

Household illness prevalence and its determinants in the under-five children

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Abstract

Objective: To determine the household illness prevalence and their risk factors in the under-fives.

Methods: A cross-sectional community based house-to-house survey was conducted on randomly selected one urban and nine rural villages in Dabat district, North Western Ethiopia.

Results: Out of the 457 under-five children enrolled in the study 154 (33.7%) had symptoms of illness two weeks prior to the study day. The most frequently occurring symptoms were fever (n=113), cough (n=57) and diarrhea (n=52). Increased frequency of symptoms of disease was found in children below 12 months of age (p=0.005), with lack of history of vegetable consumption (p=0.0005) and with mid-upper arm circumference of less than 13.5 cms (p=0.004). Only 16.2% (n=26) of those with symptoms sought medical advice.

Conclusions: Household intervention programs targeting the frequently seen illnesses and their risk factors are suggested to reduce burden of disease in the under-fives. [*Ethiop. J. Health Dev.* 2001;15(3):173-178]

Introduction

Health services should always be directed towards the health need of the population. And this need depends on the disease pattern, which are always different from one region to another. In a community based national survey in Ethiopia, 38.2% of children (6-59 months) had some type of illness (1). But there exist differences in the type of illnesses in different areas (2). Therefore the health need should be surveyed in each region. The health surveys can provide material on risk factors, precursors of diseases and illnesses in the community. There are different survey methods like community mortality and morbidity surveys or hospital-based surveys. One of the community based health survey is the two weeks morbidity data, which is based on the interviewing of parents or caretakers of children using two weeks recall period. This method is crucial in assessing the health of

child population and complements data, which are available from mortality or measures of diseases reported from health institutions. This method besides addressing the acute problems of children it has the advantage of enrolling those problems that do not reach hospital, which may be overlooked as trivial by parents. In an era where integrated management of childhood illnesses (IMCI) is advocated rather than specific disease vertical programme, regional data are also required in order to adapt generic materials.

The objective of the study was to identify major illnesses which are manifested by symptoms affecting the under five children and their risk factors so that interventions be undertaken.

Methods

A community based house to house survey was done in Dabat district, north western Ethiopia between April and May 1999 to determine the household illness prevalence pattern of the under fives and their risk factors. Dabat district was chosen as a study site because of the existing Dabat Rural Health Project, which

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was initiated in 1995 with, established socio-demographic and population health status database based on a stratified random sampling frame. The project includes population of 24,800 from one urban kebele and nine rural villages. This present survey utilizes the sampled population as a source population. Taking an estimated prevalence of illness of 40%, a confidence level of 95% and 5% marginal error 461 under-fives were found to be representative. By taking the population proportion of the ten study sites simple random sampling method was used to select the 461 households. In households where there were more than one under-fives the youngest was included in the study. Since birth certificate is not known in the study area age was determined from the caretakers' word. Cultural and religious events were utilized to facilitate recall. A structured questionnaire was designed for the purpose of the study. Parents or caretakers of children under-five were requested to recall any illness their child experienced two weeks prior to the interview date. Tracers were used to facilitate recall. The questionnaire also includes socio-demographic data, environmental health data and feeding practices of the child under study. History of feeding from the date of birth was taken in detail. To assess the quality of diet, consumption of animal sources and vegetable sources of diet were inquired. Consumption of any of the green leafy vegetables and carrot at least once in a month was used to analyze the different groups. Nutritional status of all the children under study was assessed by measuring weight, and height/length based on the recommendations by D.B. Jelliff 1966 (3). A hanging spring scale was used to measure the weight and a measuring board was used to measure the height of children above three years and length of children below three years.

Mid-upper arm circumference was measured for those above 12 months of age using a plastic measuring tape. Weight for height, weight for age and height for age measurements were expressed as 3D scores (Z-scores) and the results were compared with those for

NCHS/WHO reference data (4). The questionnaire was prepared by the local language and was filled by high school completed enumerators trained for the Dabat rural health project who also performed the measurements after appropriate training. A health officer and the investigators supervised them. Data thus compiled was entered and analyzed using a computer soft ware EPI-INFO version 6.01.

Results

Out of the 461 sampled households 457 (99.1%) were willing to be involved in the study. Of a total of 457 children enrolled in the study 154 (33.7%) had one or more symptoms of illness. These children had 354 types of symptoms. The most common symptoms of illness were fever, cough and diarrhea. Fever was found in 113 children (24.7%), cough in 57 children (12.5%) and diarrhea in 52 children (11.4%) (Figure 1). Of those with symptoms only 26 (16.2%) had sought medical advice. The main reason for not seeking medical advice was lack of money (n=44) and vomiting was the most frequent symptom for which medical advice was sought.

Socio-demographic characteristics: Of the total of 457 children enrolled 52.7% (n=241) were males and 47.3% (n=216) were females. Fifty-eight of them were from the urban kebele, while 399 were from rural villages. Around 51% of the children were less than 12 months old. The average family size was six. Two Hundred Twelve (46.4%) of the fathers and 78.8% (n=360) of the mothers were illiterate. Three Hundred Seventy Seven (82.5%) of the fathers were farmers and 88.8% (n=406) of the mothers were housewives. The monthly family income could be estimated in 352 households out of which 90% (n=317) earn less than 50 Birr (Table 1).

Gender, place of residence, family size, parental educational background, parental occupation and monthly family income were not found to be associated with presence of symptoms of diseases.

Table 1: Socio-demographic characteristics of the children, Dabat, 1999.

