

Food Consumption among Preschool Children of Hawking Mothers in Nairobi, Kenya

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Abstract:

Background: Adequate food consumption during the preschool period is essential for growth and development. Children accompanying mothers who engage in hawking may be vulnerable to inadequate meal frequency and limited dietary choices because they spend prolonged periods in market environments. This study assessed food consumption patterns and factors associated with meal frequency among preschool children of hawking mothers in Nairobi City, Kenya.

Materials and Methods: A descriptive cross-sectional survey was conducted among 350 mothers/caregivers and their children aged 6–59 months in Muthurwa and Toi markets in Nairobi. A multistage sampling procedure was used to select the markets and systematic random sampling was used to select respondents. Information on foods consumed on the day/night preceding interview, meal frequency during food shortage, breastfeeding, complementary feeding, food availability and cultural practices was collected. Data were analysed using SPSS and Nutri-Survey. Descriptive statistics were generated and chi-square tests were used to assess associations between categorical variables at $p < 0.05$.

Results: Fruits and vegetables were the most frequently reported food group (30.9%), followed by animal proteins (18.9%), cereals and nuts (17.7%), roots and tubers (16.6%) and foods from grains (16.0%). During food shortage, 52.3% of children received three meals per day, 35.0% received two meals and 12.6% received four meals. Among the 170 mothers/caregivers who were currently breastfeeding, 44.0% gave other foods twice daily, while 13.7% gave other foods once daily. Cultural practices were significantly associated with meal frequency ($\chi^2=19.404$, $df=6$, $p=0.004$). Marital status ($\chi^2=20.179$, $df=8$, $p=0.010$), household size ($\chi^2=44.02$, $df=14$, $p=0.0001$), and number of children under five years in the household ($\chi^2=13.949$, $df=4$, $p=0.007$) were also significantly associated with meal frequency during food shortage.

Conclusion: Food consumption among preschool children of hawking mothers included several food groups but meal frequency was constrained during food shortages. Household composition and cultural practices were important correlates of meal frequency. Nutrition interventions for this population should combine appropriate child-feeding education with measures that improve household food security and support safe feeding within market environments.

Key Word: Food consumption; preschool children; hawking mothers; food insecurity; meal frequency; complementary feeding; Nairobi; Kenya.

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I. Introduction

Optimal nutrition in early childhood is essential for normal physical growth, cognitive development and resistance to illness. Preschool children have high nutrient requirements because of rapid growth and development, and inadequate food intake may contribute to poor nutritional outcomes. The thesis underlying this paper identifies inadequate nutrition and childhood illness as interacting problems and emphasizes the importance of healthy eating in addition to adequate energy intake.

Children of hawking mothers represent a population whose feeding practices may be affected by the nature of informal market work. These children spend substantial periods with their mothers in market places or alongside market areas, where time constraints, food availability, household resources and the choice of foods available during hawking sessions may influence feeding. The importance of household food security and appropriate care practices in determining child nutrition has also been documented in Kenyan and other developing-country settings [2,3,7].

Household food insecurity was evident in the study population. Purchasing was the principal reported source of food for households (47.1%). More than half of households reported skipping meals, and during periods

of food shortage the predominant coping strategy was to skip meals. Such circumstances may reduce both the frequency and consistency of feeding of young children, particularly where household resources are limited [2,7].

Food consumption is also influenced by cultural beliefs and household circumstances. In the study population, beliefs concerning breastfeeding in public and consumption of particular foods were common. Household size, marital status and the number of young children may further affect the allocation of available food resources. Previous Kenyan work has similarly highlighted household and socioeconomic factors as important influences on child nutritional security [5,13]. This study therefore focused on the food consumption component of the larger survey and examined the foods consumed by preschool children and factors associated with meal frequency during food shortages.

Objective: To determine the food consumption patterns of pre-school children of hawking mothers in Nairobi City, Kenya.

II. Material And Methods

Study design and setting

A descriptive survey was conducted among mothers/caregivers and preschool children aged 6–59 months in Muthurwa and Toi markets in Nairobi County, Kenya in 2010. Muthurwa Market is located approximately 1.5 km from Nairobi Central Business District, while Toi Market is situated on the outskirts of Kibera. The two markets were selected through a multistage sampling procedure. The present manuscript is a focused analysis of the food-consumption component of the original study [14].

Study population and sampling

The target population comprised preschool children aged 6–59 months accompanying their mothers or caregivers to the markets during the study period. The youngest eligible child was selected as the index child representing the household. A total of 350 respondents participated, with 175 respondents recruited from each market. Systematic random sampling was used to select respondents from market sheds after the study markets had been selected.

