

THE UNDERREPORTING OF CHILDHOOD DIARRHEA IN THAILAND

Mandhana Pradhipasen, Chanin Chareonkul, Sermpan Nitnara, Jutaporn Taweedej, and Araya Pamonprawat

Department of Nutrition, and Soong-Noen Health Training and Research Center, Faculty of Public Health, Mahidol University, Bangkok 10400, Thailand

Abstract. The extent of non-recognition of episodes of diarrhea by mothers was investigated. The sample included all 124 children under 3 years of age and their mothers or caretakers in 16 villages of Soong Noen District, Nakhon Ratchasima Province, Thailand. Data on the occurrence of diarrhea were obtained from an on-going surveillance study from December 1988 through February 1989. The surveillance study recorded all episodes of diarrhea, as defined by health professionals. Unrecognized diarrhea was defined as episodes perceived by mother, father and caretaker as a normal development process, namely 'su' or 'po'. Baseline characteristics of the sample were obtained from a community survey conducted in November 1988. The study showed that about half of the episodes of diarrhea were unrecognized as diarrhea by the mother and caretaker and labeled as 'su' or 'po' at onset, and among this group only 11.5% were later recognized as diarrheal disease.

INTRODUCTION

The official reports of incidence of diarrheal disease in Thailand among preschool children under five years of age were 0.045 episodes/child/year in 1989 (Ministry of Public Health, 1989) and 0.055 episode/child/year in 1992 (Ministry of Public Health, 1992). In rural villages in the northeast of Thailand Puttinun (1986) reported an annual incidence of 2.37 episodes for children 1-2 years old and 3.6 episodes for infants. In another recent study conducted in Bangkok, Varavitya *et al* (1991) found an annual incidence of 0.9 episodes for child 0-5 years old, 2.0 and 2.4 episodes for infants 0-5 and 6-11 months old, respectively. It is possible that the official statistics are underestimated, however, since none of these reports include types of diarrhea that people in the community refer to by local names or do not recognize as a disease. The underreporting of diarrheal disease incidence makes the problem seem less important to policy-makers and administrators. Since a limited budget always exists in developing countries, this results in smaller budget allocation for diarrhea prevention and control. Any formal and reliable evidence of underreporting would bring about a more correct estimate which better reflects the actual situation of the diarrheal disease problem of the country and contributes greatly to the resource availability for its prevention and control. Community perceptions of illness influence whether people act when particular physical symptoms appear. Studies have

shown that health professionals and lay people define health and illness in different ways (De Zoysa *et al*, 1884; Nichter, 1988). It is very important to develop a better understanding of concepts of illness prevention in population groups so that health education and prevention programs can be developed in a way that will maximize their effectiveness within different subgroups of the community. In Thailand certain types of diarrhea as defined among subgroups of the community, may lead to communication problems between health professionals and members of the community and may lead to inappropriate delays in seeking help or treatment. This investigation was part of an on-going study of Weaning Education for the Control of Diarrheal Disease, which is being conducted in 16 villages of Soong Noen District, Nakhon Ratchasima Province, 222 km northeast of Bangkok. The primary aim of this report was to identify the prevalence of unrecognized or mislabeled diarrhea in the community that could effect the estimated incidence of diarrheal disease.

MATERIALS AND METHODS

Study subjects were all of the 124 children under three years of age who lived in the 16 villages, and their mothers or caretakers. The surprisingly small number of children per family in our project area is due to the fact that this area served as a pilot area for a family planning project for several years before

the nationwide family planning program started. Information was obtained from two sources: a baseline interview survey in the community and a community-based surveillance program. The baseline interview survey was conducted during November 1988 by a trained interviewer who had a degree in health education and who spoke the local dialect. Field supervisors edited and checked the interviews for completeness and logical consistency of the responses. Subjects who could not be interviewed at the first visit were revisited twice. Data on the occurrence of diarrheal disease were obtained from a surveillance card, which was filled out daily by the mother or caretaker of the child under weekly supervision of field workers. To assess the various categories of diarrhea, we conducted in-depth interviews and reviewed the ethnographic literature. This information was incorporated into the categories chosen for use in the diarrhea surveillance cards. We defined diarrhea as passing loose stools three times daily or watery stool daily. An episode of diarrhea was distinct if the patient had normal stools for more than 5 days since the previous episode of diarrhea. Mothers sometimes use a local name for solid stools followed by watery stools ('su' or 'po'). The incidence of diarrheal disease during the observation period was calculated as the number of episodes per 100 person-days because some of the children were absent from the village in some weeks. The percentage distribution was used for the presentation of characteristics of the study subjects.

