0.231
95% confidence intervals in brackets				
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$				
Source: Computed from GDHS 2014				

Discussion

Understanding the drivers of mother's ability to meet the minimum meal frequency among children less than two years is important for child survival and later life outcomes including education and earnings

[37] [38] [39]. Anchored in empowerment thinking, this study aimed to understand the association between three indicators of women's empowerment and minimum meal frequency among Ghanaian children aged 6–23 months. Data was pooled from the 2014 Ghana Demographic and Health Survey. The key findings are mother's decision on family visits and decision on large household purchases had positive associations with meal frequency while, ownership of house had a negative association with meal frequency.

The first issue is that the decision on family visits had a significant association with the measure of minimum meal frequency. The argument is that as women gain more freedom to visit other families in the community, they tend to have wider social networks with other community members and exchange ideas and cultural beliefs on child-care practices [22]. Likewise, WHO (2020) [40] argues that mothers and families need support from community and mother support groups for their children to be fed optimally. Thus, the influence of social environment, close relatives and friends helps mothers to achieve the goal of providing appropriate meals for children [41] [42].

Decision-making control on large household purchases had significant positive association with minimum meal frequency. This finding is similar to studies in Philippines [43] and India [44], where maternal contribution to household income and power over household earnings and decision making were significantly associated with minimum meal frequency practices. This may be attributed to the fact that when women are involved in household purchases in large quantities, there is the likelihood to purchase food items. This further suggests that in order to meet the required number of meals a day for children, households need to purchase sufficient food stock [45] [46] [47].

Ownership of house decreased the ability of meeting IYCF practices for minimum meal frequency. In a study in Benin, it was not quite clear why women's entitlement to land and houses decreased their ability to feed children appropriately compared with similar women with no land or home ownership. This may be because asset inheritance rules can be complicated and also varies across settings [48]. However, in the context of India, Rao argued that granting land rights to women led to an increase of work burden without much improvement in their food security or social status [49].

Younger child age consistently showed no significance with meeting the criteria of minimum meal frequency. This finding is in line with previous studies in which younger children had higher odds of being fed inadequately in terms of frequency in Bangladesh [50]. Wondu et al., (2017)[51] also posit early child age bracket as risk group for inadequate minimum meal frequency. It has been noticed from the study that in the Ghanaian context, children are likely to meet this IYCF practice as they age which could be due to the fact that Ghanaian women practice IYCF better as the child survives. Similar results have also been noticed in Ethiopia [52] [39], Ghana[53] and Sri Lanka [54]. Evidence also suggest that children are introduced to more complementary meals as they grow and their teeth develops and hence, the frequency of meals is increased although there is a downside of loss of appetite which may lead to reduction in meal frequency [55] [56] [39].

Additionally, mother's educational level had positive association with minimum meal frequency. Having high maternal education and interactions with family members and friends have been posited to enhance child nutrition [57] [58]. This validates previous work of Demilew et al., (2017)[59] which postulated that educated mothers might read books, leaflets and magazines, and might have a better chance of exposure to nutrition education about IYCF through mass media than their counterparts. Previous evidence in Nepal has it that mother's education is vital for determining the feeding practices [60]. The probable reasoning could be that educated mothers are well informed and are more adherent to required feeding practices.

Rural settlement of respondents had a significant negative effect to meeting minimum meal frequency. This is inconsistent with an earlier finding which indicated that mothers who lived in urban areas were likely to attain the recommended minimum meal frequency [61]. They explain that urban mothers are aware and have more access to media which promotes complementary feeding practices. Although time restrictions, workload and other effects of modernization may affect mothers living at urban areas, mothers living in rural areas may not have enough education on complementary feeding practices altogether.

Strengths And Limitations

Limitation comes with self-reporting made by the mother. The GDHS data has a limitation of having only one day of diet recall per child, which may not be representative of the day-to-day dietary intake. Only one data point was used in the study because there have been changes in the definition of IYCF practices indicators by the World Health Organisation (WHO) and so comparison of indicators with previous years will be problematic. There is no loss to follow-up because participants are interviewed once. However, only associations and not causality can be inferred due to the cross-sectional nature of the data.

