Food Security Threats and Malnutrition: An Assessment Exercise at Igbo (Ada Foah)

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A Hexagram Sponsored Project

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1. Introduction

The Healthmates Nutrition team visited, Igbo in Ada Foah on 20th August, 2021. The objective of the project was to assess and identify the threats of food insecurity as related to malnutrition among children in the community. The initial plan was to work with children five years and below (Group 1). However, children older than five years (Group 2) also reported to the project site. Thus, the project included children from 3 months to 159 months. In all, 76 children were assessed in this one-day project.

The entire project was carried out by the Healthmates Nutrition team (Joseph Bamfo Danquah, Team Lead; Eric Anku, Programmes Director and Laura Tugli), Student Volunteers (Pious Barimah Sarfo and Abena Mantebea Asa-Atiemo - Dietetics students from University of Cape Coast) and supported by external volunteers (Madam Saeed and friends)

Situation Analysis

Ada refers to an area in the Dangme East District that is located in the Eastern Part of the Greater Accra Region in the Southeast of Ghana. Ada Foah is a town on the Southeast coast where the Volta River meets the Atlantic Ocean.

The project site, Igbo, is a fishing community within Ada Foah but a significant number of children are suffering from protein and micronutrient deficiencies that manifest as reddish brown coloration of the hair.

Economic hardship causes parents who are fishermen and fishmongers to sell almost everything leaving very little to nothing to feed themselves and their families.

Sanitation

Food and nutrition insecurity can be experienced in several dimensions. The fundamental importance of sanitation in fighting malnutrition can never be overemphasized. The stunting suffered by children in this community is not only due to lack of nutritious food. Even with the little they get, the constant ambush of germs and bacteria from the environment may force their bodies to divert energy and nutrients away from growth and brain development to prioritize infection-fighting survival.

2. Nutrition assessment

Anthropometry

Anthropometric measurements performed included weight, height/length, mid-upper arm circumference, and head circumference.

Dietary assessment

Questions regard food and nutrition related history were regarding breastfeeding overall, breastfeeding and complementary feeding practices. Also, the average intake of meals provided to eligible participants were also assessed.
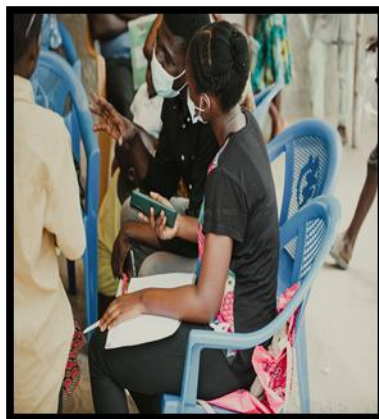
Environmental, behavioural and social

Assessment indicators in this domain include age of the child, sex of the child, age of mother, marital status of the mother, educational level of the mother, occupation of the mother, number of children including still births, and income level of mother.

Clinical assessment
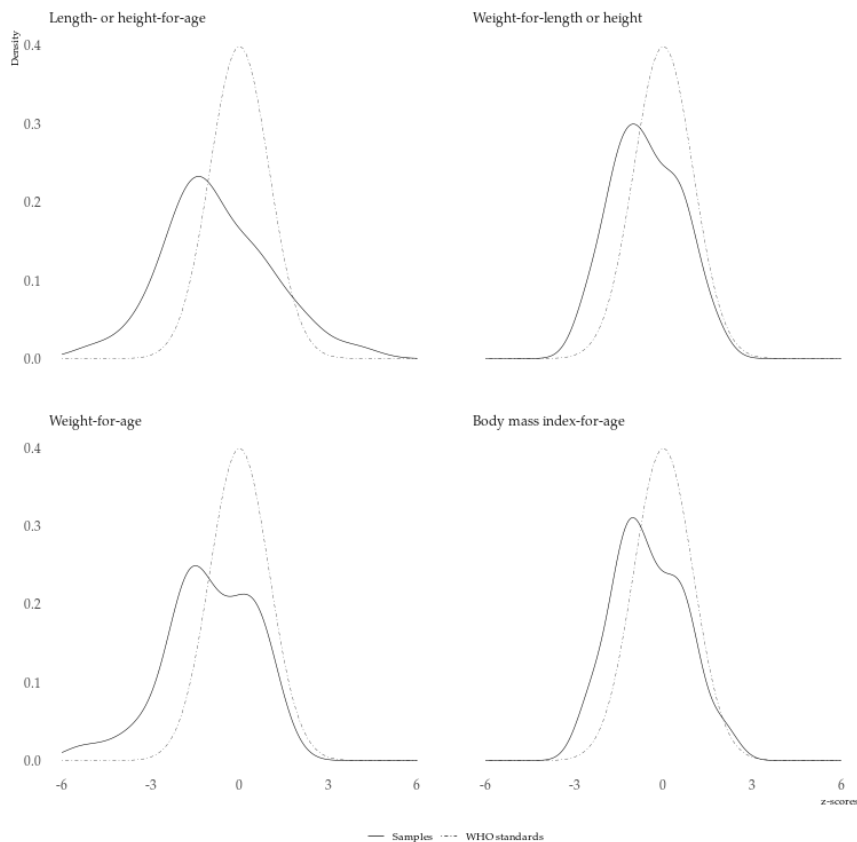
Edema was assessed in this domain.

3. Descriptive statistics

Prevalence of acute (WHZ < - 2SD) and chronic malnutrition (HAZ < - 2SD) in Group 1 was 13% and 25% respectively.

Prevalence of acute (BAZ < - 2SD) and chronic malnutrition (HAZ < - 2SD) in Group 2 was 11% and 17% respectively.

Descriptive statistics for Group 1 and Group 2 can be seen below

Growth indicators for children under five compared to WHO standards

Table summary for children 5 years and below

The average age of children was 28.27 months. There were more females (22, 55%) than males(18, 45%) in the sample. The mean age of mothers was 27.9 years. Majority of the mothers were married (40%). None of the mothers have had tertiary education. Majority of the mothers had a Junior High education (38%) followed by elementary/primary education (35%). Trading (72%) was the most frequent reported occupation among mothers in the sample. The average number of children per mother was 3. Majority of the mothers (86%) earn less than 500 cedis in a month. Breastfeeding for most mothers was initiated within the first hour after delivery (60%). Complementary foods are typically introduced after 6 months. The average number of meals eaten by children who take complementary foods was 3 times in a day. The average birth weight was 3.2 kg. The average weight and length/height of children in the sample was 11.4 kg and 86.3 cm. The average head circumference was 46.5 cm. The average mid-upper arm circumference was 14.9. The average weight-for-height and height-for-age was -0.8 and -0.1.

Characteristic	N = 40[1]
Age of child (months)	28 (15)
Sex	
Male	18 (45%)
Female	22 (55%)
Age of mother (years)	28 (6)

Characteristic	N = 40[1]
Marital status	
Married	16 (40%)
Single	13 (32%)
Separated/Divorced	2 (5.0%)
Cohabiting	9 (22%)
Educational status	
Never attended school	8 (20%)
Elementary/Primary	14 (35%)
Junior High	15 (38%)
Senior High	3 (7.5%)
Occupation	
Trader	29 (72%)
Dressmaker	2 (5.0%)
Unemployed	9 (22%)
Number of children	3 (2, 4)
Unknown	1

Characteristic	N = 40[1]
Income	
Less than 500 cedis	30 (86%)
500-900 cedis	4 (11%)
1000-1500 cedis	1 (2.9%)
Unknown	5
Duration of breastfeeding after delivery	
Immediately	5 (17%)
Within first hour	18 (60%)
Hours	6 (20%)
Don't know	1 (3.3%)
Unknown	10
How many hours after delivery did you breastfeed child?	4 (4, 10)
Unknown	34
Breastfed the day before survey	12 (80%)
Unknown	25
Age of introducing complementary meals	

Characteristic	N = 40[1]
<= 2 months	1 (3.3%)
4 months	2 (6.7%)
6 months	6 (20%)
> 6 months	21 (70%)
Unknown	10
Average intake of meals	3 (1)
Unknown	7
Birth weight (kg)	3.21 (0.63)
Unknown	26
Weight of child (kg)	11.38 (3.41)
Length/Height (cm)	86 (12)
Head circumference (cm)	46.46 (3.16)
Unknown	15
Mid-upper arm circumference	14.89 (1.33)
Unknown	2
Edema	

