

CHAPTER V

CONCLUSIONS, DISCUSSIONS AND RECOMMENDATIONS

Conclusions

The study of acute infantile diarrhea and related factors in municipal communities of Thungsong District, Nakhon Si Thammarat Province, was aimed to study the prevalence and related factors of acute infantile diarrhea in municipal communities, Thungsong District, Nakhon Si Thammarat Province. This study was a cross-sectional descriptive research. The target population were 245 care-givers and the children under one year of age. The data were collected through interviewing, during 1-31 July, 2003. The data were analyzed by using the programmed computer SPSS by computing the following statistics: percentage, arithmetic means, standard deviation and Chi-square test was used to analyze the relationship of the related factors and the onset of acute infantile diarrhea. The results of the study were presented as follows.

1. General information of care-givers. It was found that about more than half of the care-giver aged 20-29 years (48.6 %), followed by the age group 30-39 (22.0 %), with the average age of 30.8 years, the standard deviation of 12.1 years, the minimum age was 15 years, and the maximum age was 74 years. Regarding occupation of the care-givers, more than half of them were housewives (61.6 %) followed by traders (16.7%). Forty percent of them finished primary level and 38.4 percent finished level or equivalent.

About half of them has income 5,000 – 10,000 Bahts per month and 40.0 percent had income less than 5,000 Bahts per month, with the average income of 6,600 bahts and standard deviation of 4,422 Bahts, the minimum was 1,000 Bahts whereas the maximum income was 30,000 Bahts

2. Knowledge regarding acute diarrhea. The knowledge regarding diarrhea was grouped into 3 levels: low, moderate and high and were composed of four topics: causes, signs and symptoms, prevention, and treatment. Regarding causes, only 6.1 percent had a high level of knowledge. There were almost half of the respondents had the moderate level of knowledge regarding causes of diarrhea (47.8%), almost half of them had a high level of sign and symptoms of diarrhea (49.4%), more than one-fourth of them had a high level of knowledge regarding diarrhea prevention and one-third of them had a high level of knowledge regarding treatment of diarrhea (29.8%). For the overall knowledge of diarrhea, 6.5 percent of the caregivers had a high level of knowledge.
3. Knowledge regarding diarrhea by care-givers characteristics. It was found that the higher level of knowledge regarding diarrhea in the children under one year of age in this group who were cared by the care-givers older than the age of 25 than lower than 25 or 25 occupation: the labor worker, government officers and the trader than the housewives and agriculturists, level of the education: primary level of education or lower than the group who had a higher than primary education., the income was 5000 bahts or lower per month than the group whose income was more than 5,000 bahts per month.

4. Attitudes toward acute infantile diarrhea. The attitude scores were grouped into 3 levels; negative, neutral, and positive. It was found that more than half had neutral attitudes toward acute infantile diarrhea (55.9%). Follow by positive attitudes and negative attitudes. (38.0% and 6.1% respectively)
5. Attitudes toward acute infantile diarrhea by care-givers characteristics. It was found that the higher level of positive attitude toward diarrhea in the children under one year of age in this group who were cared by the care-givers older the age of 25 than lower 25 or 25, occupation: the housewives and agriculturists than the labor worker, government officers and the trader, level of the education: a higher than primary education than the group who had primary level of education or lower education., the income was 5000 bahts or lower per month and the group whose income was more than 5,000 bahts per month nearly the same level of attitudes.
6. Preventive practices of care-givers. The preventive practices were grouped into 3 levels: good, fair and poor. It was found that almost half of the sample practiced poor level of preventive practices (44.9%). Follow by fair level (36.3%) and good level (18.8%)
7. Preventive practices of care-givers characteristics. It was found that the higher level of good preventive practices in this group who were older the age of 25 than lower 25 or 25, occupation: the labor worker, government officers and the trader than the housewives and agriculturists, level of the education: primary level of education or lower than the group who had a higher than primary education., the income was more than 5,000 bahts per month than the group whose income 5,000 bahts or lower per month.