Data collection

Structured interview schedules were used to collect information on socio-demographic characteristics, food availability and consumption, breastfeeding, complementary feeding, meal frequency during food shortage and cultural practices. The foods consumed by the child on the day or night preceding the interview were recorded and classified into food groups. Dietary data were analysed using the Nutri-Survey package. The study also used observation of the market environment as part of the wider survey.

Data analysis

Data were coded and entered in Microsoft Excel and subsequently exported to SPSS for analysis. Descriptive statistics were presented using frequencies and percentages. Chi-square tests were used to assess associations among categorical variables. Statistical significance was set at $p < 0.05$ (95% confidence level).

Ethical considerations

The original study obtained the necessary research permissions through Kenyatta University graduate school and National Council for Science and Technology (NACOSTI). Participation was voluntary, confidentiality and anonymity were maintained, and informed consent was obtained from participants.

III. Result

Socio-demographic characteristics

The study included 350 mothers/caregivers. Most respondents (67.4%) were aged 30 years or below, 31.1% were aged 31–36 years and 1.5% were above 36 years. Regarding education, 32.0% had no schooling, 34.6% had primary education, 23.4% had secondary education and 10.0% had college education or higher. Married respondents accounted for 31.4%, followed by single respondents (25.1%), separated (22.0%), divorced (11.4%) and widowed (10.0%). The underlying study was reported in Karani [14].

Table 1: Socio-demographic characteristics of mothers/caregivers (N=350)

Variable	Category	Frequency	Proportion (%)
Age (years)	30 and below	236	67.4
	31–36	109	31.1
	Above 36	5	1.5
Education	No schooling	112	32.0
	Primary	121	34.6
	Secondary	82	23.4
	College and above	35	10.0
Marital status	Single	88	25.1
	Married	110	31.4
	Separated	77	22.0

	Divorced	40	11.4
	Widowed	35	10.0

Food groups consumed

Foods consumed on the day or night preceding the interview were classified into animal proteins, fruits and vegetables, roots and tubers, foods from grains, and cereals and nuts. Fruits and vegetables were the most frequently reported food group overall (30.9%). Animal proteins accounted for 18.9%, cereals and nuts 17.7%, roots and tubers 16.6%, and foods from grains 16.0%. Fruits and vegetables predominated in the younger age group, while animal-source protein consumption was highest in the 36–47-month age group.

Table 2: Food consumed by the child on the night preceding the interview

Age in months	Animal proteins n (%)	Fruits & vegetables n (%)	Roots & tubers n (%)	Foods from grains n (%)	Cereals & nuts n (%)
6–11	5 (1.4)	12 (3.4)	7 (2.0)	8 (2.3)	7 (2.0)
12–23	12 (3.4)	33 (9.4)	19 (5.4)	16 (4.6)	17 (4.9)
24–35	15 (4.3)	23 (6.6)	11 (3.1)	15 (4.3)	15 (4.3)
36–47	25 (7.1)	26 (7.4)	14 (4.0)	8 (2.3)	9 (2.6)
48–59	9 (2.6)	14 (4.0)	7 (2.0)	9 (2.6)	14 (4.0)
Total	66 (18.9)	108 (30.9)	58 (16.6)	56 (16.0)	62 (17.7)

