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ASSESSMENT OF THE FEEDING PRACTICE IN CASES OF DIARRHEA OF CHILDREN IN EGYPT

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Introduction:

Acute diarrheal diseases are one of the leading causes of childhood morbidity and mortality in Egypt. In spite of the lack of reliable information there is a strong evidence that at least half the infants and toddlers mortality in Egypt is due to diarrheal diseases. As well on the average each child between the age of six months and three years gets 3-4 serious bouts of acute diarrhea. In addition, diarrheal diseases have an important adverse effect on the nutritional status through direct and indirect influences on nutrient intake, absorption or utilization (Kielman et al., 1978 and Martorell et al., 1980). Cases of malnutrition among children in Egypt, though not common, yet are almost always related to diarrhea.

Proper management of cases of diarrhea is one of the main strategies in diarrheal disease control, which is amenable to perfection. At present, clinical management and

advice given in cases of diarrhea in Egypt is almost only restricted to medical treatment and rehydration. Very little, if any, advice is given concerning feeding practice. In the event such advice is given, stress is made on what food to stop rather than on what to give the baby.

Concerning feeding practice during diarrhea, withdrawal or modification of food with the hope of reducing the volume of stool and duration of diarrhea, is a wide practice in several communities. Except for breast fed infants, many of the children with diarrhea are relatively starved both with respect to food and fluids. They are usually allowed only small amounts of vegetable soup, rice water, boiled potatoes, biscuits, tea with lemon or yougort. It is a general practice to stop milk feeds.

Aim of the study:

Information concerning the knowledge and practice of mothers in feeding their children during and after diarrhea and the reasons behind their believes and practices are essential for proper planning of educational programs necessary to change those practices which are harmful to the health of the baby.

The study aimed at assessing mother's knowledge and practice about feeding the children during diarrhoea.

Methodology:

The study was carried out on 1000 cases of children (under two years of age) with acute diarrhea seeking medical care at a representative sample of government centers and representing different community sectors in Alexandria (MCH centers and pediatric hospitals) during the period from April to October 1981.

Information were collected from persons accompanying the sick child. This was essentially the mother who is usually, also, responsible for the baby's feeding. The method used was the questionnaire interview method. Information collected included the socio-economic characteristics of the family, number of attacks of diarrhea during the preceeding month, number of attacks that necessitated seeking medical advice during the last year and the average duration of each attack. The number of motions during the past 24 hours was also recorded. The knowledge of the mother about the predisposing factors to diarrhea and the source of information behind this were obtained.

Dietary practice during diarrhea particularly with respect to intake of fluids was obtained through the recall method since the beginning of diarrhea which was usually for

few days. There is no available valid method of precise assessment of the quantity of food and fluid intake other than by continuous observation coupled with actual measurement of the intake. This was practically impossible under the set up of this study. As well, it was also felt that assessment by this method would have been faulted in achieving its goal particularly as it contradicts with the traditions and believes of mothers who usually resent feeding their babies in front of strangers. Therefore, no attempt was made to determine precisely the quantities of foods and fluids administered to the baby during diarrhea. Instead, according to history of food and fluid intake during the recall period, children were divided into broad categories e.g. low, medium and high intake. This has still permitted assessment of the relation between the intake of nutrients and fluids and the effect on malnutrition and dehydration.

At the end of the interview, medical advice as well as advice on feeding practice were given to the mother.

Results:

Characteristics of the study population:

1. Age and sex distribution:

The age of the studied cases ranged below one month and 24 months. 14.0% of the children were under the age of three months, 30.4% between three and six months, 32.1% from

six to twelve months and 22·0% between 12 and 18 months. Those over 18 months constituted only 1.4% (Table 1). Mean age was 7.662 months.

There were 53.2% males and 46.8% females.

2. Type of feeding:

Dividing the cases by the type of feeding it was found that 43.3% were breast fed, 17.9% bottle fed and 5.8% were given bottle and ordinary food. There were 17.8% who were being weaned and were therefore receiving milk (breast or artificial) and other foods. The rest (15.2%) were given ordinary family food (Table 2).

Social and Biological characteristics of the family:

1. Age of the mother:

The age ranged from 18 years to 43 years. There were very few (5.7%) under the age of 20 years. More than ½ (54.3%) were in the age group 20 to less than 30 years. Those between the age of 30 and less than 40 years amounted to 34.9% and only 5.1% were 40 years and over (Table 3).