8. General information of children under one year of age. From the total number of 245 studied infants, it was found that more than half of them (56.3%) aged 7-12 month with the average age of 6.9 month, whereby more than half of them (58.8%) had normal birth weight (higher than 3,000 grams), 37.4 % breast fed 1-3 month. The highest percentage of the children (98.8%) had normal nutritional status and 98.8 percent have received vaccination complete.
9. Data regarding acute infantile diarrhea. During the duration of three month, the highest prevalence rate of acute infantile diarrhea was 23.7 per 100 infants. The average episodes was 1.10 / child/3 months whereby similar average episode was found in April, May and June 1.0,1.2 and 1.2 respectively. It was also found that 91.3 present had 1 episode. There were 31.1 percent of the caregivers reported that the children had underlying diseases before having acute infantile diarrhea, whereby cold was found most (77.8%). Regarding the treatment, more than half of them were treated at the private clinic/hospital (57.8%).
10. Environmental sanitation factors. It was found that most of the children were fed with bottled water (79.2%) and the drinking water was treated by boiling for 10-15 minutes (91.2%). There were 71.4 percent indicated that bins with covers were used for garbage. and 83.7 percent mentioned that garbage was disposed by having municipal staff took it out for sanitarium disposal. The sewage disposal was done by draining into the public sewers (78.1%). For the density of houseflies, it was found that three-fifth of the caregivers' households (66.1%) were found some of houseflies and most of

the caregivers did not do anything to control/get rid of houseflies. It can be concluded that most of the respondents use the clean drinking water (100%) most of them practiced the correct methods for garbage and sewage disposal (71.4 % and 75.1 % respectively) whereas most of the householders practiced improper method to control/get rid of houseflies (88%)

11. Reinforcing factors. Regarding receiving information about acute infantile diarrhea, it was found that three-fifth of the care-givers have received information about acute infantile diarrhea whereby half of them received the information through radio/television. About home-visit, three-fifth of the caregivers have not even received home-visit from public health personnel / public health volunteers (69.8%)
12. Relationship between the general characteristics of care-givers and the onset of acute infantile diarrhea. Significant relationship was found between in the aspects of care-givers and the onsets of acute infantile diarrhea was the level of education and preventive behaviors level but no significant relationship was found between of age, occupation, and households income, and the onsets of acute infantile diarrhea.
13. Relationship between knowledge about acute infantile diarrhea and attitudes toward acute diarrhea, knowledge on the basis of the causes and the prevention of diarrhea and diarrhea preventive behaviors of the child care-givers, and attitudes toward acute diarrhea and diarrhea preventive practices of the child care-givers. No significant relationship was found between knowledge about acute diarrhea and attitudes toward acute diarrhea, knowledge on the basis of the causes and the prevention of

diarrhea and diarrhea preventive practices of the child care-givers, and attitudes toward acute diarrhea and diarrhea preventive practices of the child care-givers

14. Relationship between preventive practices of care-givers and the onset of acute infantile diarrhea. Significant relationship was found between the level of preventive practices of care-givers and the onsets of acute infantile diarrhea
15. Relationship between children's general characteristics and the onset of acute infantile diarrhea. Significant relationship was found between the factor in the aspect of the children and the onsets of acute infantile diarrhea that was age, but no significant relationship was found between the birth weight, the level of nutrition, and the vaccination intake and the onsets of acute infantile diarrhea
16. Relationship between environmental sanitation factors and the onset of acute infantile diarrhea. Significant relationship was found between the factors in the aspect of environmental sanitation factors and the onsets of acute infantile diarrhea were the disposal of the garbage but no significant relationship was found between the disposal of the sewage water and eradication of houseflies and the onsets of acute infantile diarrhea
17. Relationship between regarding receiving information about acute diarrhea and knowledge regarding acute infantile diarrhea, regarding receiving information about acute diarrhea and attitudes toward acute diarrhea, regarding receiving information about acute diarrhea and diarrhea preventive practices of care-givers. It was found that significant relationship

between regarding receiving information about acute diarrhea and knowledge regarding acute infantile diarrhea but no significant relationship was found between regarding receiving information about acute diarrhea and attitude toward acute diarrhea and receiving information about acute diarrhea and diarrhea preventive practices of care-givers.