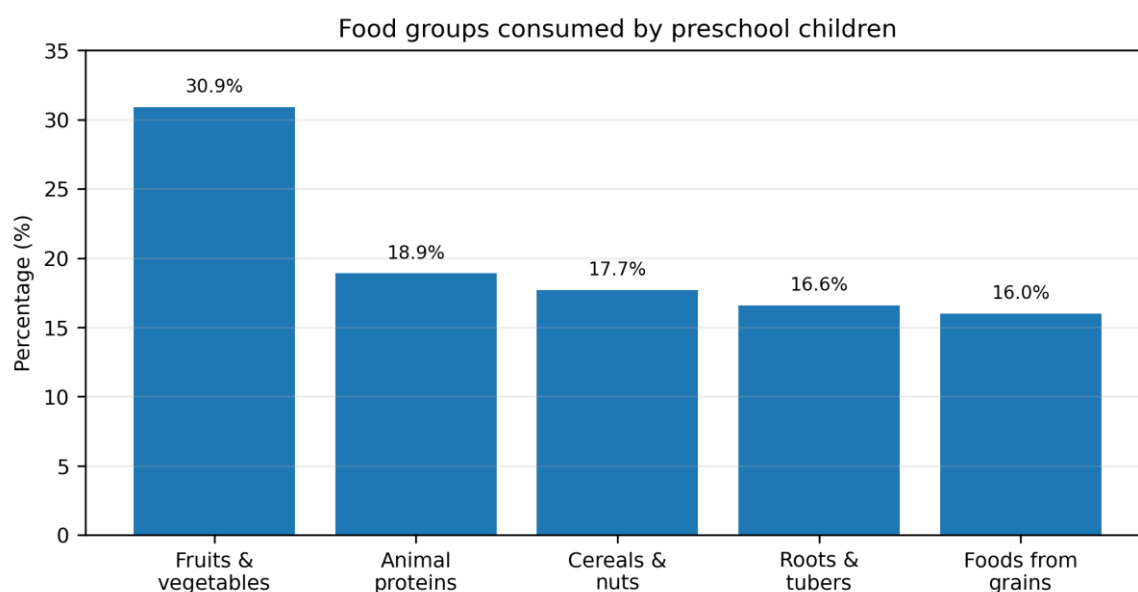


Figure 1: Overall distribution of food groups consumed by preschool children.

Household members who go without food in times of food shortage.

Regarding family members going without food fig 3 shows that over 62.3% of the mothers/caretakers had the adult women going without food whereas only 6.3% and 9.9% were children under five years and children over five years. These findings are in line with other studies that have consistently shown that in times of food shortages, mothers and adult women mostly go without food as compared to other members of the family.

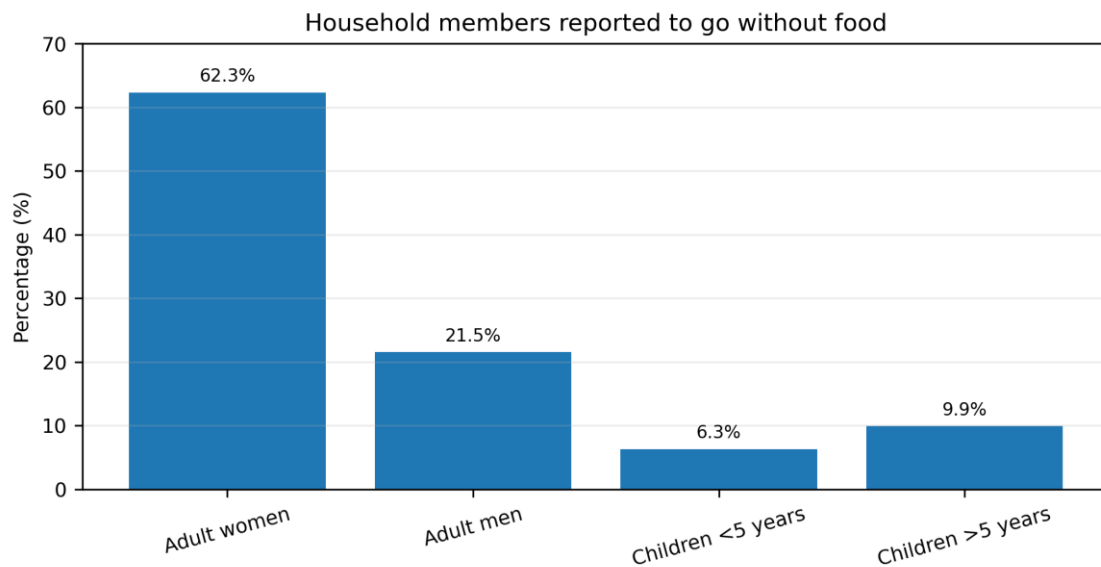


Figure 3 Household members reported to go without food during food shortage.

Meal frequency during food shortage

During periods of food shortage, 52.3% of children aged 6–59 months received three meals per day, 35.0% received two meals and only 12.6% received four meals. The main household response to food shortage was meal skipping; 66.9% of households reported surviving food shortages by skipping meals.