Characteristic	N = 40[1]
No	40 (100%)
Weight-for-height z-score	-0.77 (1.65)
Unknown	1
Height-for-age z-score	-1.01 (-1.93, 0.63)
Weight-for-age z-score	-0.72 (2.35)
BMI-for-age z-score	-0.68 (1.71)
Head circumference z-score	0.07 (1.89)
Unknown	15
MUAC z-score	-0.36 (1.19)
Unknown	2
Did you ever breastfeed child?	
Yes	35 (100%)
Unknown	5
Acute malnutrition	
Acute malnutrition	5 (13%)
Normal	34 (87%)

Characteristic	N = 40[1]
Unknown	1
Chronic malnutrition	
Chronic malnutrition	10 (25%)
Normal	30 (75%)

[1]Mean (SD); n (%); Median (IQR)

Table summary for children above 5 years

The average age of children was 104.44 months. There were more males (22, 61%) than females(14, 39%) in the sample. The mean age of mothers was 37.1 years. Majority of the mothers were married (59%). Majority of the mothers had never attended school (41%). Trading (85%) was the most frequent reported occupation among mothers in the sample. The average number of children per mother was 4.1764706. Majority of the mothers (82%) earn less than 500 cedis in a month. Breastfeeding for most mothers was initiated immediately after delivery (50%). Complementary foods are typically introduced at 6 months. The limitation of this finding is the number of non-response by mothers (25 out of 36) which may provide an inaccurate picture. The average number of meals eaten by children who take complementary foods was 4 times in a day. The average birth weight was 2.9 kg. The average weight and length/height of children in the sample was 23.9 kg and 124.8 cm. The average mid-upper arm circumference was 17.4. The average bmi-for-age and height-for-age was -0.8 and -1.

Characteristic	N = 36[1]
Age of child (months)	104 (27)
Sex	
Male	22 (61%)
Female	14 (39%)
Age of mother (years)	37 (7)
Unknown	2
Marital status	
Married	20 (59%)
Single	11 (32%)
Separated/Divorced	2 (5.9%)
Cohabiting	1 (2.9%)
Unknown	2
Educational status	
Never attended school	14 (41%)
Elementary/Primary	12 (35%)
Junior High	8 (24%)

Characteristic	N = 36[1]
Unknown	2
Occupation	
Trader	29 (85%)
Hairdresser	2 (5.9%)
Others	3 (8.8%)
Unknown	2
Number of children	4 (1)
Unknown	2
Income	
Less than 500 cedis	28 (82%)
500-900 cedis	6 (18%)
Unknown	2
Duration of breastfeeding after delivery	
Immediately	5 (50%)
Within first hour	4 (40%)
Hours	1 (10%)

Characteristic	N = 36[1]
Unknown	26
How many hours after delivery before child was breastfed?	2 (NA)
Unknown	35
Breastfed the day before survey	
No	1 (50%)
Don't know	1 (50%)
Unknown	34
Age of introducing complementary meals	
4 months	1 (9.1%)
6 months	6 (55%)
> 6 months	4 (36%)
Unknown	25
Average intake of meals	4 (1)
Unknown	7
Birth weight (kg)	2.93 (0.69)
Unknown	30

Characteristic	N = 36[1]
Weight of child (kg)	23.9 (6.5)
Length/Height (cm)	125 (15)
Mid-upper arm circumference	17.43 (1.89)
Unknown	23
Edema	
No	36 (100%)
Weight-for-age z-score	-1.02 (1.46)
Unknown	12
Height-for-age z-score	-1.02 (1.51)
BMI-for-age z-score	-0.80 (1.10)
Did you ever breastfeed child?	
Yes	12 (100%)
Unknown	24
Acute malnutrition	
Acute malnutrition	4 (11%)
Normal	32 (89%)

Characteristic	N = 36[1]
Chronic malnutrition	
Chronic malnutrition	6 (17%)
Normal	30 (83%)

[1]Mean (SD); n (%)

4. Visualisations

Children 5 years and below (Group 1)