Conclusion And Recommendations

The paper concludes that minimum meal frequency is influenced by various dimensions of empowerment of women such as economic and socio-familial empowerment. Specifically, joint decision on large household purchases, decision on family visits, ownership of land, age of child and mothers educational level improved minimum meal frequency. There is the need for improved advocacy for women to be involved in decision on family visits and large household purchases as it promotes frequent meal attainment of children. Additionally, mothers residing in rural areas impacted negatively on minimum meal frequency. Interventional programs by Ministry of Gender and Social protection, Ministry of Health as well as Ghana Health Service other stakeholders should target households and mothers with lower socio-demographics characteristics such as lower educational level to improve feeding at least the minimum frequency of children. Future studies could consider the influence of family members and husbands of mothers on minimum meal frequency.

Declarations

Ethics approval and consent to participant

Not applicable

Consent for publication

Not applicable

Availability of data and materials

The dataset used in the study is freely available upon request from https://www.dhsprogram.com/data/dataset/Ghana_Standard-DHS_2014.cfm?flag=0

Competing interest

The authors declare that they have no competing interests

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Authors' contributions

Louis Kobina Dadzie conceptualized and drafted the manuscript. Louis Kobina Dadzie conducted the data analysis for the study. Louis Kobina Dadzie, Joshua Amo-Adjei and Kobina Esia-Donkoh designed and critically reviewed the document. All authors read and approved the final version submitted.

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Figures

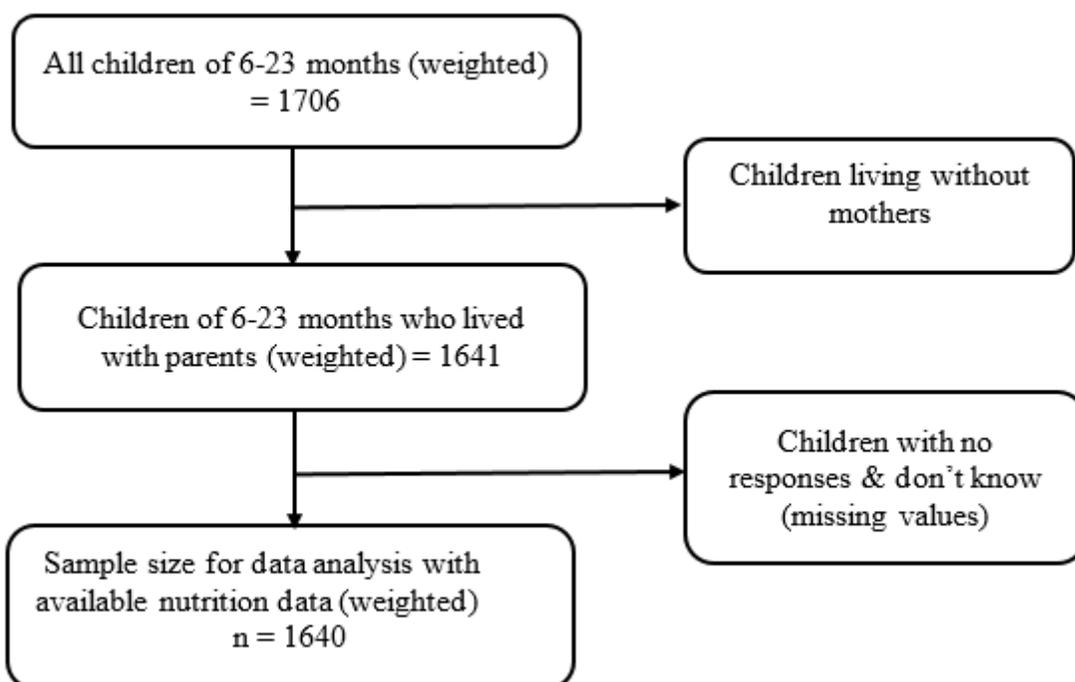


Figure 1

Study population and sample selection