Table 3: Number of meals taken by children aged 6–59 months during food shortage

Number of meals/day	Frequency/Proportion
2 meals	35.0%
3 meals	52.3%
4 meals	12.6%

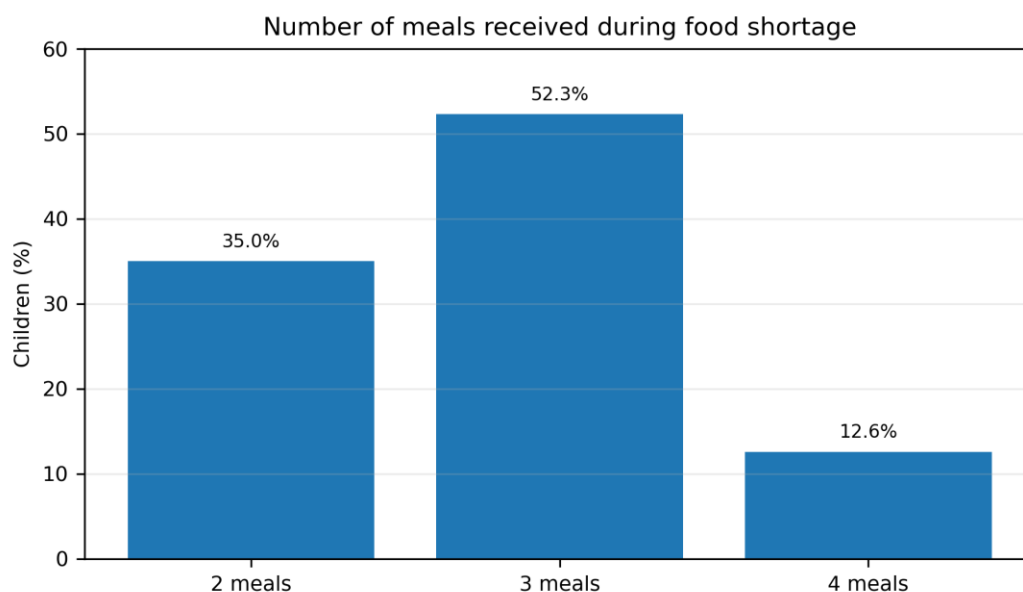


Figure 2: Number of meals received by children aged 6–59 months during food shortage.

Breastfeeding and feeding on other foods

Among the 350 mothers/caregivers, 48.6% (170) were still breastfeeding the index child while 51.4% were not. Among the 170 who were still breastfeeding, 34.1% breastfed six times daily, 30.0% five times, 20.0% three times and 15.9% four times. Of the breastfeeding mothers, 44.0% fed their children foods other than breast milk twice daily, 13.7% once daily and 18.9% four times daily.

Table 4: Breastfeeding and feeding of other foods among currently breastfeeding children

Indicator	Category	Proportion (%)
Currently breastfeeding	Yes	48.6
	No	51.4
Breastfeeding frequency/day (n=170)	3 times	20.0
	4 times	15.9
	5 times	30.0
	6 times	34.1
Other foods/day among breastfeeding children	Once	13.7
	Twice	44.0
	Four times	18.9

Cultural practices and complementary feeding

Cultural beliefs concerning child feeding were common. Overall, 62.9% of mothers/caregivers believed that children should not be breastfed in public, 19.0% believed that children should not eat eggs because this could affect talking, and 4.9% believed that children should not eat bananas because they cause bloating. Regarding initiation of complementary feeding, 30.9% reported introducing solid foods at three months, 18.9% at two months and 17.7% at six months.