2. Education and occupation of the mother:

A very high percent (82.2%) of the mothers were illeterate. Those who could just read and write constituted 11.7%. The percent with any formal education was 6.1%.

All but 2.1% of the mothers were housewives.

3. Father's education and occupation:

Over 2/3 (68.1%) of the fathers were illeterate. Those who could read and write constituted 18.3% and 13.6% had completed primary, preparatory or higher levels of education.

Most of the fathers were manual workers (48.4%). Those who were engaged in technical work amounted to 20.5%; 15.2% were government employees and the rest were engaged in other occupations such as trade, farming, fishing ... etc.

4. Family income:

Most (45.1%) of the families of the sick children were in the income group 30-50 pounds per month. Those with income 50 L.E. or more amounted to 28.4% and those with an income less than 30 L.E./month were 26.5%.

History of Diarrhea:

1. Frequency of occurrence of diarrhea:

History about occurrence of diarrhea was obtained using a recall period of three months. Mothers were asked about the attacks that necessitated bringing the child to the health center. It was found that the average number of attacks per child per quarter is 1.26. This means that the average number of attacks of diarrhea/child/year in the studied population was approximately 5.

2. Average duration of attacks of diarrhea:

The average duration of diarrhea was found to be less than two days in 29.5% of the sample; two or three days in 23.7% and four or five days in 35.2%. It was six days or more in 11.6% of the sample (Table 4). The mean duration of diarrhea was 3.578 days.

3. Period from onset of diarrhea and seeking medical care:

It appears from table 5 that 18.2% of the mothers brought the baby to the clinic on the same day of onset of diarrhea. About a quarter of the cases (22.7%) were brought on the second day of diarrhea and another quarter (26.7%) on the third day of diarrhea. Those who were brought after three days or more amounted to 32.4%.

The mean period from onset to seeking medical care was 2.5 days.

4. Frequency of passing stools:

Mothers were asked about the number of motions passed by the child during the last 24 hours. This varied from three motions to more than 15. Most of the cases (59.6%) were reporting to have passed 4-7 motions. In only 13.3% the number was three motions and in 27.1%, it was 8 or more motions (Table 6). The mean number of motions was 6.7.

5. Degree of dehydration:

No signs of dehydration were observed in 280 cases (28.0%). There was mild dehydration in 48.0% of the cases, moderate dehydration 21.1% and severe dehydration in only 2.4% of the cases (Table 7).

The degree of dehydration was found to be related to two main variables mainly the presence of vomiting and the number of motions passed during the last 24 hours.

With respect to vomiting a very highly positive correlation was found between the presence of vomiting and the degree of dehydration ($P < 0.001$) (Table 7). The percent with moderate or severe dehydration was over 15 times as much among those with vomiting than among those without vomiting.

As regards the number of motions during the last 24 hours (Table 8) shows that the number of motions per 24 hours was strongly correlated with the degree of dehydration. More than half the cases showing signs of moderate or severe dehydration were passing 8 or more motions per day.

6. Use of medication before seeking medical help:

As much as 69.2% of the cases mentioned that they have given their children some medicines before bringing them to the clinic. The majority could not identify the name of the medicine used. However, many of them were left over medicines from previous attacks and tablets and syrups obtained from pharmacists and drug stores without medical prescription. They included medicines like nimarol, entocid, enterovioform, diabec ... etc.

There were slight differences in the percent of giving medication in relation to the level of education of the parents. The percent of children receiving medication was slightly but not significantly higher among those whose father or mother were educated (73.6%) than among illeterates (68.0%).

Knowledge of mothers about causes of diarrhea:

When asked about the cause of diarrhea, nearly 2/3 (63.6%) of the mothers mentioned that they do not know. Analysing the causes given by 364 mothers it was found that teething was mentioned to be the cause of diarrhea by 42.6% of them. Another 41.2% gave the reason as change of weather. Less frequently mentioned causes were weaning or change of diet 11.8%; uncleanliness 3.6% and infection was mentioned as the cause by 0.8%(Table 9).

There were slight differences between the reasons given as causes of diarrhea in relation to the level of education of the mother. In all levels of education the most frequently given causes were teething and change of weather. More of the educated gave weaning as the reason.