RESULTS

Demographic characteristics of the sample

The characteristics of the 124 children (Table 1) show that our study children were predominantly female. About half were first born; 45.2% were low birth weight (2,500 g) infants. Most of the children were cared for by their own mothers. Table 2 shows some characteristics of the study families. The average age of fathers and mothers were 30.7 and 28.0 years, respectively. The majority of both fathers and mothers were farmers and laborers with primary-school education or less; however, most of them were literate.

Incidence of diarrhea

Fig 1 demonstrates the incidence of both recog-

Table 1

Demographic characteristics of 124 children enrolled in study of diarrheal disease in children in Thailand.

Characteristics	No. (%)
Sex	
Male	55 (44.4)
Female	69 (55.6)
Birth weight	
< 2,500 g	16 (12.9)
2,500-3,000 g	45 (36.3)
≥ 3,000 g	63 (31.5)
Birth order	
First	64 (51.8)
Second	39 (31.5)
Third or more	21 (16.9)
No. of siblings	
Zero	64 (51.8)
1	44 (35.5)
≥ 2	24 (19.3)
Caretaker	
Mother	89 (71.8)
Father, relatives	9 (7.3)
Grandparents	26 (20.9)

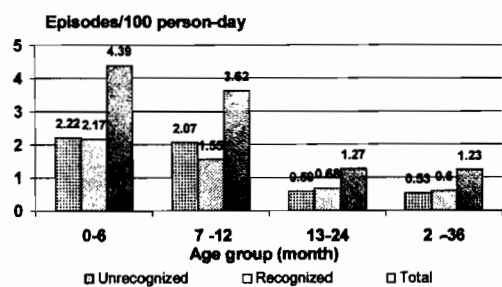
Table 2

Demographic characteristics of the studied families.

characteristics	No. (%) with characteristic	
	Father	Mother
Number	122	122
Average age (yr)	30.7 ± 6.0	28.0 ± 5.8
Occupation		
Farmer	54 (44.3)	42 (34.4)
Laborer	51 (41.8)	39 (32.0)
Grocer	-	9 (7.4)
Literacy		
Illiterate	8 (6.6)	6 (4.9)
Literate	114 (93.4)	116 (95.1)

nized and unrecognized ('su') diarrhea classified by age. Slightly more than half of the diarrheal episodes in children under one year of age were

CHILDHOOD DIARRHEA IN THAILAND



Note:- Surveillance record during December 1988 to February 1989

Fig 1- The incidence of diarrhea in 124 children classified by age group and mother's perception.

utilized convenient samples as in any other countries where cases are collected from those attending hospitals and health centers: the incidence of diarrhea decreases as children get older. The highest relative rate of unrecognized diarrhea was found among children aged 6-12 months which is the period when children are perceived to be developing most rapidly. Thus mothers of infants in this age group may use the terms related to development (eg 'su' or 'po') more often. In Thailand, the reported incidences of diarrhea in most of the studies did not include these unrecognized ones. The incidence of diarrheal disease in Thailand among preschool children under five years of age which was

Table 3

Incidence of unrecognized or mislabeled diarrhea classified by the changes from mother's initial report.

Age (months)	No. (%) of episodes/100 person Days		
	Never recognized	Later recognized	Total unrecognized
0-6	1.78 (80.2)	0.44 (19.8)	2.22 (100.0)
7-12	1.84 (88.9)	0.23 (11.1)	2.07 (100.0)
13-24	0.50 (84.8)	0.09 (15.2)	0.59 (100.0)
25-36	0.53 (100.0)	0.0 (0.0)	0.53 (100.0)
Total	0.69 (88.5)	0.09 (11.5)	0.78 (100.0)

reported by mothers as 'su', whereas children older than one year in less than half of the episodes were described as 'su'. Half of the total episodes of diarrhea among both age groups were classified by the mother as "su".