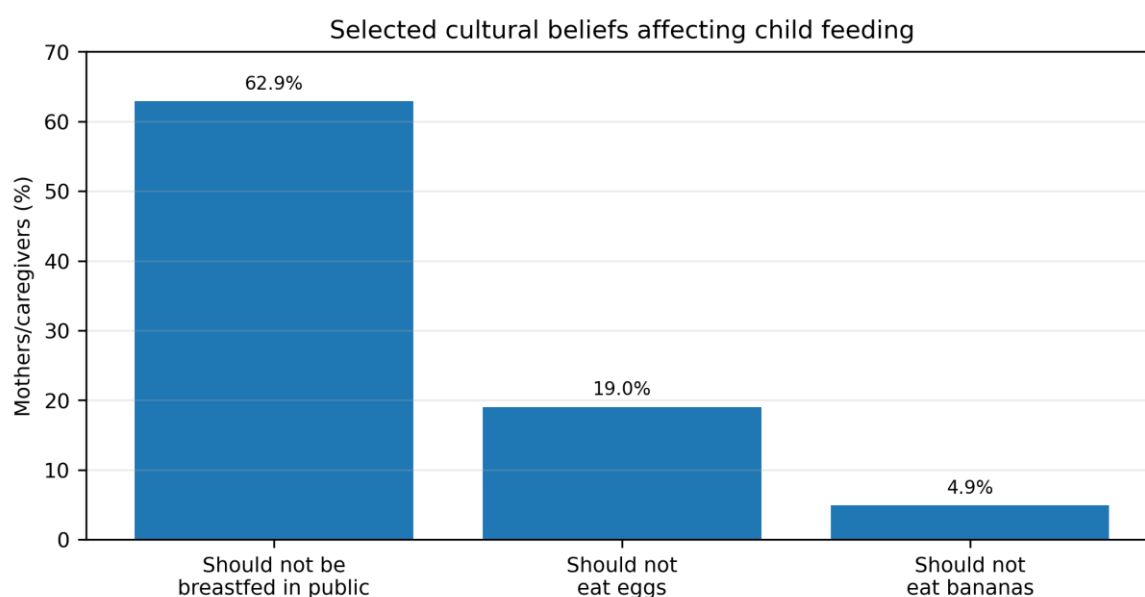


Figure 4: Selected cultural beliefs affecting child feeding.

Factors associated with meal frequency during food shortage

Cultural practices were significantly associated with the number of meals children received during food shortage ($\chi^2=19.404$, $df=6$, $p=0.004$). Marital status of the mother/caregiver was also significantly associated with meal frequency ($\chi^2=20.179$, $df=8$, $p=0.010$). Household size showed a strong association with meal frequency ($\chi^2=44.02$, $df=14$, $p=0.0001$), as did the number of children below five years in the household ($\chi^2=13.949$, $df=4$, $p=0.007$).

Table 5: Association between number of meals during food shortage and selected categorical variables

Independent variable/category	2 meals n (%)	3 meals n (%)	4 meals n (%)	χ^2	df	p-value
Cultural practice: children should not eat eggs	17 (4.9)	38 (10.9)	13 (3.7)	19.404	6	0.004*
Cultural practice: children should not be breastfed in public	89 (25.4)	111 (31.7)	20 (5.7)			
Cultural practice: children served after adults	9 (2.6)	25 (7.1)	11 (3.1)			
Cultural practice: children should not eat bananas	8 (2.3)	9 (2.6)	0 (0.0)			
Marital status: Single	40 (11.4)	34 (9.7)	14 (4.0)	20.179	8	0.010*
Marital status: Separated	29 (8.3)	40 (11.4)	8 (2.3)			
Marital status: Divorced	6 (1.7)	26 (7.4)	8 (2.3)			

Marital status: Widowed	8 (2.3)	25 (7.1)	2 (0.6)			
Marital status: Married	40 (11.4)	58 (16.6)	12 (3.4)			
Household size: 2	1 (0.3)	0 (0.0)	0 (0.0)	44.02	14	0.0001*
Household size: 3	4 (1.1)	9 (2.6)	5 (1.4)			
Household size: 4	40 (11.4)	31 (8.9)	5 (1.4)			
Household size: 5	39 (11.1)	85 (24.3)	13 (3.7)			
Household size: 6	25 (7.1)	38 (10.9)	8 (2.3)			
Household size: 7	11 (3.1)	9 (2.6)	8 (2.3)			
Household size: 8	0 (0.0)	10 (2.9)	5 (1.4)			
Household size: 9	3 (0.9)	1 (0.3)	0 (0.0)			
Number of under-5s: 1	45 (12.9)	38 (10.9)	10 (2.9)	13.949	4	0.007*
Number of under-5s: 2	55 (15.5)	112 (32.0)	30 (8.6)			
Number of under-5s: 3	23 (6.6)	33 (9.4)	4 (1.1)			

IV. Discussion

The study shows that preschool children of hawking mothers consumed foods from several food groups, with fruits and vegetables forming the largest reported category. Animal-source foods were also consumed, particularly among older preschool children. However, food-group presence alone does not establish dietary adequacy because the study did not quantify portion sizes or nutrient intake in this publication extract.

Food insecurity was an important constraint on meal frequency. More than half of the children received three meals during food shortages, but 35.0% received only two meals and 12.6% received four meals. The predominant household coping strategy was skipping meals. These findings suggest that the food environment of hawking households can influence the consistency with which young children are fed. [2,7]

Meal frequency was significantly associated with household structure. Larger household size and a greater number of children below five years were associated with meal frequency during food shortages. The likely mechanism is competition for limited household food resources, although the cross-sectional design does not permit causal inference. Previous research has also identified household circumstances as relevant to child nutrition [5].