Sex of children
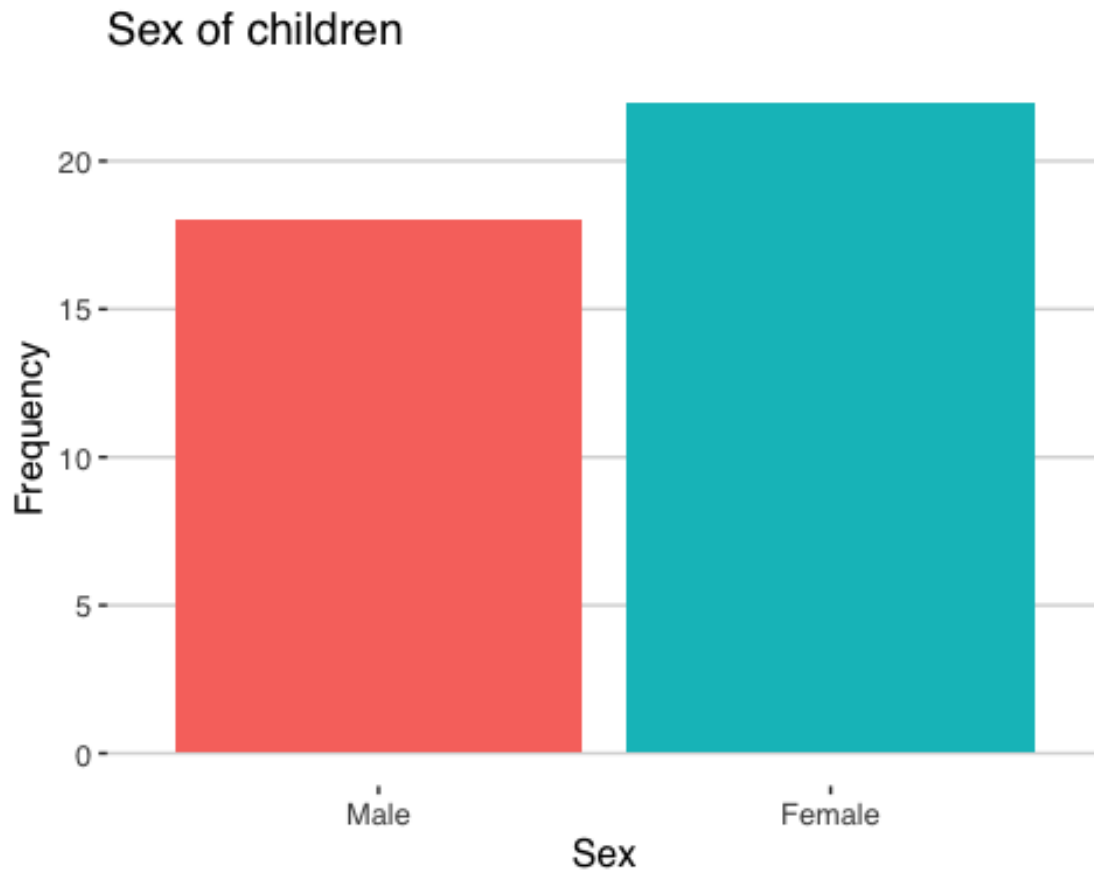
Educational level of mothers
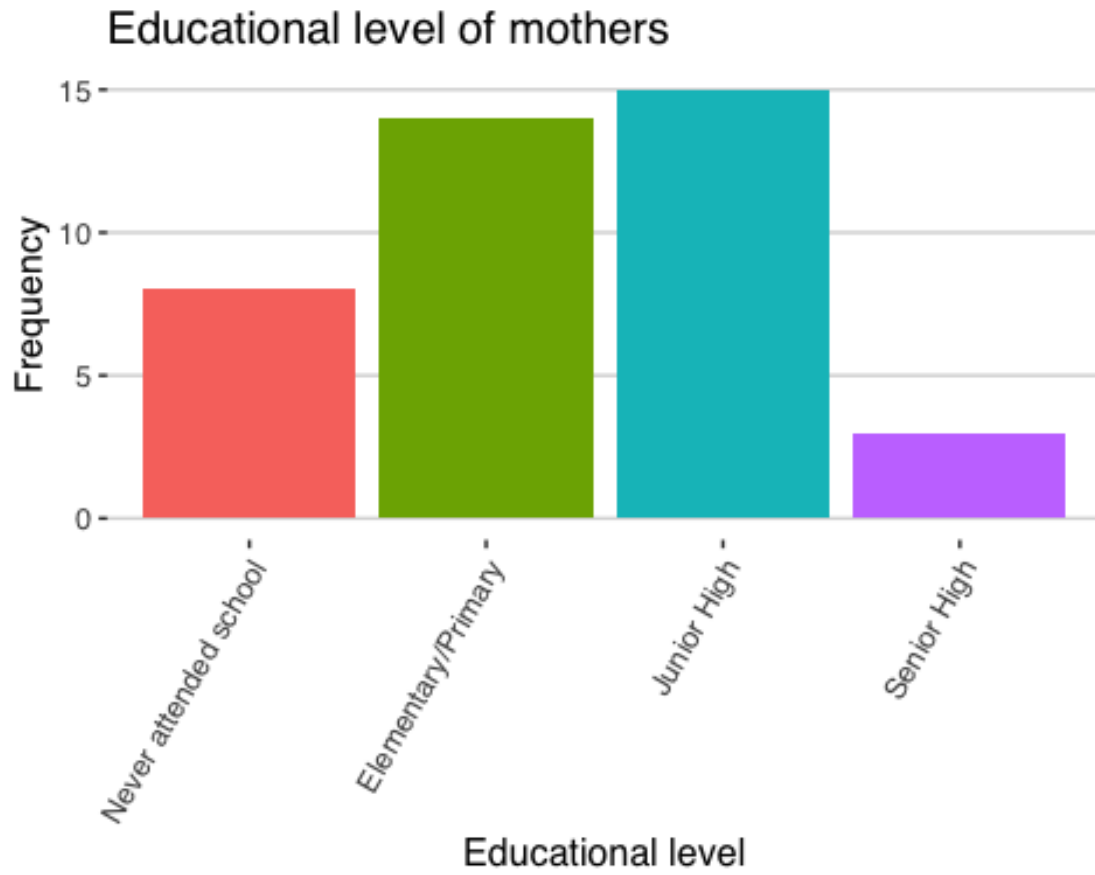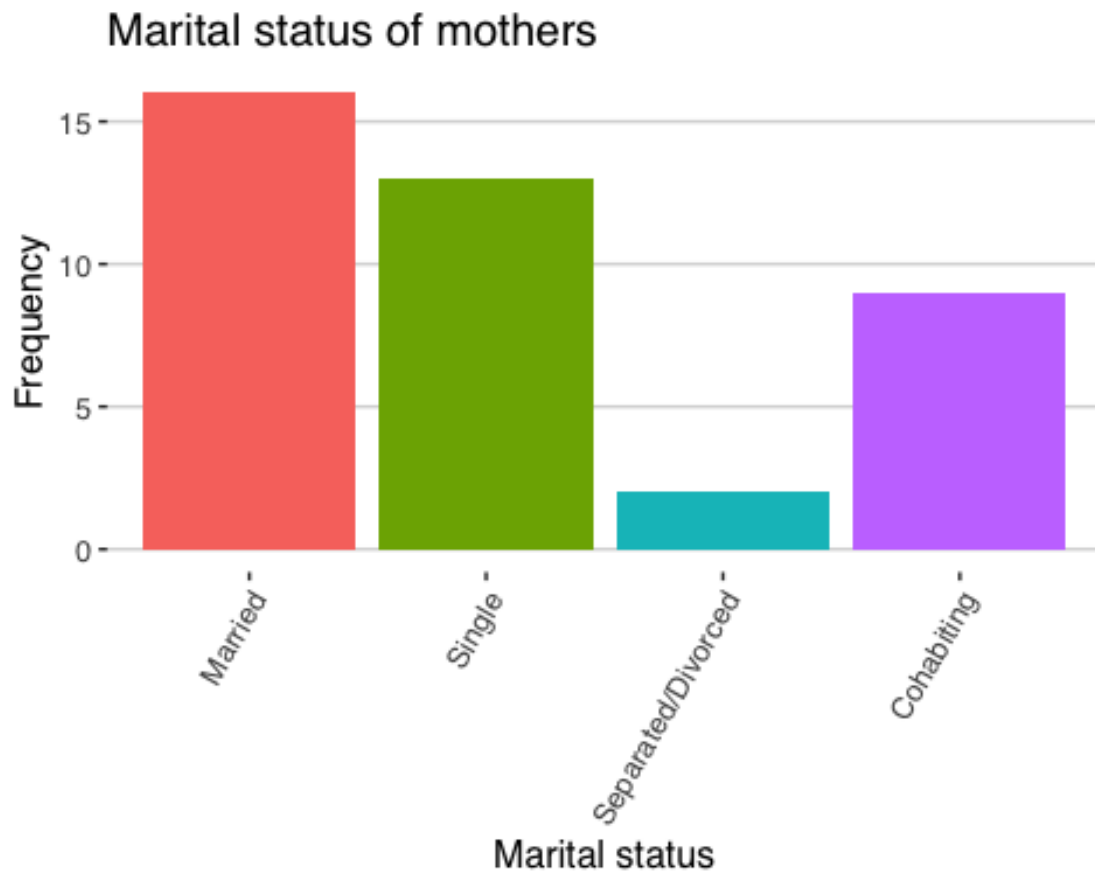
Educational level of mothers

