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ORIGINAL ARTICLE

Infant Feeding Practices and Diarrhea Among Thai Children*

การเลี้ยงทารกและโรคท้องร่วงในเด็กไทย

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บทคัดย่อ: **เกื้อ วงศ์บุญสิน, อรพิน บุนนาค และ ประลมภ์ ศกุนตนาค. 2536. การเลี้ยงทารกและโรคท้องร่วงในเด็กไทย. วารสารวิจัยวิทยาศาสตร์การแพทย์ 7(1): 1-5**

ข้อมูลของโครงการสำรวจประชากรและการอนามัยในประเทศไทยปี พ.ศ. 2530 ได้บ่งชี้ว่าทารกที่อายุต่ำกว่า 5 เดือน มีอัตราร้อยละของการเป็นโรคท้องร่วงต่ำกว่าเด็กที่อายุ 6-23 เดือน ปรากฏการณ์ที่เกิดขึ้นนี้ มีความสัมพันธ์กับความจริงที่ว่า มารดาโดยทั่วไปเลี้ยงทารกอายุ 0-5 เดือนด้วยน้ำนมตนเอง โดยที่ให้อาหารเสริมเป็นส่วนน้อย ข้อมูลยังได้บ่งชี้อีกว่า ทารกที่ได้รับการเลี้ยงด้วยน้ำนมมารดาอย่างสม่ำเสมอ จะเกิดเป็นโรคท้องร่วงน้อยกว่าทารกที่ไม่ได้เลี้ยงด้วยน้ำนมของมารดา

คำสำคัญ: *การเลี้ยงทารก; โรคท้องร่วง*

Abstract: **Kua Wongboonsin, Aurapin Bunnag, and Pralom Sakuntanaga. 1993. Infant feeding practices and diarrhea among Thai children. Thai J Hlth Resch 7(1): 1-5**

Data from 1987 Thai Demographic and Health Survey indicate that infants under 5 months old show a lower percentage having diarrhea than the children aged 6-23 months old. This is related to the fact that breastfeeding is common for children aged between 0-5 months while supplemental foods are less common. The data also indicate that infants who are currently breastfeeding are less likely to have diarrhea than those who are not.

Key words: *Infant feeding; Diarrhea*

* *Large sections of this paper are adapted from Aurapin Bunnag, Pralom Sakuntanaga, and Kua Wongboonsin, "Occurrence and Correlates of Diarrhea among Thai Children" In* ***Thailand: health and population studies based on the 1987 Thailand and health survey,*** *p.33-53. Demographic and Health Surveys Furthers Analysis Series No.1. [Bangkok] Institute of Population Studies, Chulalongkorn University, 1989. ข้อมูลในรายงานฉบับนี้ดัดแปลงจาก เรื่องอุบัติการ ความสัมพันธ์ของปัจจัยต่างๆ ที่เกี่ยวข้องและการรักษาโรคท้องร่วงในเด็กไทย ซึ่งเขียนโดย รศ.อรพิน บุนนาค, พญ.ประลมภ์ ศกุนตนาค และ รศ.ดร.เกื้อ วงศ์บุญสิน ในเอกสารการสัมมนาผลการวิเคราะห์ข้อมูลขั้นที่ 2 ในเรื่องเกี่ยวกับ ประชากร การวางแผนครอบครัว และการอนามัย โดยใช้ข้อมูลจากโครงการสำรวจประชากรและการอนามัยในประเทศไทยปี 2530: หัวข้อเกี่ยวกับการอนามัย ซึ่งมี รศ.ดร.นภาพร ชโยวรรณ และ รศ.ดร.ภัสสร ลิมานนท์ เป็นบรรณาธิการ: เอกสารหมายเลข 171 สถาบันประชากรศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย, 2532*

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Recently, there has been an increased recognition of the impact of infant feeding practices on children's health and the importance of breastfeeding promotion. Breastfeeding is preferable to bottlefeeding for infants in that the former is more nutritious more hygienic and costs less. In addition, it confers immunities to infants against common infections. Accordingly, breastfeeding is particularly important in developing countries, whose general population are relatively poor with inadequacy of health services and relatively perilous general health environment.

