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CHILD CARE PRACTICES AND NUTRITIONAL STATUS OF CHILDREN AGED 0-2 YEARS IN THIKA, KENYA

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**CHILD CARE PRACTICES AND NUTRITIONAL STATUS OF CHILDREN AGED 0-2 YEARS
IN THIKA, KENYA**

F. KAMAU-THUITA, A.M. OMWEGA and J.W.G. MUITA

ABSTRACT

Objective: To assess time allocation for child care and the nutritional status of children aged 0-2 years.

Design: Cross sectional descriptive survey using a structured questionnaire and taking of anthropometric measurements to determine the nutritional status of children aged 0 to 2 years. In addition, two day (10 hour) observations were conducted in a sub-sample of households to assess time allocation for the main child care activities.

Setting: A low-income peri-urban section of Thika town (in Makongeni estate), Kenya.

Subjects: A random sample of 150 mothers and their 0-2 year old children.

Results: Mother's knowledge about child care influences the amount and type of care that is given to children. Time taken to perform various activities was also found to vary with the mother's education level, her occupation, number of children less than five years in the house and the child's age and birth order. Comparatively, children who were malnourished (stunted) had less time devoted to them for breastfeeding, food preparation and feeding. Although mothers were the primary caregivers, the responsibility of care giving was shared with other household members as well as with neighbours.

Conclusion: The amount and type of care that a child receives is determined to a large extent by the mother and caregivers knowledge.

INTRODUCTION

Nutritionists and other health professionals have for a long time equated nutrition outcomes as a function primarily of food availability and infection. However, there has been a recent shift of emphasis so that the causes of poor child nutrition as reflected in child survival, growth and development have undergone re-assessment. As a result, the hitherto ill-defined 'other non-food and non-health factors' are now under the subject of the role of care in determining the nutrition outcome of children(1,2). There is evidence which suggests that a caregiver's knowledge, attitude and actions towards proper care for the child are crucial to the nutritional outcome of a child. Care giving affects the child's health status and consequently the nutrition status mainly through protection of the child from pathogens, which depends on the care giver's cleanliness and sanitation, use of health care services for routine checks (for example growth monitoring) and nursing care for the child during episodes of illness(3). Children

lacking appropriate care are exposed more frequently to a clustering of risk factors including illnesses, poor nutrition, family stress and unstimulating environments(4,5).

According to Zeitlin(6) and Myers *et. al.*(7), care giving behaviours include breastfeeding, providing emotional security and reducing the child's stress. Others include providing shelter, clothing, feeding, bathing, preventing and attending to illness, nurturing and showing affection, interaction and stimulation, playing and socialising, protecting from exposure to pathogens and providing a relatively safe environment for exploration. A second set of behaviours includes the use of resources outside the family including curative and preventive health clinics. Zeitlin *et. al.*(8) draws a distinction between those behaviours intended to return a child to a previously accepted state of health or development (compensatory care) and those that serve to enhance further development (enhancement care). Compensatory care could include taking an ill child to a health centre for treatment, or encouraging

an anorexic child to eat. Enhancement care on the other hand could include stimulating a child in play, or taking a child to the health centre for preventive care.

Various studies have tried to assess the care given to pre-school children, but most of these have utilised questionnaires, interviews and case histories to obtain the maternal knowledge and attitudes. However, very few studies have been done on measuring child care in terms of actual caretaking actions performed by the mother or a substitute in the context in which care occurs. In this paper, we describe a study that set out to identify the activities that are perceived as child care by a community and to observe the context in which they are performed in order to determine the time taken.