Marital status of mothers

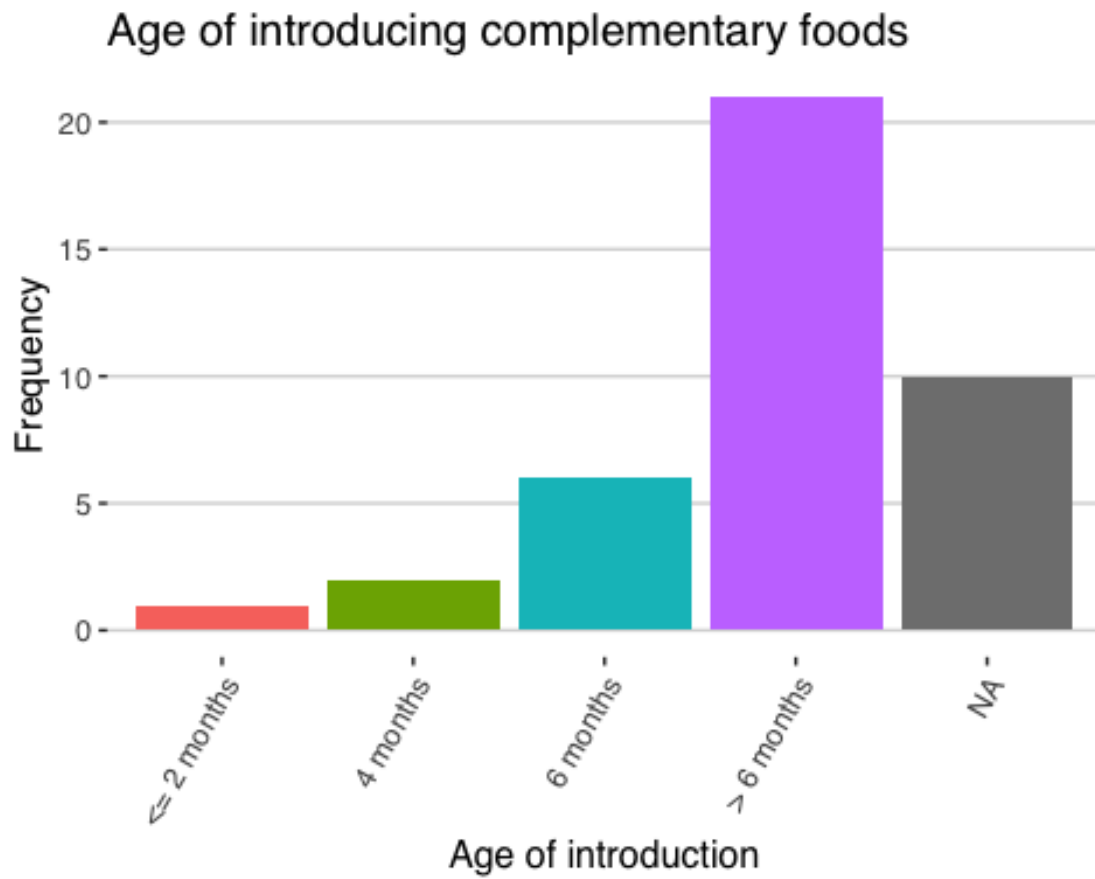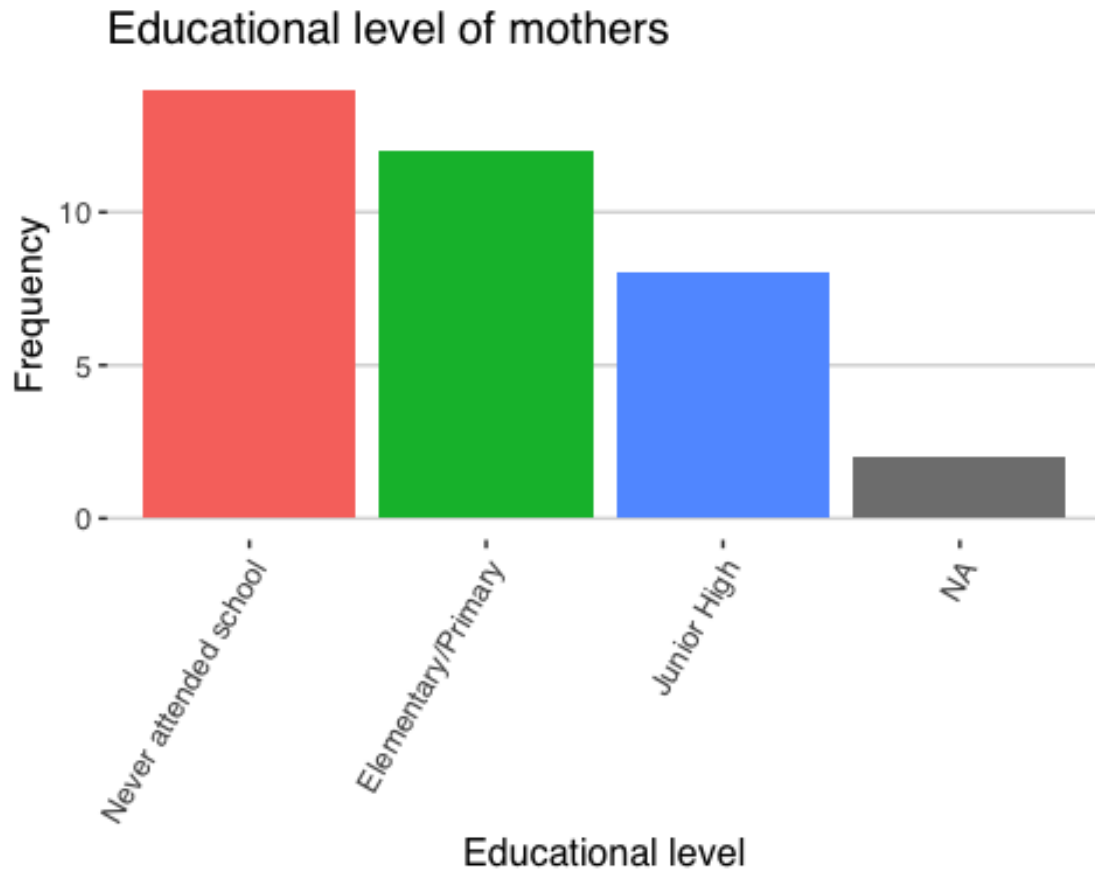Marital status of mothers