The mothers were asked about the source of their information about the cause of diarrhoea. As much as 48.9% mentioned that it was the mother or a relative or a neighbour. 47.3% mentioned that they knew this from their previous experience with this child or his sibblings. Only 11 mothers (3.0%) mentioned that health personnel gave them this information and less than 1% (0.8%) gave mass media as the source of their information (Table 10).

Feeding Practice:

As feeding practice during diarrhea could be influenced by the type of feeding the baby; children were divided into five groups:

1. Breast feeding only.
2. Bottle feeding only.
3. Breast
4. Bottle and ordinary food.
5. Normal diet.

The feeding practice of each group was studied separately.

It is very satisfying to indicate that malpractice in feeding during diarrhea was minimal. This is clearly reflected in the fact that in spite of the large number of attacks of diarrhea experienced by this group, the age/weight percentile shown in table 11 clearly indicate that a very small proportion are in the group below the 10th percentiles.

1. Breast fed children:

Out of the 433 babies who were breast fed 246 (56.8%) continued breast feeding without any change. Another 132 (30.5%) continued breast feeding and added fluids and 32 (7.4%) continued breast and added soft food as youngort, rice water, mehalabia ... etc. Only 23 (5.3%) mentioned that they stopped

breast feeding but have replaced it with fluids such as rice water, tea, lemon juice, karawia ... etc.

As there is no suggestion that continuation of breast feeding during a diarrhea episode is in any way harmful it could be concluded that there is little if any malpractice with respect to nutrition of breast fed infants during diarrhea (Table 12).

2. Bottle fed children:

Among this group 81 (45.3%) continued bottle feeding and 10 (5.6%) continued with the addition of fluids. A large percent (44.7%) stopped milk feeds and substituted them with soft food and fluids (Table 13).

As there are no definite data about the possible harmful effect of continuing milk feeds during diarrhea, the observed practice could not be considered harmful. Mothers use their own judgement from previous experience and tolerance of their children to milk during diarrhea. The soft foods used as a replacement during diarrhea included cereals such as rice, bananas, potatoes ... etc. Usual feeding was resumed as soon as diarrhea stopped.

3. Mixed feeding (breast and bottle) and breast and food)

In this group (78.7%) continued breast feeding. In addition some of them continued to give the bottle or the other food as well; while others replaced milk bottle and food by soft diet and fluids. Only 5.0% stopped all food and replaced it by fluids (Table 14).

4. Bottle and food:

In this group only 1/3 continued to give the same food while the rest stopped the milk and in some of them also food was stopped and they were given instead soft food or fluids (32.8%) (Table 15).

5. Normal diet:

In this group there was considerable change in feeding practice during diarrhea. In 2/3 of the cases (67.1%) food was stopped and replaced by light food with the addition of fluids in some cases.

Table 1: Distribution of study population by age.

Age in months	Number	Percent
Less than three months	141	14.1
3-	304	30.4
6-	321	32.1
12-	220	22.0
18-24	14	1.4
Total	1000	100.0

Mean age: 7.662 months.

Table 2: Distribution of study population by type of feeding.

Type of feeding	Number	Percent
Breast only	433	43.3
Bottle only	179	17.9
Bottle and ordinary Food	58	5.8
Breast or bottle and start of weaning	178	17.8
Ordinary food	152	15.2
Total	1000	100.0

Table 3: Distribution of the mothers of cases of diarrhea by age.

Age in years	Number	Percent
Under 20	57	5.7
20-	275	27.5
25-	268	26.8
30-	196	19.6
35-	153	15.3
40+	51	5.1
Total	1000	100.0

Table 4: Distribution of study population by average duration of illness in attack of diarrhea.

Duration in days	Number	Percent
Less than 2 days	295	29.5
2-	237	23.7
4-	352	35.2
6 days or more	116	11.6
Total	1000	100.0

Mean = 3.578 days.

Table 5: Distribution of the period from onset of diarrhea to seeking medical care.

Period from onset to seeking medical care	Number	Percent
Same day of onset	182	18.2
One day after onset	227	22.7
Two days after onset	267	26.7
Three days and more after onset	324	32.4
Total	1000	100.0

Mean = 2.5 days.

Table 6: Distribution of the sample according to the number of motions passed in the last 24 hours.