MATERIALS AND METHODS

A community based cross sectional survey involving households with children aged less than two years was undertaken in the low income sections of Makongeni estate, a peri-urban area of Thika town, Kenya. The study spanned a duration of 10 weeks. Multistage cluster sampling method was used to obtain the study households. The sampling frame was the low-income section of Makongeni estate comprising 5 clusters-phases 4-8. Housing in this section consisted of one room units within "U" shaped blocks and with shared sanitary facilities. One cluster (phase 5) was utilised for practical training of enumerators and pre-testing the data collection tools. The study was undertaken in a randomly selected cluster (phase 7) in which all households with children less than two years and whose parents were consenting were registered. The minimum sample size for the study was computed using the estimated rate of malnutrition among the under two year children in Thika division which was assumed to be 50% since the prevalence of malnutrition in the area is not known. A minimum sample size of 135 children was calculated using Fisher's formula(9), but sampling was extended beyond the calculated minimum to ensure an adequate sample to cater for attrition or refusals. A sample of 155 households was randomly selected and enrolled. For the second phase of the study (observation), a sub-sample of 50 households was selected from the main sample using proportionate sampling to ensure representation of the two main age groups (0-1 and 1-2 years).

Three enumerators were trained over a period of five days in anthropometric methodologies, administration of the questionnaire and conducting observations in households. A pilot phase was run during which the questionnaire was pre-tested in 15 households and modifications effected as necessary in the final questionnaire. Trial observations were also conducted in eight households to pre-test acceptability of the method in the community. The pre-tested structured questionnaire was then administered to mothers in the sampled households to obtain information on sociodemographic characteristics of the study population, breastfeeding and weaning patterns, routine maternal activities performed, activities perceived as child care, as well as characteristics of the different care givers. Anthropometric measurements of height, weight and age were collected to allow for computation

of the nutrition status indices, namely, weight-for age, weight-for-height and height for age. Length was taken using a length board for all children below 24 months. Readings were taken to the nearest 0.5cm. Weight for all the children was taken using a salter scale calibrated to 0.1kg. Weight readings were taken to the nearest 0.1kg.

Two day (10 hour) observations were carried out on a sub-sample of the study population (50 households) to establish time allocation for the various child care activities. The observations which lasted 10 hours, were continuously done between 8:00 am. and 6:00 pm. To avoid changes in activities due to prior expectations of the researcher, the actual day of the visit was not disclosed, but consent to conduct the observations was obtained from eligible households in advance. A checklist of child care activities that had already been pre-tested in the community during the pilot phase was used. This provided the activities that are labelled as child care in the community. Two stop clocks were utilised by each enumerator to facilitate concurrent timing of activities as they occurred. A description of each activity was also given. All activities performed by the care giver, (including those not related to child care were also recorded but not timed). Attempt was also made to revisit a household where for any reason the observation could not be done for example where a child was unwell.

Data entry and analysis: Data was cleaned, coded and entered in Data baseIII+ and analysed using the statistical package for social sciences (SPSS). Frequencies of variables and cross tabulations between important variables were undertaken in SPSS. Associations and significance tests were done using chi square. Categorization of important variables was done using the variable mean as the cut-off-point. The anthropometric data was processed in the Anthro programme to obtain the indices that were used as indicators of the nutrition status of the study children with -2 s.d. as the cut-off point.

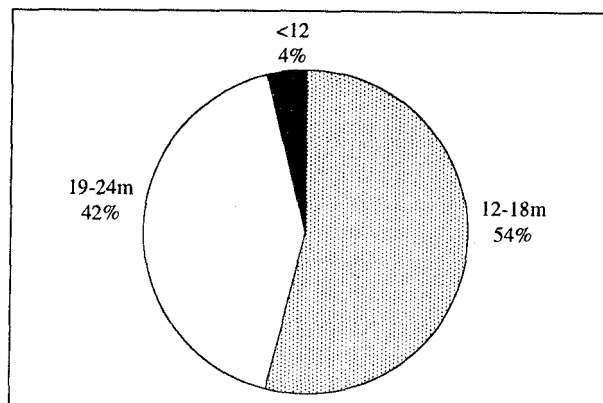
RESULTS

The mean age of the 150 children surveyed was 9.7 ± 6.7 months with 36.7% aged less than six months, 32.0% ranging 6-11.99 months, while 31.3% were aged 12-24 months. The mean age of the mothers interviewed was 25.2 ± 5.4 years. The employment level was reasonably high, with 97.8% of the heads of households and 45.0% of the mothers being engaged in some form of employment. Majority of mothers who were employed were engaged as seasonal workers in industries around the study area where they operated in shifts. Most of the heads of households (75.2%) were employed in the lower cadres as machine operators, storemen, spinners and material printers. Household heads (71.7%) had secondary school education (form 1-4), compared to 50% of mothers in the same category.