Occupation of mothers

Income of mothers

Income of mothers

Duration of breastfeeding after birth

Duration of breastfeeding after child was delivered

Breastfed the day before the survey
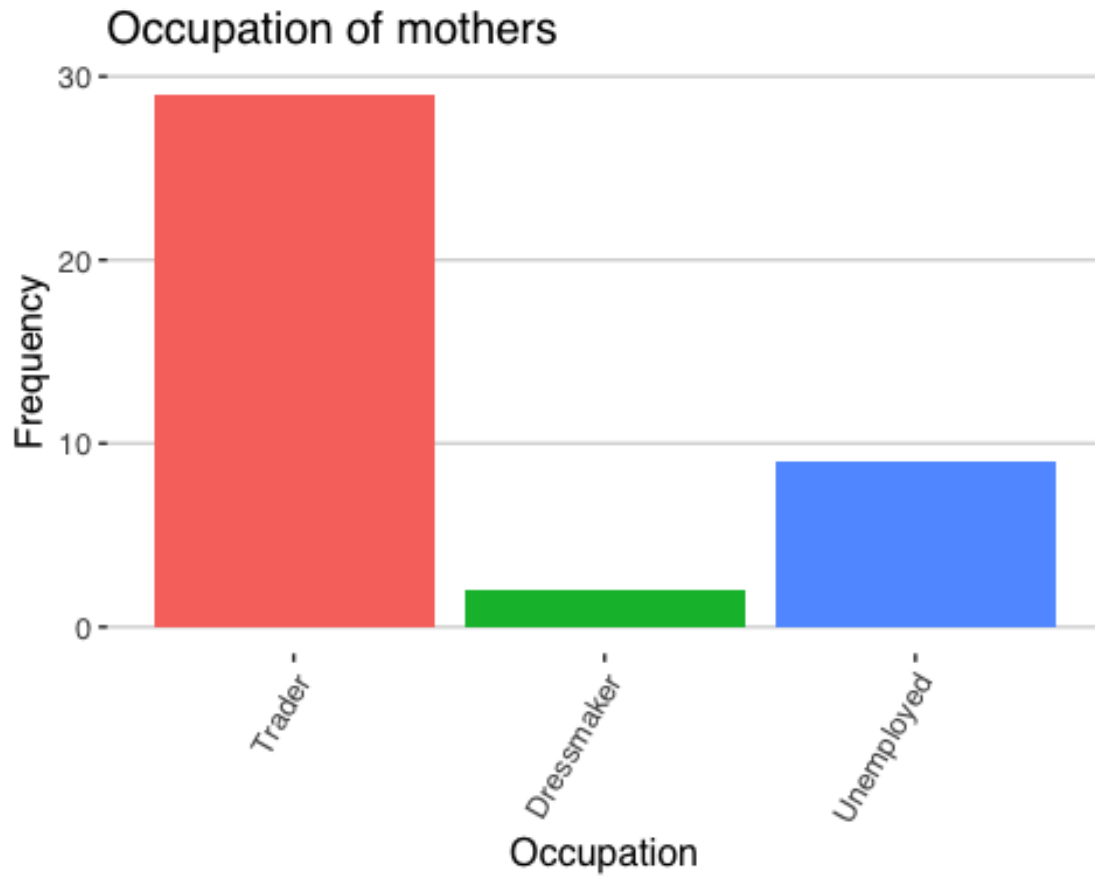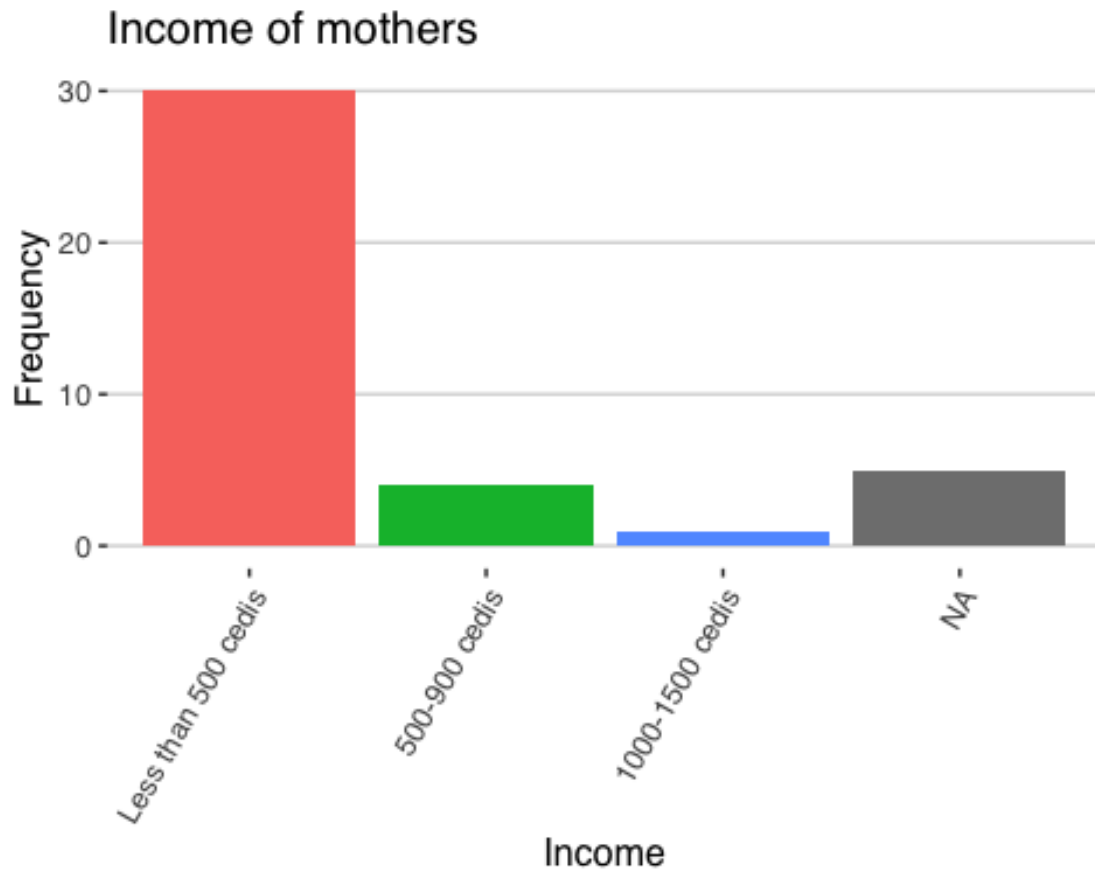
Was child breastfed the day before the survey
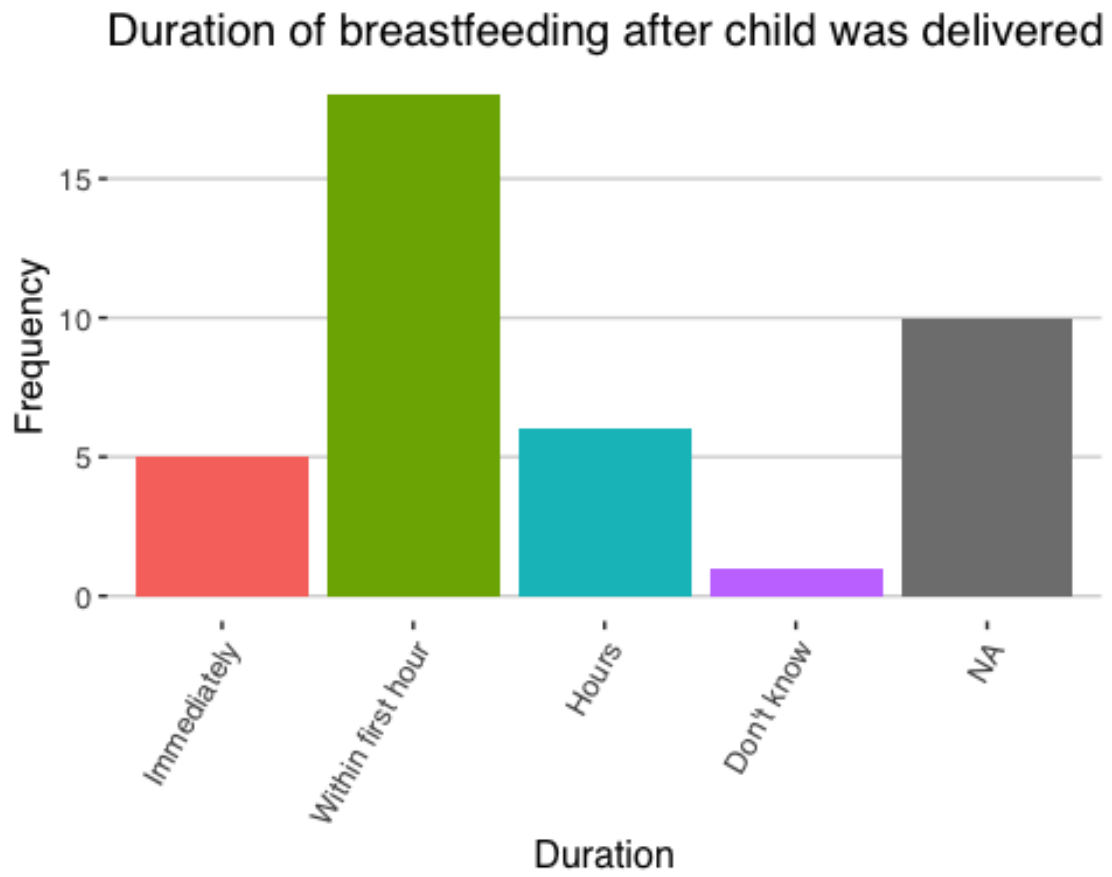
Age of introduction of complementary foods
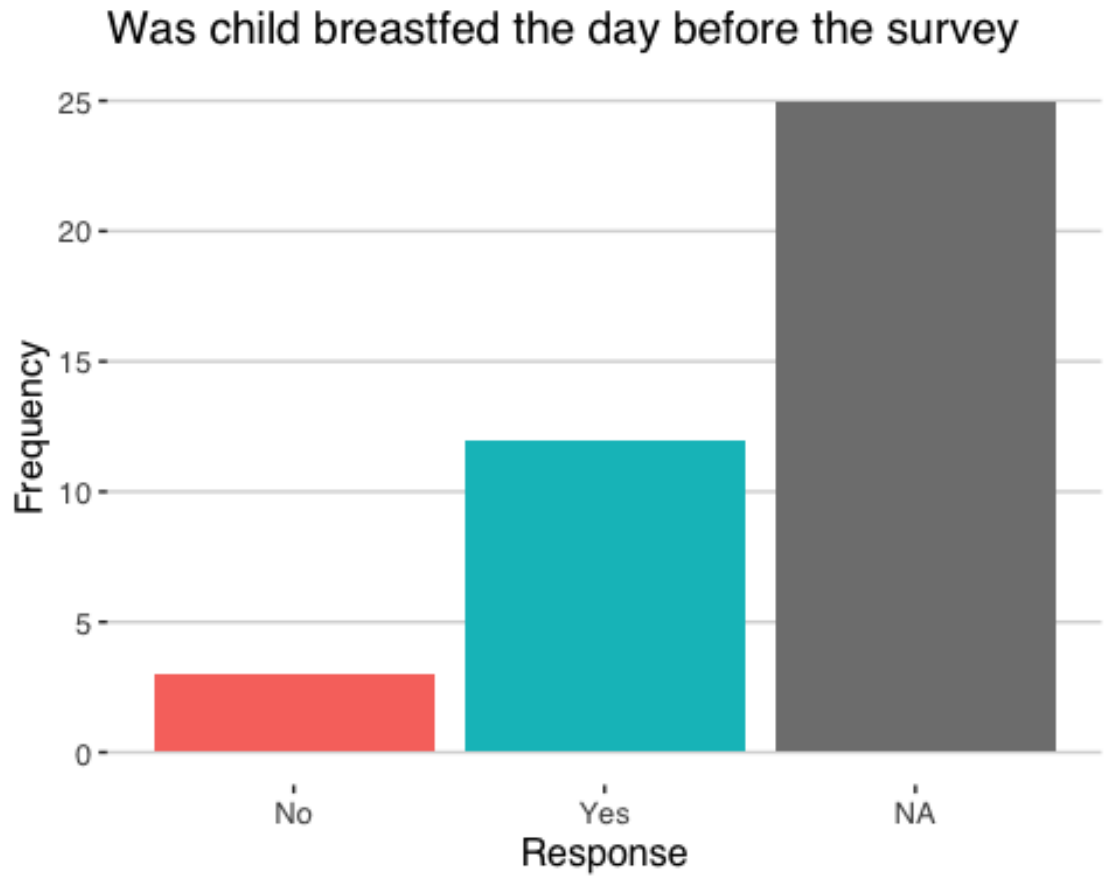
Age of introducing complementary foods

