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DIETARY INTAKE, FEEDING AND CARE PRACTICES OF CHILDREN IN KATHONZWENI DIVISION, MAKUENI DISTRICT, KENYA

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C. W. MACHARIA, W. KOGI-MAKAU and N. M. MUROKI*

ABSTRACT

Objective: To determine and compare the socio-economic characteristics, childcare and feeding practices among children aged 6-59 months of households participating in a World Vision Kenya programme with non-participants.

Design: A comparative cross-sectional survey.

Setting: A World Vision Kenya project area (Kimundi and Yinthungu sub-locations) and a non-project area (Thavu and Yeekanga sub-locations) both in Kathonzwani division, Makueni district.

Study Population: A random sample of 320 children aged 6-59 months and their respective households. A sub-sample (n=60) was assessed for dietary intake.

Results: A significantly higher proportion of children in the non-project area (63.8%) than in the project area (37.5%) (p=0.00) were introduced to complementary foods within the first three months. The first main food given to children in both areas was un-enriched cereal porridge. In both areas, grandmothers were reported to be the main alternative caregivers though most of the mothers prepared food for the children while other caretakers did the actual feeding.

Conclusion: No significant difference was noted in the childcare practices in the two areas contrary to what may have been expected since the programme aimed at promoting appropriate childcare and feeding practices hence the expected difference.

INTRODUCTION

Appropriate and adequate feeding is a pre-requisite to good nutritional status in any given time of human life because consumption of nutritionally inadequate diet leads to malnutrition(1). Adequate nutrition in the early years of life is usually determined by feeding practices, which includes the method and frequency of feeding. Other factors include incidence, severity and duration of disease(2).

Childcare in addition to being inclusive of how well and frequently a young child is fed, also includes degree of stimulation and interaction with parents, prevention of diseases, good domestic hygiene, use of health services and regular growth monitoring(2). Nutritionally, childcare encompasses all measures and behaviours that translate available food and health resources into good child growth and development.

Whereas many organizations are in support of community development activities, childcare has received little emphasis perhaps due to the fact that it has rarely been reported as one of the underlying causes of malnutrition(3-4). However, factors that contribute to childcare practices in a specific setting need to be properly understood and described because this is key to achieving sustainable solutions to the problems on care practices and nutritional status.

Community-based activities aimed at changing care practices and improving the nutritional status of children require substantial resources in form of time and funds and involves partnership between communities, government and non-governmental organizations. World Vision Kenya is one of the non-governmental organizations that are involved in various activities aimed at alleviating poverty. This is through its 27 multi-sectoral projects, known as Area Development Programmes (ADPs), in drought prone districts such as Makueni, Wajir, Laikipia, Turkana and Marsabit(5).

In its broader objectives, the World Vision Kenya combines development work and relief. The organization has relief interventions, rehabilitation interventions, development of health institutions and health programmes, provision of safe water and shelter improvement, food security, micro enterprise development, vocational training and spiritual nurturing as objectives that support its efforts towards reduction of poverty in its target communities(5).

World Vision Kenya also has childcare projects, which were originally institutionalised providing the sponsored children with basic needs such as school fees, uniforms and food. With time, this changed to "family to family" projects with the child becoming the entry point into the family. The focus later moved from the family to the community in order to enhance the child and family development(5).

A study in Makueni ADP, which has been in operation since 1990, was conducted. The goal of this ADP is to contribute to the alleviation of poverty in Kathonzwani division. To achieve this, World Vision Kenya has assisted the community to construct water tanks and health centres and educates needy children through sponsorship. Community health volunteers have also been trained and are involved in delivering home-based health services. These are intervention areas that are critical to the improvement of nutrition and health among communities. This study therefore was based on the premise that the organization's input would have an impact on both the nutritional and health status of the project's beneficiaries.