Cultural practices were also associated with meal frequency. The high proportion of caregivers who believed that children should not be breastfed in public is particularly relevant for mothers who spend much of the day in public market spaces. Such beliefs may make it difficult to maintain feeding practices when mothers are away from home. Nutrition education should therefore be culturally sensitive and should address beliefs that may restrict appropriate child feeding. Appropriate infant and young child feeding guidance emphasizes counselling that is sensitive to local beliefs and practices [8,9].

Complementary feeding practices also warrant attention. Only 17.7% of caregivers reported initiating complementary feeding at six months, whereas substantial proportions reported introduction at two or three months. Among breastfeeding mothers, 44.0% provided foods other than breast milk twice daily. The original study similarly emphasized the importance of timely complementary feeding and continued breastfeeding in reducing nutritional risk. [8,9,10]

The market setting may further influence food choices and food safety. The wider study observed that some mothers purchased prepared foods from market vendors when they had no packed food for their children. The thesis reported that some cooked foods were held at environmental temperatures for prolonged periods and only slightly reheated. Thus, improving food consumption among hawking mothers requires attention not only to food quantity and diversity but also to safe preparation, storage and feeding. [1,6,11]

V. Conclusion

Preschool children of hawking mothers in Nairobi consumed foods from several food groups, with fruits and vegetables being the most frequently reported. Nevertheless, food insecurity reduced meal frequency for a substantial proportion of children during food shortages. Cultural practices, marital status, household size and the number of children under five years were significantly associated with meal frequency. Improving child nutrition in this population therefore requires an integrated approach that combines nutrition education, culturally appropriate counselling, household food-security support and safe feeding opportunities within market environments.

Recommendations

1. Implement targeted nutrition education for hawking mothers on dietary diversity, meal frequency, timely complementary feeding and continued breastfeeding.
2. Address cultural beliefs that restrict breastfeeding in public or limit children's consumption of nutrient-rich foods.
3. Strengthen food-security and livelihood interventions for households of hawking mothers to reduce reliance on meal skipping during food shortages.

4. Provide practical market-based opportunities for safe breastfeeding and child feeding.
5. Promote safe preparation, storage and handling of foods purchased or prepared within market environments.
6. Undertake larger studies among hawking mothers in other urban markets to determine the generalizability of these findings.

References

- [1]. ACF. Water, sanitation and hygiene for population at risk. Paris: Herman Publishers; 2005.
- [2]. Applied Nutrition Programme (ANP). Food and Nutrition Security Survey in Maragua and Gikingo Locations of Tharaka District, Eastern Province, Kenya. Department of Food Science, Technology and Nutrition, University of Nairobi; 2000.
- [3]. African Population and Health Research Center (APHRC). Urbanization, Poverty and Health Dynamics Study. Nairobi, Kenya: APHRC; 2008.
- [4]. Black RE, Brown KH. Effects of diarrhoea-associated specific enteropathogens on the growth of children in rural Bangladesh. *Pediatrics*. 2003.
- [5]. Chesire EJ. Determinants of under nutrition among school age children in Kawangware peri-urban slum, Nairobi, Kenya. MSc Thesis, Kenyatta University; 2007.
- [6]. Curtis V, Caimcross S. Effect of washing hands with soap on diarrhea risk in the community: a systematic review. *Lancet Infectious Diseases*. 2003;3:275–281.
- [7]. Kenya Demographic and Health Survey (KDHS). Kenya Demographic and Health Survey Report. Nairobi, Kenya; 2008.
- [8]. Ministry of Health (MOH), Kenya. National Policy on Infant and Young Child Feeding Practices. Nairobi: Ministry of Health; 2000.
- [9]. Pan American Health Organization and World Health Organization. Guiding Principles for Complementary Feeding of the Breastfed Child. Washington/Geneva: PAHO/WHO; 2003.
- [10]. UNICEF. State of the World's Children 2004. New York: UNICEF; 2005.
- [11]. WHO/UNICEF. Meeting the MDG Drinking Water and Sanitation Target: The Urban and Rural Challenge of the Decade. UNICEF/WHO; 2006.
- [12]. WHO. World Food Summit Report. Geneva: World Health Organization; 2003.
- [13]. Echoka E. Barriers to child nutrition security in food secure households: A study of Mjini village in Bungoma, Kenya. Thesis, Kenyatta University; 2007.
- [14]. Karani LK. Diarrhoea morbidity and nutritional status among pre-school children of hawking mothers in Nairobi City Markets, Nairobi County, Kenya. Master's thesis. Kenyatta University; 2011.