Acute diarrhea is an important health problem in developing countries. It is estimated that 750 million children below 5 years old in Asia, Africa, and Latin America suffer from acute diarrhea each year. Between 3 to 6 million die annually and 80 percent of deaths occur in the first year of life (WHO, n.d.).

In Thailand, despite the fact that the mortality rates of acute diarrhea in children under 5 years of age decreased from 26 per 100,000 in 1980 to 12 per 100,000 in 1986, acute diarrhea is still a major health problem (Mahidol University, 1986).

The present study examines the linkage between infant feeding practices and diarrhea based on data collected by the 1987 Thailand Demographic and Health Survey (TDHS). As such it provides useful evidence of the impact of infant feeding pratices on the health of children with particular emphasis on the diarrhea issue.

Source of data

The data for this study are obtained from the TDHS, a nationally representative survey conducted during March-June 1987 (Chayovan *et al.*, 1988). A total sample of 6,777 ever married women aged 15-49 were interviewed. The sample was designed to provide an independent estimates for the four major region of Thailand and the Bangkok Metropolis, as well as for the urban and rural areas. Questions on diarrhea occurrence and breastfeeding practices were asked for all living children born to respondents since January 1982. This resulted in information for 3,665 children (unweighted). Details of treatment was obtained for the 528 children reported to have suffered from diarrhea during 2 prior weeks.

Findings

The study (Table 1) finds 6 percent and 15 percent of children suffering from diarrhea during the past 24 hours and the two previous weeks, respectively. The data suggest that the incidence is more likely in rural than urban areas. Approximately 16 percent of children in rural areas had diarrhea during 2 weeks prior to the survey compared to 10 percent for urban children. Personnel hygiene and environmental sanitation likely explains the difference.

Table 1. Percentage having diarrhea in prior 24 hours and prior 2 weeks, by demographic characteristics of the child and the mother and by rural-urban residence, among children born 1982-1987

Characteristic	% of children having diarrhea in prior		% of children having diarrhea in prior 2 weeks	
	24hours	2 weeks	Rural	Urban
Total	5.8	15.3	16.3	9.8
Age of child				
0-5 months	8.3	17.9	20.0	8.5
6-11 months	9.0	23.1	24.5	17.1
12-23 months	8.6	23.8	25.4	16.5
24-35 months	6.9	14.9	16.6	6.7
36-47 months	2.0	10.6	11.1	8.11
48-59 months	5.0	9.3	9.8	6.4
60+ months	1.1	7.9	8.9	0.0

Notes: The results shown are based on weighted calculations.

With respect to the age of children, diarrhea was more common among those under 2 years old compared to those older. This is likely attributable a low degree of protective natural immunity during the first few years of life. However, the rate was slightly lower for children under 6 months old, probably because most are still breastfeeding, some still exclusively so, while children between the age of 1-2 years old are more likely to be weaned and to be receiving various supplemental foods (Knodel *et al.*, 1990).

The result is consistent with the other study in Thailand (Pruksaraj, 1989) in that about 20 percent of the patients with diarrheal disease were aged less than 1 years old and 44 percent less than 5 years old.

The linkage between infant feeding practices and dirrheal occurrance is of interest. According to the TDHS, the median breastfeeding duration is over one year (Chayovan *et al.*, 1990). Data from Table 2 based on children under 2 years old, indicate the percentage of children in the urban and rural areas experiencing diarrhea in the prior 24 hours and the prior 2 weeks according to breastfeeding status. The results confirm that breastfed children are less likely to be affected by diarrheal disease than those who are not breastfed. This holds for both rural and urban areas.

Table 2. Percentage having diarrhea in prior 24 hours and prior 2 weeks, by breastfeeding status and rural-urban residence, among children under 2 years of age

	% with diarrhea in prior 24 hours			% with diarrhea in prior 2 weeks		
	Total	**Rural**	**Urban**	**Total**	**Rural**	**Urban**
Breastfeeding status						
Not being breastfed	10.3	11.8	6.5	23.7	26.3	17.3
Still being breastfed	7.7	8.2	3.7	21.6	22.9	11.3
Total	8.6	9.3	5.4	22.4	24.0	14.9

Results in Table 3 examine the linkage of breastfeeding practice on the occurence of diarrhea within a multivariate framework, using Multiple Classification Analysis to control for a number of other potentially important determinants of diarrhea. For the national sample the unadjusted results reveal a higher percentage of experiencing diarrhea in rural than urban areas. This difference persists after adjusting for other characteristics.