The objectives of this study were to compare social-economic status, feeding practices, care practices and dietary intake of children in the World Vision Project area with those outside the project area to establish whether there is any significant difference. It also aimed at providing the relevant information for planning by World Vision Kenya in its nutrition and health projects and provides data of areas smaller than a district since most of the demographic health surveys give data for a district in general.

MATERIALS AND METHODS

A descriptive comparative cross-sectional study was carried out between August and September 2000. Households within the World Vision Project area (Kimundi and Yinthungu sub-locations) in Kathonzwani division, Makueni district and with children aged between 6-59 months were compared with those outside the project area (Thavu and Yeekanga sub-locations) but within the division.

The sample size was calculated using the statistical formula for comparative studies(6) with an assumption that approximately 30% of children in Kenya are chronically malnourished(7). Hereinafter, these groups are identified as project and non-project groups respectively.

Multi-stage sampling was done. The study was carried out in Makueni Area Development Programme (ADP), which had been purposively selected from the 27 ADPs of World Vision Kenya. In the Makueni ADP, simple random selection of the three community projects (Mavindini, Kithuki and Kanzokea), covering two locations, was done in which Kanzokea project was selected. Purposive sampling of the project sub-locations was then done. Kimundi and Yinthungu sub-location were selected.

Random sampling of the non-project area with characteristics similar to the project area was done. From the four locations without the project, two of them that had the highest number of sub-locations were selected. In each of the selected location, a sub-location was randomly selected of which Yeekanga and Thavu sub-locations were selected. A register of each set of households with children aged 6-59 months was developed and used as the sampling frame. Each household constituted a unit of analysis and had an equal probability of being included in the study. From the sampling frame, 160 households with children aged 6-59 months for each of the study area were systematically selected having calculated the proportionate sample size for every village. From the list, every household with an even number was

selected until the intended sample size was achieved. In the 160 households, the child aged between 6-59 months was selected as the index child. In instances where there was more than one child in that category, the elder one was considered to be the index child. For dietary intake, a sub-sample of 30 children from each group was selected by systematic sampling. This was achieved by selecting every first and last household where a questionnaire was administered per day for dietary assessment until the required sample size was achieved.

A structured questionnaire was used to collect information on socio-demographic and socio-economic characteristics of the study households as well as the childcare Practices and activities. Observation, interviews and informal key informant interviews were also used in the data collection.

Food intake measurements for the index children were done to determine the caloric and protein intakes using a single 24-hour recall method. Detailed descriptions of all meals eaten within the period were recorded in a table designed for this purpose(8). Adequacy of the diet was calculated using consumer units in reference to an adult male of 20-29 years whose requirements is estimated to be 2960 Kcal per day(9,10). Statistical analysis of data was done using Statistical Package for Social Sciences (SPSS) version 11.

RESULTS

The total population in the 320 households was 2215 persons with 50.9% in the World Vision Project area. Tests of statistical significance show that the two groups were similar in the socio-economic and demographic characteristics. Six hundred and seven (607) children were below the age of five years of which 48.3% were in the World Vision Project area. More than half of the population in both the project (54.7%) and non-project area (56.8%) was less than 15 years of age. In the productive age (15-64 years), the proportion was higher (42.4%) in the project area than in the non-project area (40.9%) but this difference was not significant. (Figure 1).

Figure 1

Population distribution by age and sex in the project and non-project area

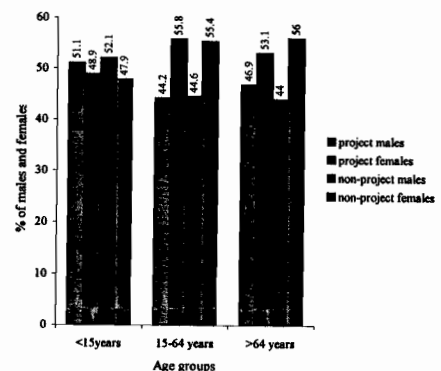
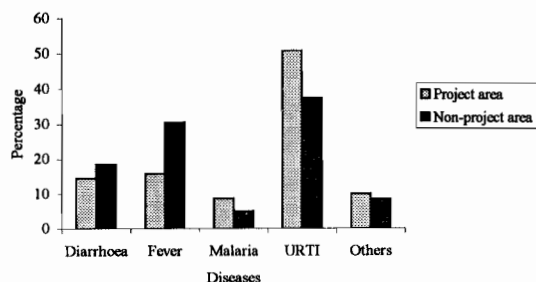