No. of motions	Number	Percent
3	133	13.3
4 & 5	324	32.4
6 & 7	272	27.2
8 & 9	61	6.1
10 or more	210	21.0
Total	1000	100.0

Mean = 6.7 motions.

Table 7: Relation between presence of vomiting and the degree of dehydration.

Vomiting		Degree of Dehydration				Total
		No dehydration	Mild	Moderate	Severe	
No vomiting	No.	274	415	27	5	721
	%	38.0	57.6	3.7	0.7	100.0
Vomiting	No.	6	70	184	19	279
	%	2.2	25.1	65.9	6.8	100.0
Total	No.	280	485	211	24	100.0
	%	28.0	48.5	21.1	2.4	100.0

Table 8: Relation between the number of motions during the last 24 hours and the degree of dehydration.

No. of motions per 24°	No dehydration		Mild		Moderate		Severe		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
3	79	59.4	51	38.3	3	2.3	-	-	133	100.0
4 and 5	123	38.1	165	51.1	28	8.7	7	2.1	323	100.0
6 and 7	64	23.4	154	56.4	54	19.8	1	0.4	273	100.0
8 and 9	5	8.2	24	39.3	29	47.6	3	4.9	61	100.0
10 or more	9	4.3	91	43.3	97	46.2	13	6.2	210	100.0
Total	280	28.0	485	48.5	211	21.1	24	2.4	1000	100.0

Table 9: Distribution of Mother's knowledge about causes of diarrhea by her level of education.

Mentioned cause	Illiterate		Read & write		Educated		Total	
	No.	%	No.	%	No.	%	No.	%
Teething	118	42.45	27	46.6	10	35.7	155	42.6
Change of weather	118	42.45	23	39.7	9	32.1	150	41.2
Weaning and change of food	30	10.8	6	10.3	7	25.0	43	11.8
Uncleanliness	10	3.6	2	3.4	1	3.6	13	3.6
Infection	2	0.7	0	-	1	3.6	3	0.8
Subtotal	278	100.0	58	100.0	28	100.0	364	100.0
Does not know	544		59		33		636	
Total	822		117		61		1000	

Table 10: Sources of information of mothers about causes of diarrhea.

Source of information	Number	Percent
Relatives or neighbours	178	48.9
Previous experience	172	47.3
Health personnel	11	3.0
Mass media	3	0.8
Subtotal	364	100.0
Does not know	636	
Total	1000	

Table 11: Distribution of children in different percentile groups for weight/age.

Percentile	Number	Percent
< 3	13	1.3
3 वां	64	6.4
10 वां	143	14.3
25 वां	210	21.0
50 वां	227	22.7
75 वां	161	16.1
90 वां	93	9.3
97 वां	89	8.9
Total	1000	100.0

Table 12: Distribution of breast fed children according to their feeding pattern during diarrhea.

Feeding pattern	Number	Percent
Continues breast without any change	246	56.8
Cont. breast and adds fluids	132	30.5
Cont. breast and adds soft food	32	7.4
Stops breast and give fluid	23	5.3
Total	433	100.0

Table 13: Feeding pattern of bottle fed infants during diarrhea.

Feeding pattern	Number	Percent
Continues bottle feeding	81	45.3
Cont• bottle with the addition of fluids	10	5.6
Stops milk feeds and give soft diet and fluids	80	44.7
Decrease milk feeds and adds fluids and soft diet	8	4.4
Total	179	100.0

Table 14: Distribution of children receiving mixed feeding (breast, bottle and food) according to their feeding pattern during diarrhea.

Feeding pattern	Number	Percent
Continues to give the breast	140	78.7
Stops breast and food and give soft diet and fluid	29	16.3
Stops breast and food and give only fluids	9	5.0
Total	178	100.0

Table 15: Distribution of cases receiving bottle and ordinary food according to their practice during diarrhea.

Feeding pattern	Number	Percent
Same feeding pattern	19	32.8
Stops milk and food and give soft diet and fluids	24	41.4
Stops both milk and food and give fluid only	15	25.8
Total	58	100.0

Table 16: Distribution of cases receiving normal diet by method of feeding during diarrhea.

Feeding pattern	Number	Percent
Continues with same feeding pattern	11	7.2
Cont. same diet with addition of fluid	8	5.3
Substitute food by soft diet and fluids	129	84.9
Stops food and give fluids only	4	2.6
Total	152	100.0