Discussion

The Prevalence rate of acute infantile diarrhea

During the three month period of this study, the researcher has found that the prevalence rate of the acute infantile diarrhea among the children under one year of age was about 23.7 cases per 100 children or 23,700 cases per 100,000 population. This rate was higher than what the Ministry of Public Health had expected as the Ministry had planned to reduce morbidity rate of acute diarrhea in children under five years of age suffering from acute diarrhea down to 3,500 cases per 100,000 population.

It was found that the prevalence rate of diarrhea in the communities was 9.6 times of the prevalence rate of the children who got the services at the government hospital and public health services, because more than half of the children with acute diarrhea went to the private clinics or hospitals. Besides, some of them didn't go to any hospitals, but bought medicine from drugstores. Only 9.37 percent of the patients came to the hospitals even though they had health insurance cards and they didn't have to pay for the medical treatment expenditure at all. Perhaps they didn't want to waste their time because they had to wait for the doctors for a long time. (Cited from the patients'

satisfaction survey at Thungsong Hospitals, 2003). And there are more than twenty private clinics and hospitals in Tambon Pakpraek, which provided the opportunity for the people have choices to select private clinics or hospitals rather than the government hospital. The average episode of acute infantile diarrhea was 1.10 per children per three month, which was higher than the study of Jutharattana Thaworanun (1997). It was found that the number of times of the diarrhea incidence among the children under one year of age was 2.2 episode per child per year. It was also found that the number of time of the average sickness in April, May and June were almost the same, which was 1.0, 1.2 and 1.2 episodes, respectively. This finding was congruent to the epidemiological theory of diarrhea, which state that the causes of diarrhea in the children under one year of age are from Rotavirus and this virus is highly active during the summer, so were the incidences of last year (Appendix C). Seven out of ten cases developed the disease without underlying disease because of the fact that diarrhea is caused by care-givers who have poor preventive behavior. From this research results nearly half of care-givers have improper preventive practices, especially cleaning their hands before feeding the children. It was found that only 25% of the mothers cleaned their hands every time before breast feeding the infants, and only 19.8% of the care-givers who fed the infants with the formula cleaned their hands before preparing the formula. These will surely cause the infants to develop diarrhea.

Factors Related to Acute Infantile Diarrhea

Personal characteristics of care-givers.

Age:

It was found that the percentage of children with acute diarrhea among the care-givers who were 25 years old or younger was higher than that of those who were older than 25 years old because the group of those who were 25 years old or younger had more improper preventive practices than those over 25 years old. The relationship between the level of the preventive practices was found to be statistically and significantly related to the onset of acute infantile diarrhea; that is to say, the care-givers with indecent preventive practices could cause the children to develop diarrhea more than those with decent health practices. This finding was congruent to the study by Suree Sattayawisit (1990), who found that the age of the care-givers was related to the onset of acute diarrhea among the children under five years of age. The children under the care of the care-givers who were 25 years old or younger had a higher risk from acute diarrhea than those under the care of those who were older than 25 years. According to Mock et al, (1993) in Congo, it was found that the mothers' ages were significantly related to the onset of acute diarrhea, but it was not contradicted to the study by Tanaporn Lorpiyanonta (1997) who has study the factors which were related to mothers' practices in the diarrhea prevention among the children under five years old in the rural areas in the province of Roi-et by using the Cross – Sectional Descriptive Research. The collection of the data was conducted by interviewing, and the sample selection was carried out by the Multi-Stage Sampling. The data analysis was done by the t-test, Anova, and Pearson's Product Correlation. It was found that the care-givers

who were older or younger than 25 years had no difference in the diarrhea preventive practices.