Figure 2

Distribution of children by type of illness



*Others include eye and skin infections. URTI- Upper Respiratory Tract Infections

The education levels of the population were essentially the same in both the project and non project areas. About a third in the study group were pre-school children (33.5% and 33.4%) in the project and non-project area respectively. Less than a third of the mothers in the project (31.8%) and non-project areas (25.8%) had not completed primary education. Slightly less than half of the mothers had gone past primary education but did not complete secondary education in the project area (41.4%) as compared to just over a half in the non-project area (51%). Casual labour is the major source of income for about half of the households in both the project area (55%) and non-project area (58.8%).

There was no significant difference in the proportion of the index children breastfeeding in the project (35%) and in the non-project area (41.9%) at the time of the study. Among those who were not breastfeeding, there was a higher but not significantly different proportion of children in the project area (11.5%) who breastfed for 12 months or less compared to the non-project area (6.5%) (Table 1).

The number of children who were exclusively breastfed for the first three months was significantly higher in the project area (62.5%) than in the non-project area (36.2%) (Table 2). The major reason to stop breastfeeding for children below 18 months and especially between 12-18 months is next pregnancy as reported by 48.9% of the households in the project area and 45.7% in the non-project area. Porridge was the most common food first given to children in nearly all the households within the project (96.9%) and non-project (93.2%) area

A. higher but statistically insignificant proportion of mothers in the project area (90%) than in the non-project area (86.3%) used milk as complementary food.

A chi-square test on the reported cases of food withholding during illness showed a significant difference ($p=0.03$, CI 1.521-9.885) in the two areas with a higher proportion in the project area (13.8%) compared to non-project area (3.8%). Student's t-test showed that the mean caloric intake though higher in the project area, (1354+261) than in the non-project area, (1298.6+196.3) was not statistically different (Table 3). The mean protein intake on the other hand was higher in the non-project area, (48.1+11.5) compared to the project area (37.7-7.4) but was also not statistically different ($p=0.196$). About a quarter of the children in both groups (27.7% and 21.7% in project and non-project area respectively) did not have adequate caloric intake while over 95% of the children in both groups met the protein requirements. These proportions were however not significantly different in the two groups.

Though the primary caregiver of the index child was the mother, alternative caregivers were very instrumental especially when the mother was away. Grandmothers were the main alternative caregivers accounting for practically a similar number of households (which was slightly less than half) in both groups. Elder siblings ranked second in alternative care giving and accounted for close to third in both areas (37.5% and 34.4% in the project area and non-project area respectively). The study shows that practically the same proportion of mothers in both groups prepare the food for the index child, 87.5% and 90.6% in the project and non-project area respectively.

There was no significant difference in mode of rubbish disposal in the two areas. More households in the non-project area (54.3%) though not significantly different compared to the project area (41.3%) have a pit latrine. None of the households had tap/piped water. Dams, wells and rivers were the main water sources in both the project and non-project area. A practically similar proportion of households in both areas (79.4% in the project area and 74.4% in the non-project area) take more than one hour to get to the nearest water source. More than three-quarters of the households in both the project (89%) and non-project (86.4%) area use more than 80 litres of water per day.