Breastfeeding: Majority of the mother's interviewed 121 (81%) were still breastfeeding the index child. Out of the number of mothers who had stopped to breastfeed, 6 (4%) stopped when the child was <12 months, 81 (54%) did so when the child was 12-18 months, and 63 (42%) when child was 19-24 months (Figure 1).

Figure 1

Duration of Breastfeeding



Complementary feeding: Most (58.3%) of the mothers interviewed indicated that they had started giving complementary feeds to the index child between 2-4 months. Twenty four percent initiated complementary feeding of children when they were 0-1 month old, 14.4% when they were 5-6 months old, and 3.0% when the children were more than six months old. The main complementary foods used ranked in order of usage were mashed fruits (mainly papaws and bananas) maize meal porridge and mashed vegetables (potatoes, spinach, bananas).

Nutrition status: The nutrition status of the study children was assessed using the indicators weight-for-age, weight-for-height and height-for-age with -2S.D as the cut off point according to the NCHS reference standard. The study children falling below -2S.D of the above indicators were considered as malnourished and above -2 S.D as well nourished. The results in Table 1 show the number and percentages of malnourished children. The results show that stunting was more prevalent among the 13-24 month old children compared to the 0-12 month-old children. This difference was however not statistically significant. The same pattern was observed for weight-for-age.

Table 1

Distribution of study children by nutritional status (n=150)

Index	No	%
Stunted	21	14
Wasted	1	0.7
Underweight	11	7.3
Normal	117	78

*Using Z-scores: Below -2 s.d height-for-age, weight-for-height and weight-for-age is considered stunted, wasted and underweight respectively

Perceived childcare activities: Out of the routine activities that mothers reported undertaking, those that were considered as childcare activities ranked in order of importance are presented (Table 2).

Table 2

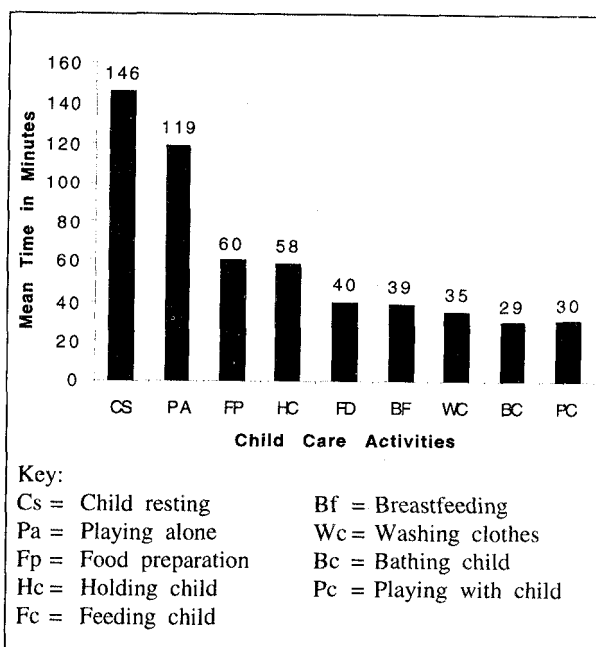
Distribution of households by reported child care activities and age of child (n=150)

Child care activities	All Ages		0-12m	13-24m
	No	%	%	%
Food preparation	146	96.7	67.8	32.2
Bathing child	119	79.3	66.4	33.6
Feeding child	106	70.7	67.9	32.1
Washing clothes	92	138	68.1	31.9
Take to hospital	74	49.3	71.6	28.4
Mending clothes	47	31.1	61.7	38.3
Breastfeeding	24	16.0	87.5	12.5

Childcare activities observed: The time in minutes for the various activities ranked from the longest to the shortest (Figure 2). The mean time for the most time consuming activities was further analysed against the variables that were considered as likely to influence the amount of time allocated for child care, i.e., child's age, mother's education and occupation, and the child's nutritional status.