Variable	Sick	Not sick	Odds ratio	P-value
Sex				
Male	82	159	1.03	0.875
Female	72	144	0.68-1.56	
Address				
Urban	22	36	1.24	0.465
Rural	132	267	0.67-2.28	
Age (month)				
0 - 12	26	25	2.26	0.005
≥ 2	128	278	1.20-4.25	
Fathers Education Background				
Illiterate	68	144	0.87	0.494
Literate	86	159	0.58-1.32	
Fathers Occupation				
Farmer	122	255	0.72	0.18
Others	32	48	0.42-1.22	
Monthly Income (Birr) (n=352)				
< 50	100	217	0.69	0.31
≥ 50	14	21	0.32-1.51	
Maternal Education Background				
Illiterate	120	240	0.93	0.75
Literate	34	63	0.56-1.53	
Maternal Occupation Background				
Housewife	136	270	0.92	0.79
Others	18	33	0.48-1.79	

But those children above 12 months old seem to be protected from illness in a statistically significant manner ($p=0.005$) (Table 1).

Nutritional history and status: Almost all, 99.6% ($n=455$) of the children were breast fed initially and 26.7% ($n=122$) of the children were started with supplementary food before the age of six months. The mean duration of breast-feeding was 28 months. And in 81% ($n=370$) it was given beyond second year of life. Three Hundred Seventy Four children were given animal source of diet while 308 children were given vegetables.

One Hundred Seventy Four (44.6%) of those above one year of age were found to have a mid upper arm circumference of less than

13.5cms. In 231 children the weight for age, in 28 children the weight for height, and in 321 children the height for age were found to be below -2 SD (Table 2).

A mid-upper arm circumference of less than 13.5 cm, and lack of consumption of vegetables were found to be associated with presence of symptoms in a statistically significant manner (Table 3).

Environmental health: Four Hundred Twenty Three (92.6%) of the household were using open field for latrine and 329 (72%) of them were using unsafe water. None of these were associated with the presence of symptoms (Table 3).

Table 2: Nutritional characteristics of the children, Dabat, 1999

Variable	Sick	Not sick	Odds ratio	P-value
Weight for age				
<-2 SD	82	149	1.81	0.41
≥-2 SD	72	154	0.78-1.78	
Weight for height				
<-2 SD	12	16	1.52	0.289
≥-2 SD	142	287	0.65-3.52	
Height for age				
<-2 SD	104	217		0.36
≥-2 SD	50	86	0.82 0.53-1.29	
Mid upper arm circumference (cms) (n=390)				
≤13.5	68	106	1.92	0.004
>13.5	54	162	1.28-3.05	
Total duration of Breast Feeding (months) (n=196)				
≤12	8	8	2.75	0.04
>12	48	132	0.87-8.71	
Age supplement started (months) (n=437)				
<7	40	82	0.98	0.91
≥7	105	210	0.61-1.56	
Consumption of animal source of diet (n=433)				
Yes	118	256	0.63	0.1
No	25	34	(0.34-0.74)	
Consumption of vegetable diet (n=433)				
Yes	87	221	0.47	0.0005
No	57	68	0.30-0.74	
Sun Exposure (n=455)				
Yes	82	168	0.92	0.62
No	71	134	0.61-1.39	

Table 3: Distribution of environmental factors in the households of the children, Dabat, 1999

Variable	sick	Not Sick	Odd-ratio	P-value
Source of water				
Safe	36	92	0.70	0.11
Unsafe	118	211	0.43-1.12	
Latrine				
Pit	13	21	1.24	0.56
Field	141	282	0.56-2.70	

Discussion

A household illness prevalence is one of the many ways of obtaining health information. Its use is not limited only in assessing the

health status but also looking at various determinants, consequences of ill health and in providing broad information in health planning and management. In a country where there is a meager health service and a very low health care seeking behavior household surveys play a major role in identifying the morbidity pattern of a community in a country. Identification of common symptoms of illness is quite important especially in an era where IMCI is the best intervention to reduce morbidity and mortality of the under-fives by improving health workers skill, improving health system and improving household and community practices. The information acquired

can also be utilized for adaptation in the region. In this study in order to improve the validity of illness reporting lists of tracer conditions was used in locally utilized words and a two week recall period was used based on experience in other studies (5,6). This study discloses an illness prevalence of 33.7%, which is quite similar to the national survey of 38.2% among children aged 6-59 months (1).

The commonest symptoms of illness found in this study were fever, cough and diarrhea which is similar to study done in Gondar in 1994 in a health institution during pre-testing IMCI (7). The difference lies in the frequency of ear problems, which is very low in our study.

But a study in another community based study in rural Ethiopia revealed ear discharge to be relatively rare (8).

Malnutrition indicated by mid-upper arm circumference of ≤ 13.5 cms and lack of vegetable consumption seems to be an important determining factors for house hold illnesses. Therefore appropriate intervention towards proper nutrition may reduce the illness prevalence.

The health seeking behavior in the study population was about 16%, which is very low. But studies recommended a 6-month recall period for a better yield (6,11). In this study vomiting was the symptom for which medical care was sought frequently. This is quite related to the perception of seriousness of diseases by the community. A review of medico-anthropological literature has shown that the type of illness and the respective etiological concept is one of the most important explanatory variables for people's choice between treatment alternatives (9). The study could not associate social status to health status because of the problem of estimating the average family income accurately since 85% of the head of households are farmers. This has been seen in most developing countries (10). Despite what is naturally expected the study does

not reveal a statistically significant difference between those with safe water source and without (Table 3). This is partly explained by the way the water is handled from the site of the source till utilization, which in most cases would be unhygienic.

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