Table 1

Distribution of children by breast feeding status by age in project and non project areas

Age in months	Project Area (n=160)		Non-project Area (n=160)	
	Still breastfeeding (n=56) No. (%)	Stopped breastfeeding (n=104) No. (%)	Still breastfeeding (n=57) No. (%)	Stopped breastfeeding (n=93) No. (%)
6-12	19 (33.9)	12 (11.5)	16 (23.9)	6 (6.5)
13-18	17 (30.4)	45 (43.3)	25 (37.3)	35 (37.6)
19-24	14 (25)	24 (23.1)	17 (25.4)	31 (33.3)
>24	6 (10.7)	23 (22.1)	9 (13.4)	21 (22.6)

Table 2

Distribution of children by age at introduction of complementary foods

Age (months)	Project Area (n=160) No. (%)	Non-project Area (n=160) No. (%)	P-value	95% Confidence interval
1-3	60 (37.5)	102 (63.8)	0.00*	0.217-0.537
4-6	92 (57.5)	52 (32.5)	0.00*	1.781-4.432
> 6	8 (5)	6 (3.8)	0.585	0.458-3.986

*p-value significant

Table 3

Caloric and protein intake of under five in the project and non-project areas

	% Receiving less than RDA ^a			% Receiving < 80% of RDA		
	PA ^b (n=30)	NPA ^b (n=30)	Significance*	PA	NPA	Significance*
Caloric intake ¹ (months)						
6-12	5	3.3	NS	3.3	3.3	NS
13-24	6.7	11.7	NS	5	10	NS
25-59	15	6.7	NS	6.7	1.7	NS
Protein intake ¹ (months)						
6-12	0	1.7	NS	0	1.7	NS
13-24	0	0	NS	0	0	NS
25-59	3.3	0	NS	3.3	0	NS
Average intakes	Project Area	Non-Project Area		p-value		
Caloric intake	1354±261	1298±196.3		0.742		
Protein intake	37.72±7.4	48.1±11.5		0.196		

¹=based on the physiological weighting of consumer units, PA^b= Project area, NPA^b= Non-project area
RDA^a =Recommended dietary allowance

Table 4

Distribution of households by distance and time to health facilities

	Project area (n=160)		Non-project area (n=160)		P-value	Confidence intervals
	No.	(%)	No.	(%)		
Time to health facility						
0-1 hour	103	64.4	65	40.6		
Over 1 hour	57	35.6	95	59.4	0.00*	1.681-4.150
Where treated						
Home	21	30.4	25	42.4	0.524	0.436-1.527
Hospital	31	44.9	18	30.5	0.044*	1.012-3.552
Traditional doctor	2	2.9	2	3.4	1.000	0.139-7.187
No treatment	15	21.7	14	23.7	0.846	0.503-2.315

* p-value significant Significance at p<0.05

The proportion of children who were ill within the last 14 days preceding the survey was not significantly different in the two areas (p=0.254, OR 1.298, CI 0.829-2.032). Symptoms of upper respiratory tract infections (URTI), which include running nose, cough and ear infections, were reported in a higher proportion of households in the project area (50.7%) than in the non-project area (37.3%) (Figure 2). On the other hand,

more cases of diarrhoea were reported in the non-project area (16.9%) as compared to the project area (14.5%). More than three-quarters of the children had received full immunization in both the project (80.6%) and non-project area (87.5%) at the time of the study. A significantly higher proportion (59.4%) of households in the project area compared to the non-project area (35.6%) use more than one hour to travel to the nearest

health facility (Table 4). In spite of the time taken, a significantly higher proportion of the sick children in the project area (44.9%) were treated in a health facility than in the non-project area (30.5%) ($p=0.04$).

DISCUSSION

Households in both areas were found to have almost similar characteristics that are reflective of the general characteristics of Eastern Province(7). Low education levels may account for the high ranking of casual labour as a source of income compared to salaried income in both areas. This explains the poor economic status of the households in both areas since returns from casual labour are low and irregular especially during the dry season when there is almost no demand for farm labour. As such, inaccessibility to casual labour may explain the fact that most mothers were able to prepare and feed their children. However, the quality and quantity of food given is low as reflected in the types of complementary foods given to the children.