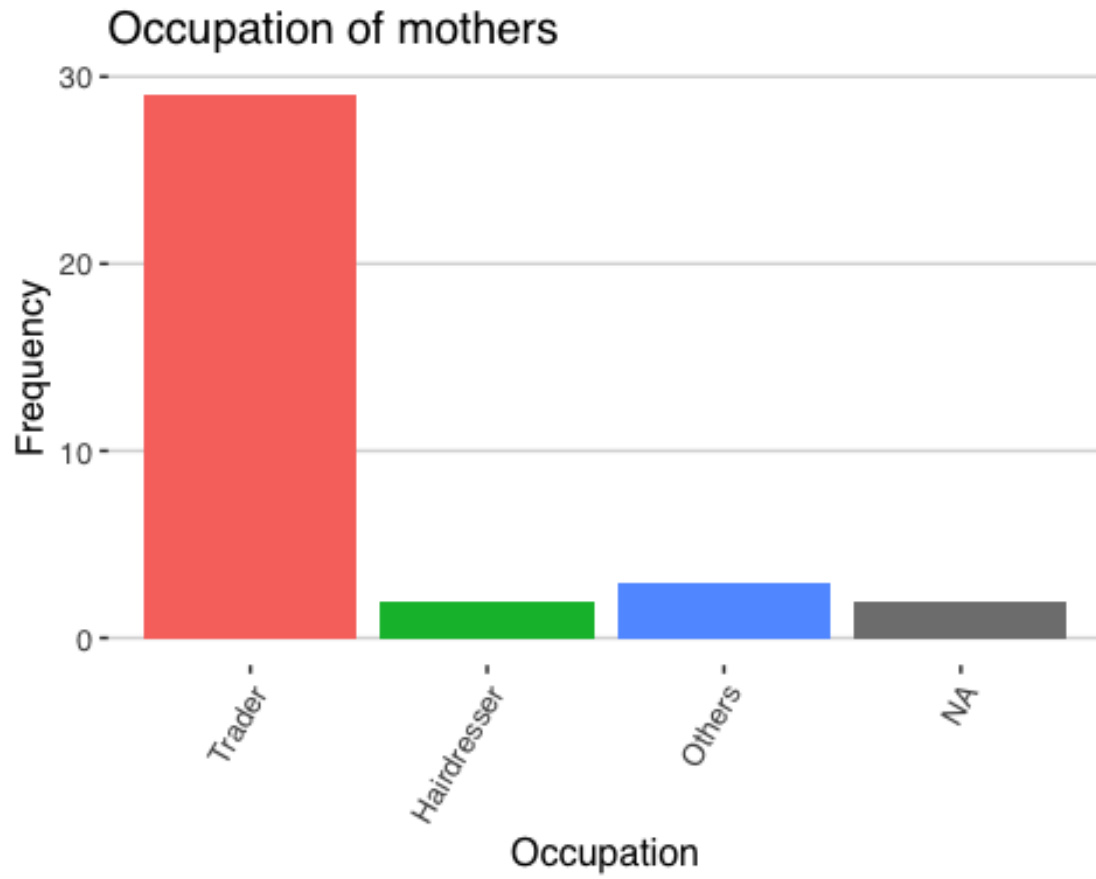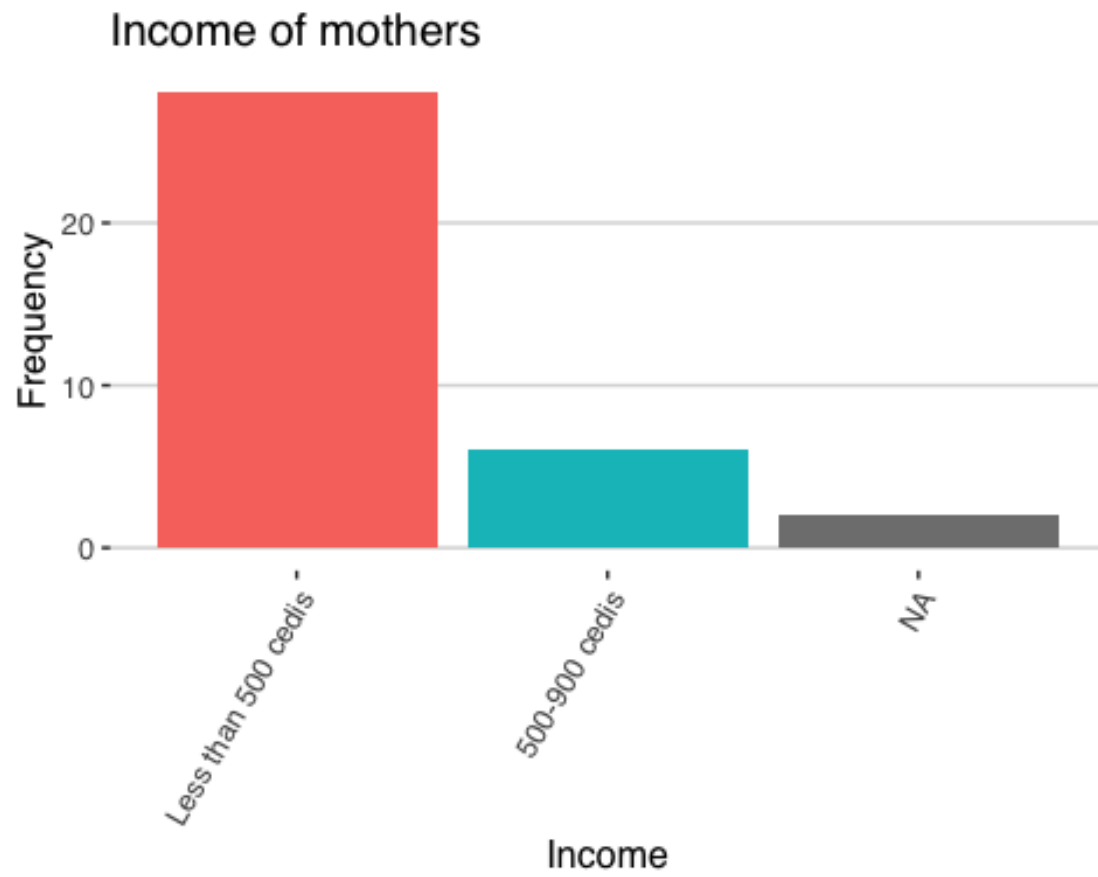*Edema*

Children above 5 years (Group 2)