Figure 2

Child care activities observed by time taken



Childcare time and maternal education and employment: The results also showed that in households where the mother had completed more than nine years of education, more time was spent in food preparation, bathing, breastfeeding and playing with the child. This was significant at $p < 0.05$ for food preparation and breastfeeding the child.

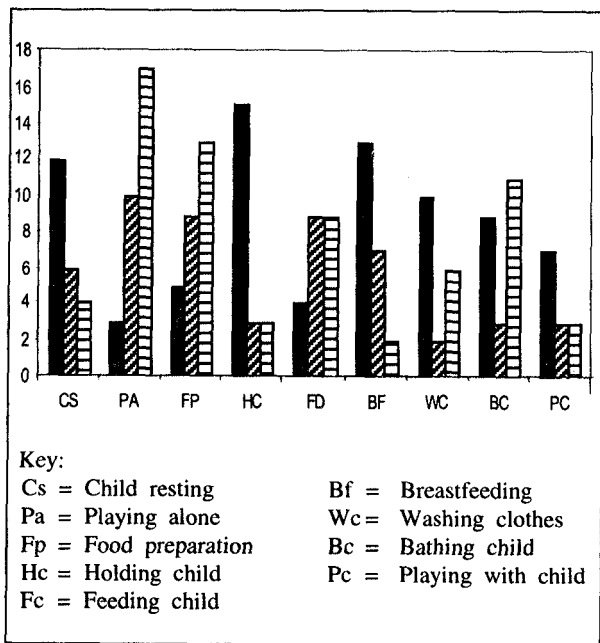
In households where the mother was employed (52%), more time was spent in food preparation and

in feeding the child than where she was not. Children also rested /slept more in these households. Where the mother was not employed, marginally more time was spent in holding/carrying the child, playing with and bathing the child.

Childcare time and child's age and birth order (N=50): The results indicate that in households with index children who were less than five months, a large proportion of the time was allocated to resting/sleeping, holding, playing, breastfeeding and changing the child when wet (Figure 3). The above activities were negatively correlated with the child's age and were significant ($P<0.05$). Households with children 6-12 months were noted to spend more time in food preparation and in feeding the child than those with children who were less than five months. Children in this age group also spent more time playing alone than children in any of the other age groups. In households with children aged 11-24 months, most of the time went into food preparation and washing the child (Figure 3).

Figure 3

Childcare activities by time and child's age



Birth order and care time: The results showed that in households where the child was a first born 26 (52%), more time was spent in playing with the child, breastfeeding, feeding the child and in food preparation than in households where the index child was of a higher birth order. First born children were noted to fare better nutritionally than other birth order children.

Childcare time and nutrition status: Comparatively, less time was spent in food preparation, breastfeeding, holding and playing with the index children who were stunted (14%) than those who were not. The results

also showed that children who were well nourished spent more time resting and playing alone. Time used for feeding was approximately equal for both groups. However, a cross tabulation of the child's nutrition status as indicated by level of stunting by individual child care activities indicated that there was no significant association between time spent in specific care activities, and the child's nutritional status.

DISCUSSION

Nutrition status of the study children: Acute malnutrition as measured by weight-for-height was virtually absent in the study children indicating a good supply of food prior to and during the study period. This is also in line with the low national level of wasting which stands at 2.5%(10,11).

Chronic malnutrition or stunting reflecting long term inadequacies affected 14% of the children most of who were in the 13-24 months age group. This is well below the national level of stunting of 33% but above provincial levels of 12.8% for stunting and 1.5% wasting for children in the central province of Kenya. The fairly good nutrition status of the children could be attributed to the fact that most of the children were less than one year old, still breast feeding and under the care of their mothers most of the time. The fact that most of the households had a source of income either from the mother or head of household could also have contributed. The level of education, possibly pointing to the mothers knowledge about childcare could also have played a part in the observed nutrition outcome(12).

Maternal and perceived childcare activities: The maternal activities that were reported were largely the same as those recorded as being performed in majority of the households by various care-givers. This suggests that women carry out all the household tasks even when employed outside the home. This is consistent with studies carried out elsewhere. Carr and Sandhu(13) have said that women on average work more hours in the home and in economic production than the men in their families.