Levels of child mortality have been found to decrease with use of safe water sources and latrines(4). Majority of the households in the study area use unprotected water sources in addition to the fact that a half of the households take more than two hours to the nearest water sources. This may negatively affect the childcare practices especially feeding which is crucial during management of respiratory infections and eventually the nutritional status of children(11). The prevalence of fever and diarrhoea is almost similar to the Makueni district prevalence reported in the 1998 Kenya Demographic Health Survey in both areas(7). This implies stagnation in improvement of morbidity status over the four-year period. The prevalence of the diseases associated with poor sanitation such as diarrhoea could be explained by the fact that a high proportion (>84%) of the households use unprotected water thus increasing the risk of exposure to disease causing agents and waste in and around communities and households(12).

The availability of quality healthy services is a major factor influencing health status of a population. High coverage of immunizations against diseases of childhood is considered to be a safeguard to better nutrition and health(13). It was observed that a big proportion of the children in both areas had completed immunization. Medical attention was sought by almost a half of the households in the project area in case of illness, which could imply that provision of health facilities close to the people enhances the use of the same, thus promoting child health care(14).

Questions on appropriateness of exclusive breastfeeding up to six months have led to many observational studies regarding this issue. For instance,

in Honduras, it was established that no additional nutritional advantage is derived from complementary foods given at the age of four months rather than six months(15). In this study, prevalence of exclusive breastfeeding was very low with nearly all (95%) children receiving complementary foods by the first three months of life. This observation is similar with the observation made in the 1998 Kenya demographic health survey in which 94% of the children had received supplementation foods within the first four months of life(7). This could be explained by the fact introduction of supplements before the age of four months could be considered beneficial to the mother or child care provider since most care providers feed their children as a response to their restlessness and they get peace in return. Even when mothers are not physically away, exclusive breastfeeding is still not common which could indicate that mothers either do not have information on the benefits of exclusive breastfeeding or have not yet appreciated its role in the early months of life of a child.

Cereal porridge is the first main complementary food that is given to African infants(15) yet starchy cereal porridges have energy and nutrient densities that are lower than those of breast milk (i.e. 30kcal/100ml and 70kcal/100ml respectively). Thus, since cereal porridges was the main complementary food and was not enriched with milk, the energy and nutrient quality of the children's diet was poor. Due to the drought situation in the area, the inadequacy of the diet is even aggravated. This can explain the high prevalence of malnutrition once complementary feeding and eventually weaning begins.

It was found that the majority of the children stopped breastfeeding between 13-18 months in both areas, which compares with the findings in an Ethiopian slum area(16). This may be explained by the fact that next pregnancy, which is classified as an underlying cause for malnutrition in the UNICEF's conceptual framework, was one of the major reasons for stopping children under the age of 18 months from breastfeeding. It could also be an indication that child spacing interval is too short and this is detrimental to the welfare of the elder and the younger child as well as the mother. Child spacing affects the care practices for children since the mother has to share out her time to care for the newborn and if the food for the child being weaned is insufficient then the level of nutritional insecurity rises.

The low consumption of animal proteins observed in this study is typical of many developing countries. Although cow milk was reportedly given to children in both areas, the intake was low because of the drought situation in the area. These observations indicating little difference in the types of complementary foods used in both areas can be explained by the fact that the socio-economic status and demographic characteristics were not different.

CONCLUSION

This study concluded that child feeding and other childcare practices are still poor even in the project area despite the community development support given by World Vision. World Vision group is further in terms of time used to get to the health facility, nevertheless, the project group is more prone to utilising health facility based treatment which is likely to be an immediate outcome of World Vision inputs. There is, therefore, need for community development activities to have programmes with particular emphasis on childcare practices. This should include provision of adequate water and sanitary facilities as this may negatively affect the nutrition situation in an area if inadequate.

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