Sex of children
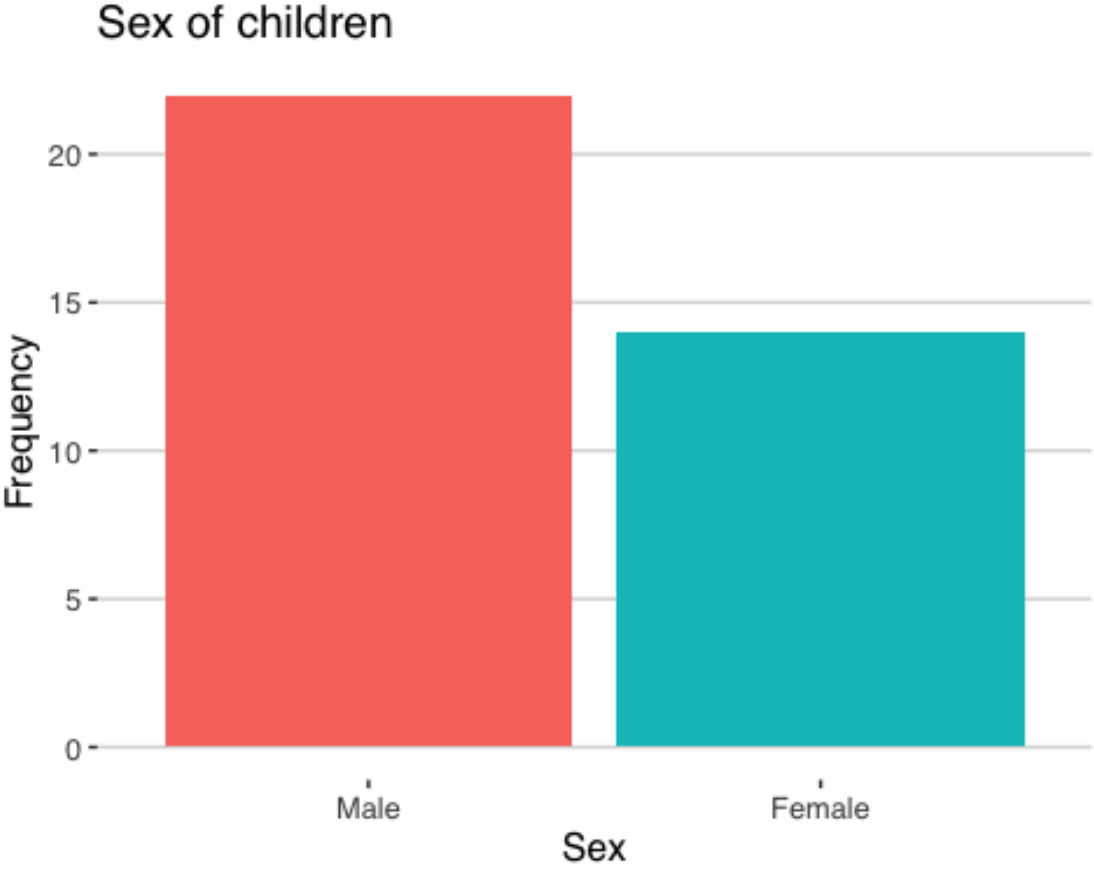
Educational level of mothers
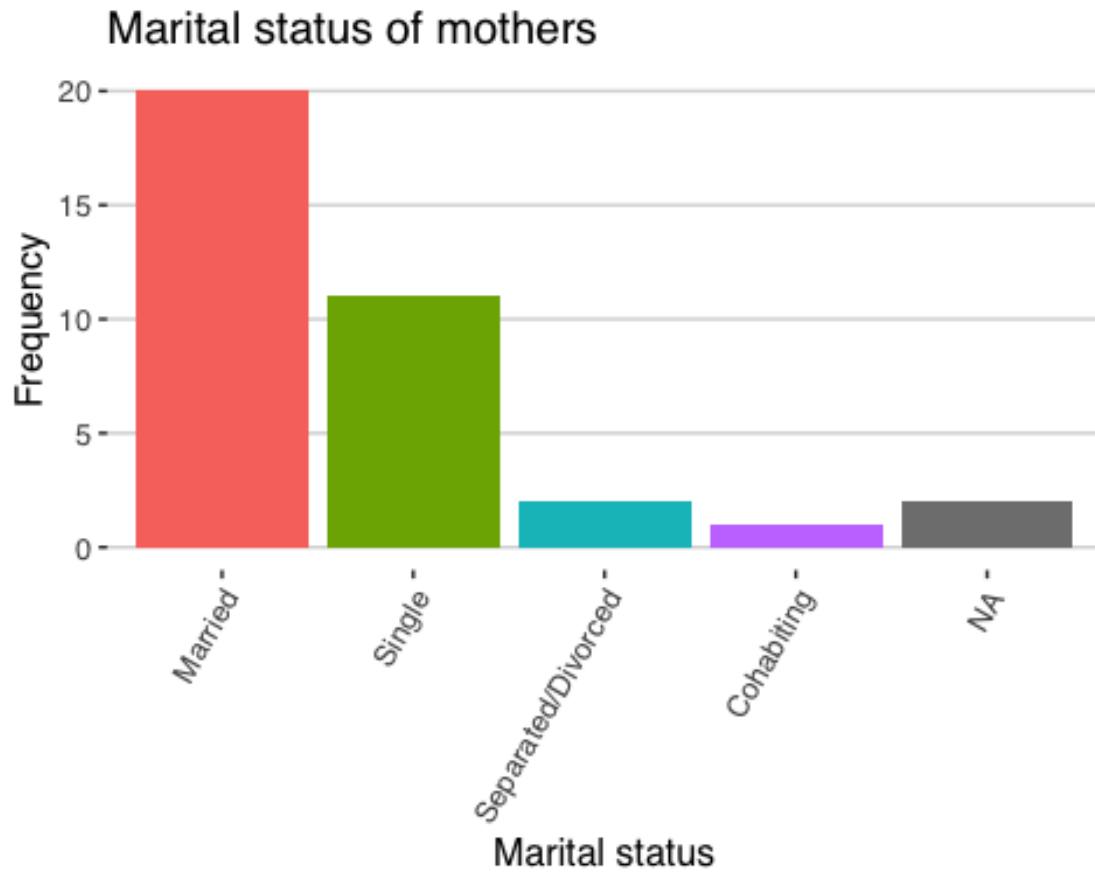
Educational level of mothers

Marital status of mothers
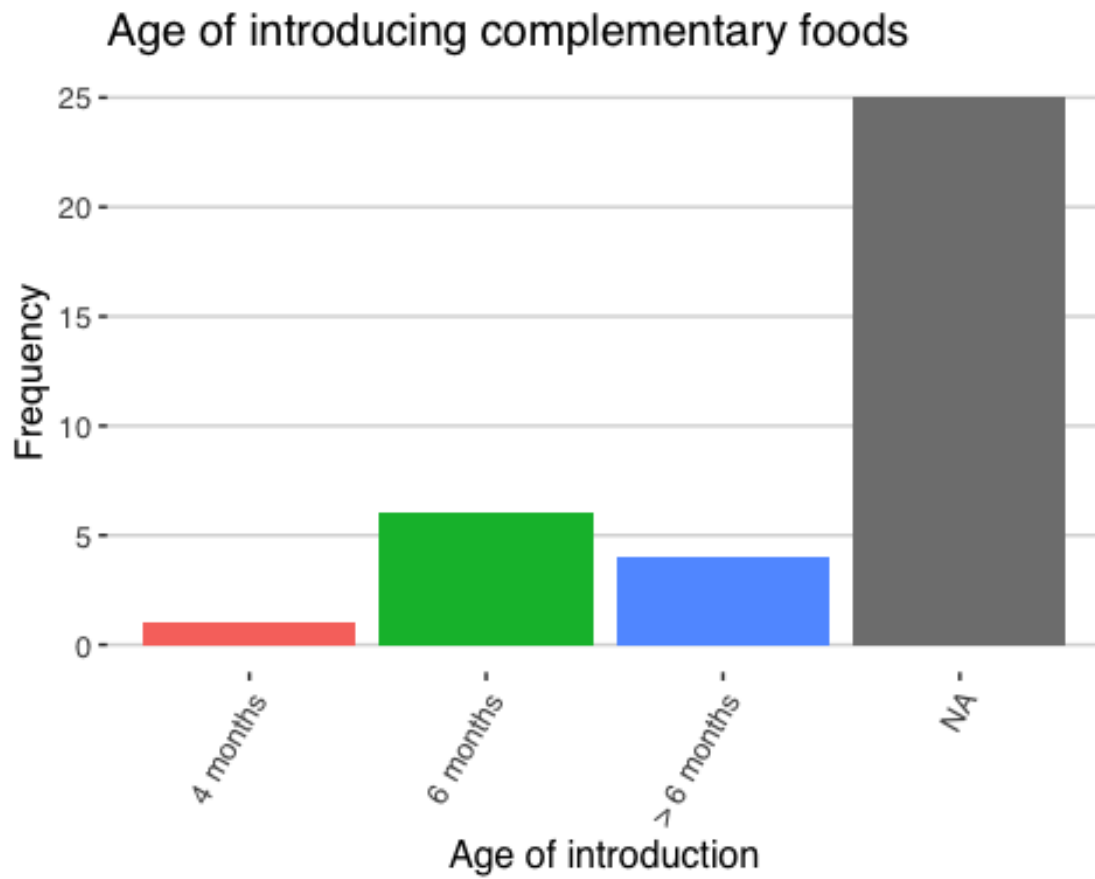
Occupation of mothers