The unadjusted data show a less frequent diarrheal incidence in currently breastfed children than those obtaining nutrition from other kinds of sources. The unadjusted difference of about 2 percent increases to about 6 percent after adjusting for other characteristics. Diarrheal incidence also varies inversely with mother's education, regardless of adjusting for other factors.

Focusing separately on rural and urban samples, both show less cases of diarrhea in breastfed children than those not currently breastfed. The unadjusted difference of 3 and 4 percentage points in rural and urban areas respectively, increases after adjusting for other factors to 6 and 7 percent respectively. Mother's education is negatively related to the percentage of rural children having diarrhea both before and after adjusting for other variables. However, the effect is less pronounced in urban areas for both unadjusted and adjusted data.

With respect to the effect of toilet facilities on the occurrence of diarrhea, rural children in households with open pit latrines and with sanitary pit latrines are less likely to have diarrhea than those without them. The difference is slightly higher than after adjusting for other characteristics. In urban areas, the case is less in children of households with a flush toilet than those without toilet facilities. However, it should be noted that both samples have less than 50 cases each.

In the case of drinking water sources, the rate of diarrhea is the lowest in rural children using piped water followed by rain and well water, respectively. The rates are higher before than after adjusting for other characteristics. In urban areas, the lowest rate of diarrhea is found in children drinking bottled water, followed by piped water regardless of adjusting for other characteristics.

Considering the linkage of using soap and the degree of diarrheal occurrence, the data show a negative relationship both before and after adjusting for other factors.

Table 3. Percentage having diarrhea in prior 2 weeks, by selected characteristics, unadjusted and adjusted by multiple classification analysis, among children under two years of age

	National		Rural		Urban	
	unadj	adj	unadj	adj	unadj	adj
Grand mean	22.6	22.4	24.1	24.1	14.9	14.9
Rural-urban residence						
Rural	24.0	23.8	x	x	x	x
Urban	14.9	15.8	x	x	x	x
Breastfeeding status						
Not breastfeeding	23.7	25.7	26.3	28.0	17.2	17.6
Still breastfeeding	21.6	20.4	23.0	22.1	11.3	10.8
Mother's education						
0-3 years	29.8	29.6	30.9	29.0	(20.1)	(19.1)
4-6 years	22.6	22.5	24.0	24.0	13.9	14.3
Secondary or above	14.9	15.5	14.5	17.4	15.3	15.0
Type of toilet						
Flush	x	x	-	-	(13.7)	(13.1)
Septic tank	x	x	18.7	20.1	14.8	14.9
Pit	x	x	(20.1)	(18.1)	-	-
No facilities	x	x	29.2	27.8	(16.7)	(18.3)
Drinking water source						
Piped	x	x	18.4	20.2	17.8	17.8
Bottled	x	x	-	-	4.7	4.4
Well	x	x	25.7	25.1	(16.0)	(16.2)
River or spring	x	x	(26.8)	(25.5)	-	-
Rain	x	x	20.5	22.0	11.4	12.4
Other	x	x	-	-	-	-
Possession of soap						
Yes (or temporarily out)	x	x	23.3	23.5	x	x
No	x	x	(42.2)	(36.9)	x	x

Note: x = not include in equation; - = less than 20 unweighted cases; ( ) = based on 20-49 unweighted cases.

Conclusion

Acute diarrhea is recognized as a leading cause of mortality and morbidity in children of developing countries. According to surveillance studies in Asia, Africa and Latin America, about 150 million children under 5 years old yearly suffer from diarrhea. In addition, acute diarrheal disease causes deaths to between 3 to 6 million in this age group, and 80 percent of which are children under 2 years old (Vorakitphokatorn, 1985).

The present study shows that children under 2 years old are more likely to be infected by diarrheal disease than the population of other age groups. One important factor at the household level is feeding practices for young children. The data shows that breastfeeding can save infants and young children from diarrhea to a certain extent.

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