DISCUSSION

Although most of the studied families are of socioeconomic status, the majority of children are well cared for and mothers have time to observe their children and to report episodes of diarrhea. Thus the surveillance data on diarrheal disease records by mothers and collected weekly by field workers are reliable. The total incidence of diarrhea, as measured by number of episodes/100 person-days, was highest during the first 6 months. After the first year of life, the incidence of diarrhea was markedly lower. This finding is similar to what is generally found in the other reports (Ministry of Public Health, 1989; 1992; Puttinun, 1986), which

reported by Ministry of Public Health (1989, 1992) was estimated from reported cases attending the hospitals and health centers. They were convenient samples which did not include cases attending non-government clinics, self treated and the unrecognized cases. The study of Puttinun (1986) in 16 rural villages in the northeast of Thailand showed the incidence of 2.37 episodes/child/year for those age 1-2 years and 3.6 for infants when the data were collected by trimonthly interview of the mothers. The data on diarrheal diseases on this study depended entirely on mothers memories and their perception of diarrhea, which is not the same as a professional one. In the study conducted in Bangkok by Varavithya *et al* (1991), the annual incidence of diarrhea of 2.0 and 2.4 for infants 0-5 and 6-11 months of age, respectively and of 0.9 for all children under five, were data collected by daily home visits of field workers who had been trained about signs and symptoms of diarrhea but without an emphasis on perception of unrecognized diarrhea. The phenomenon of failure to recognize diarrhea as a disease but rather to think of it as a

natural developmental process is reported to be common in rural communities in northeast Thailand (Thongkrajai *et al.*, 1987). Furthermore, from our team's personal dialogue with people from several parts of the country we found that this phenomenon is very common among lay people not only in rural communities but also in urban settings. Therefore, the rate of 0.045 episodes/child/year and 0.05 episodes/child/year used by the Ministry of Public Health as the size of problem in the priority setting for resource allocation are marked underestimates because they did not include episodes of unrecognized diarrhea, the result of which brings a disadvantage to the diarrheal disease control program in terms of its significance and budget allocation. The mislabelling of diarrhea in this study leads to delayed treatment, behavior pattern similar to that found in rural Pakistan (Mull *et al.*, 1988) and Sri Lanka (Nichter, 1988). Table 3 shows that 11.5% of those who were reported as having 'su' by the mother were later recognized as having diarrhea. This change of opinion always occurs when diarrhea persists for many days or becomes severe. It is noteworthy that the group with the highest percentage of later-recognized episodes were infants under 6 months of age in whom diarrhea may easily be fatal. Our finding emphasizes the need to start educating people to recognize diarrheal disease. Up to now, there has been no educational program which aims at correcting people's idea that diarrhea is a natural process of development in very young children. It seems to be a very difficult task to try because their idea has been passed on from generation to generation for a long time, even among the educated ones. However, for the younger generation whose belief is still not fully embedded, such trial programs to educate them should start as soon as possible. Furthermore the management of diarrheal disease in Primary Health Care system should emphasize giving ORS to both recognized and unrecognized cases since the beginning of diarrheal episode.

ACKNOWLEDGEMENTS

Financial support for this research was provided in whole by the Applied Diarrheal Disease Research Project at Harvard University by means of a Cooperative Agreement with the US Agency for International Development.

REFERENCES

- De Zoysa I, Carson D, Feachem R, Kirkwood B, Lindsay Smith E, Loewenson R. Perceptions of childhood diarrhea and its treatment in rural Zimbabwe. *Soc Sci Med* 1984; 19 : 727-4.
- Ministry of Public Health, Thailand : The Annual Summary of the Division of Epidemiology. 1989: 51.
- Ministry of Public Health, Thailand : The Annual Summary of the Division of Epidemiology. 1992: 70.
- Mull TD, Mull DS. Mother concepts of childhood diarrhea in rural Pakistan : What ORT program planners should know. *Soc Sci Med* 1988; 27 : 53-67.
- Nichter M. From Aralu to ORS: Singhaes perception of digestion, diarrhea, and dehydration. *Soc Sci Med* 1988; 27 : 39-52.
- Puttinun N. The impact of PROD program on the nutritional status and morbidity of the under five children in Kongyang and Korat subdistricts. Faculty of Public Health, Mahidol University, Bangkok, Thailand 1986: 62-3. Msc Thesis.
- Thongkrajai E, Thongkrajai P, Stoeckle T. Socio-economic and health program effects upon the behavioral management of diarrheal disease in the Northeast Thailand. Final report to the Population Council Research Program on Infant and Child Survival in Thailand, 1987.
- Varavithya W, Punyaratabandhu P, Vathanophas K, *et al.* Childhood diarrhea in a low income community in Bangkok: incidence, clinical features, and child caretakers's behaviors. *J Diarrheal Dis Res* 1991; 9 : 244-9.
- Zozoff B, Kamath KR, Feldman RA. Infection and disease in South Indian families: beliefs about childhood diarrhea. *Hum Org* 1975; 34 : 353.