Income of mothers

Duration of breastfeeding after birth

Duration of breastfeeding after child was delivered

Breastfed the day before the survey

Was child breastfed the day before the survey
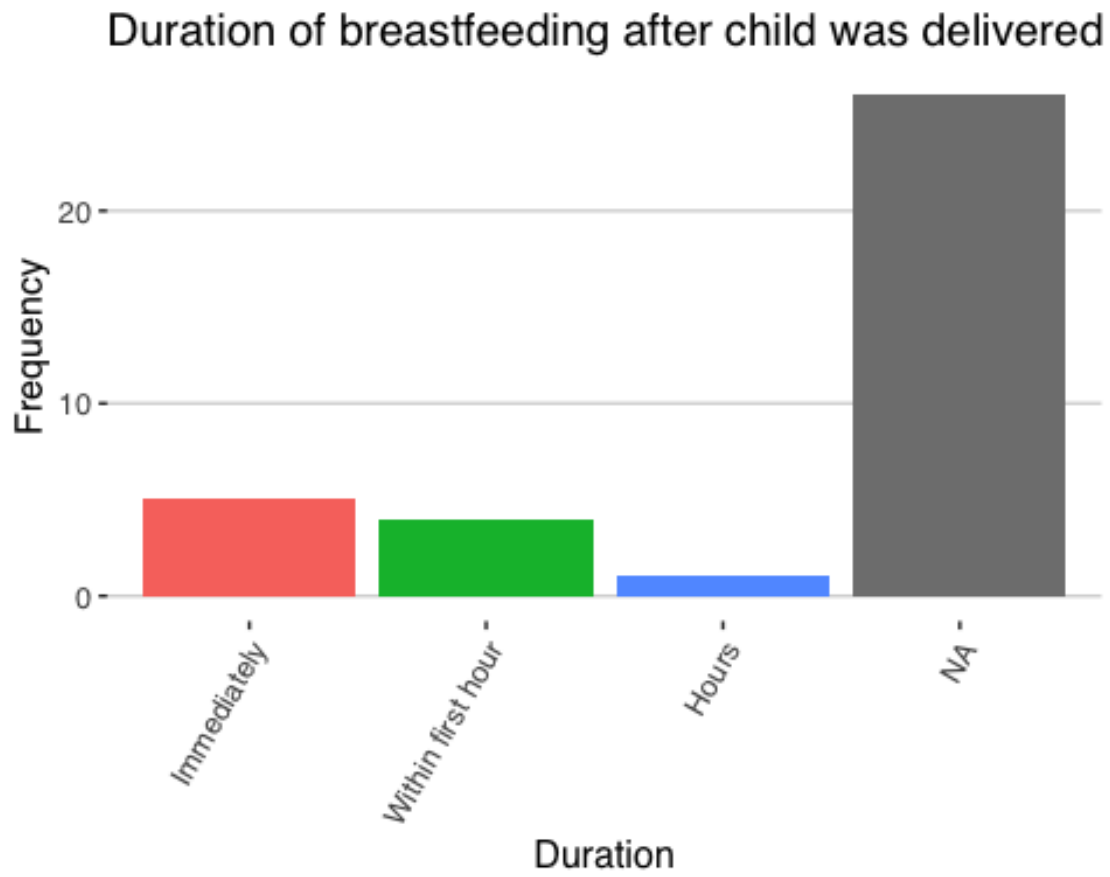
Age of introduction of complementary foods
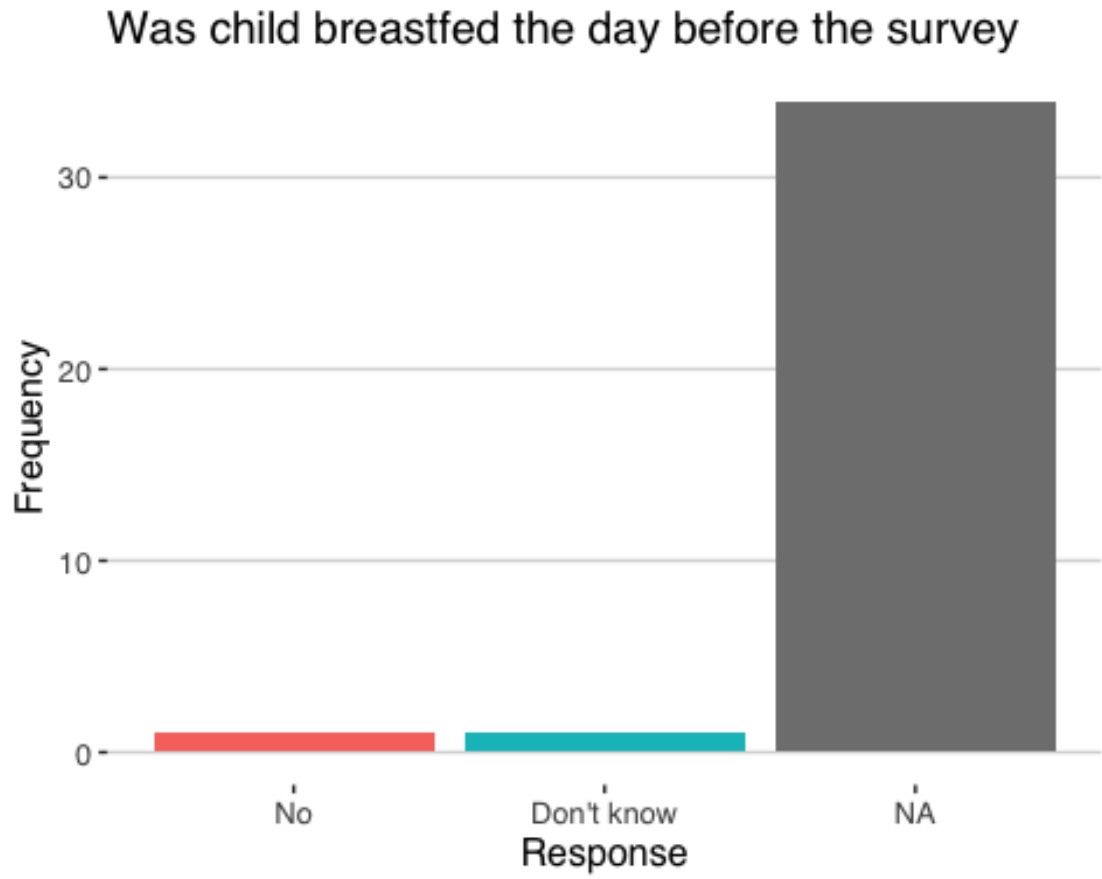
Age of introducing complementary foods

Edema

None of the children presented with edema.

5. Nutrition Intervention

Complementary Feeding Education & Demonstration

Nutrition education was provided to mothers who were in attendance at the project site regarding appropriate complementary feeding practices. Also, a food demonstration was done to show mothers how to prepare a sample complementary food.

Donation of Nutrition Assessment Tools

The Nutrition Officer on behalf of the District Health Directorate received assessments tools and equipment to support the continuous monitoring of the children in the district. Items donated include baby scales, MUAC tapes, Inner Body Analysing Scales and Head Circumference measuring tapes.
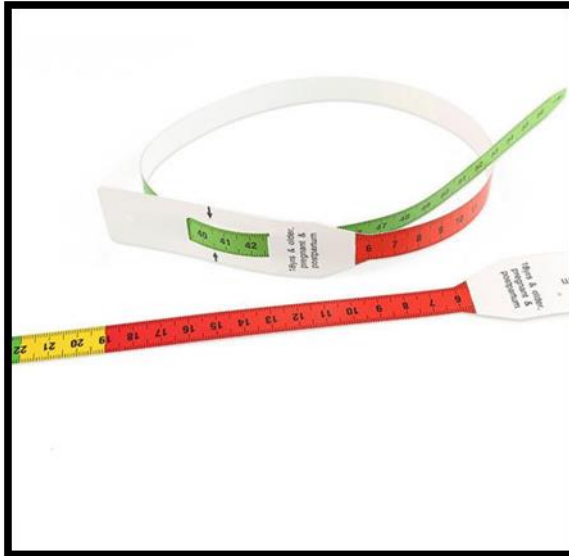
6. Conclusion

Prevalence of acute malnutrition and chronic malnutrition among a convenience sample of children 5 years and younger at Ada Foah was 13% and 25% respectively. Prevalence of acute malnutrition and chronic malnutritoin among a convenience sample of children at Ada Foah greater than 5 years was 11% and 17% respectively. Chronic malnutrition was more prevalent in both Group 1 and Group 2. Acute and chronic malnutriton was common in Group 1 than in Group 2.

7. Recommendations

Exploration of projects below would serve a great deal in providing food security and improving on the overall health and growth parameters of children in the region.

- **Mother-MUAC Project**

- **Ensuring food security and nutrition adequacy using "wastage" from stems, stalks, leaf veins, peels, bones, shells etc.**