Most of the activities perceived by the mother's as child care were related to activities geared to sustaining or returning the child to a previously accepted state of health (compensatory) as opposed to activities that serve to enhance further development (enhancement care) for example training/teaching and conversing with the child. This possibly shows that the care that a mother gives to the child may have more to do with her understanding of what activities are important for child care than with time availability. This is so given the fact that caregivers were observed to be idle for an average of 3.5 hours out of 10 hours. This is in agreement with the contention by Zeitlin *et. al.*(8) that if parents do not value enhancement childcare, extra time may be spent in other activities deemed to have

a higher value for example income generation rather than childcare. It is therefore apparent that the amount and type of care that a child receives is influenced by the mother's perception and beliefs about what activities constitute good care.

Childcare Time: The activities reported by the mother's as pertaining to childcare were also observed to be the most frequently performed irrespective of caregiver. Major components of the care provided included food preparation, holding/carrying the child, feeding, breastfeeding, washing clothes and bathing the child. Some activities not regarded by the mothers as 'work' were actually found to be quite time consuming for example breastfeeding and holding/carrying the child. This could be because most child care activities are performed concurrently with other maternal activities and consequently viewed by most women as being more of leisure than work. This is consistent with the findings of a study carried out in Guatemala among rural and urban women by Engle(14) where the women reported doing childcare all day, even when involved in income earning activities. Generally, compensatory care emerges as more valued compared to enhancement care by virtue of the time taken to perform activities in the two categories.

Childcare time and maternal occupation and education: Maternal occupation seemed to affect the time devoted to childcare as would be expected. It was observed that mothers who were employed compensated for the time when they were away by giving a lot of attention to their children when they were at home. There was no significant association between time spent in specific childcare activities and mothers level of education. However, child care time in almost all the activities observed was more for children whose mothers had more than nine years of education than those who had less. As in other studies(12,15), most of the stimulation activities performed though taking a small proportion of time were noted to be in household where mothers had more than nine years of education.

Childcare time and child's age and birth order: The findings indicated that amount of physical care (for example, breastfeeding and holding) provided to children decreased with increase in age. This is consistent with the findings of the CRSP study(16) where it was shown that there was a significant ($p < 0.001$) decline in proportion with physical care given and increase in child's age. It also agrees with Engle's(5) view that in most cultures, mothers devote considerable time to infants particularly in the first nine months of the child's life.

First born children were noted to fare better nutritionally than other birth order children. The mothers were noted to spend more time in activities such as breastfeeding, food preparation, and playing with the child where the index child was the first born even when there was another sibling. This factor may probably explain their better nutritional status.

Birth order has been found to have a significant association with nutrition status of children. Increased prevalence of malnutrition among children of higher birth order (birth order greater than 4) has been observed(7).

Childcare time and nutrition status of study children: The findings indicated that comparatively, children who were stunted had fewer mean times for breastfeeding, food preparation, feeding and being held than those who were not. This is in agreement with findings of other studies relating amount of care to Nutrition status as outcome children. For example, by measuring the amount of maternal care a child received by number of hours the child was in contact with 16 mothers showed that amount of care was positively associated with the nutrition status of the child.

Substitute care givers: Although mothers were the principal caregivers, the responsibility of care giving was shared with other household members as well as with neighbours. The substitute caregivers had an average of seven years of education with majority being more than 16 years. This may imply that they were 'adequate' substitutes to the mother. However, siblings as young as three years who require care themselves were sometimes also involved in care giving. This agrees with the contention that in most developing countries children at age three or four years are not really cared for but are care givers themselves to the younger siblings(5).

In conclusion, the findings indicate that the type of care valued most in this community is compensatory as opposed to enhancement care judging from the amount of time allocated to activities in the two categories. Although there was no significant difference in time expenditure, time taken to perform the various activities was found to vary with the child's age and birth order, number of children less than five years old in the household, mother's education level and whether mother had some form of employment or not. The type and amount of care that a child receives is determined by among other factors the mother and care givers knowledge and rating of specific care activities.

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