The levels of education

It was found that the percentage of children with acute diarrhea among the caregivers with primary level of education or lower was higher than those with higher level than primary education. This was congruent to the study by Suree Sattayawisit (1990), Varavithya(1990), and Punyarata Band el al (1993). It was found that the risk factors which caused the onset of diarrhea among the children were mothers with low levels of education. According to Bertrand and Walmus (1983)'s study carried out in Columbia, it was found that the mothers with low levels of education could become a risk factor to cause the onset of diarrhea among the children, but it was contradicted to the study by Somchai Plongpudtra (1989), Wantanee Issarapaijit (1995), Panjawat Plengsa-ard (1999) and Nikorn Kasiwitamnuay(2000), which found that the education level of the care-givers was not found to be related to the onset of diarrhea among the children under five years old.

Family Income

It was found that the percentage of children with acute diarrhea among the caregivers with 5,000 bath or lower income were higher than those with more than 5,000 bath income because the group with wages lower than 5,000 bath a month had more indecent health practices than those with wages higher than 5,000 bath. This study was congruent to the study by Angkana Jirajin (1987), who found that the different family income had different effects on the mothers' practices when facing their children 's

diarrhea incidences; that is to say, the mothers with wages lower than 3,000 bath a month had lower average behavior scores than those with the wages higher than 3,000 bath a month. Suparat Boonnak found that the family income was related to the diarrhea preventive practices of the care-givers of the children under 1 year of age. According to Betanch et al (1997) in Ethiopia, it was found that the family income was related to the onset of diarrhea among the children under five years old, but it was contradicted to the study by Somchai Plongputtra(1989), Wantanee Issarapijit (1995), and Nikorn Kasiwitamnuy (2000), who found that family income was not related to the onset of diarrhea among the children under five years old.

Occupation

It was found that the percentage of children with acute who were living with the care-givers who had agricultural and housewife were higher than those living with the care-givers who were labour workers, government officers and traders.. This study was congruent to the study by Suree Sattayavisit(1990) who found that the children who were under 5 years old under the care of the care-givers who had agricultural careers were 1.92 times as risky to diarrhea as those who were under the care of the care-givers who were not farmers but this study was contradicted to the study by Somchai Plongputtra(1989), Wanthanee Isarapijit (1993) and Punjarat Plengsa-ard (1999) who found that the occupations of the care-givers were not related to the onset of diarrhea among the children under five years of age.

The level of preventive practices

It was found that the care-givers' level of preventive practices was statistically and significantly related to onset of acute infantile diarrhea ; that is to say, the care – givers with indecent preventive practices could cause the children to develop diarrhea more than those with decent preventive practices. This finding was congruent to the study by Strina et al (1999) in Brazil, which found that in the household with indecent preventive practices, there were 2.2 times as many diarrhea incidences among the children under 5 years old as those living in those with decent preventive practices. Dusit Sujirarat (1990) found that the children cared by the care-givers with indecent preventive practices had 5.97 times as much risk from diarrhea as those under the care-givers with decent preventive practices. According to this study, it indicates that preventive practices have a relationship with diarrhea incidences although getting information about diarrhea is congruent to the level of knowledge on diarrhea prevention with a statistic significance; that is to say, the care-givers who used to get the information about diarrhea had knowledge on diarrhea prevention than those without learning any knowledge at all however, according to the study, it was found that the care-givers with good education incredibly had negative attitudes and indecent preventive practices, so having good education had nothing to do with improving practices. Perhaps they had improper beliefs and attitudes. It was also found that 43.7% of the care-givers believed that the looser or watery stools was caused by the changed gestures of physical developments and ages. This finding was congruent to the study by Ladda Morsuwan and Wandee Warawit (1978), who found that 1 out 3 mothers of the children under the age of one believed that diarrhea was caused by the children's physical development and dental growth which could cause an impact on the children.

Although the time have passed by, those beliefs still exist because most of the caregivers living in the municipal communities of Thungsong District completed primary level of education and they tend to believe and comply with the old folks' sayings and teaching and these beliefs have been handed down from generation to generation, and they haven't brought about any changes in disease preventive practices.

Personal characteristics of children

Age: It was found that the children, s age has significant relationship with the onset of acute diarrhea; that is to say, 7 to 12 month old children had a higher risk from diarrhea than 0-6 month old children. This finding was congruent with the theory of the onset of acute diarrhea which indicates that the highest morbidity rate of acute diarrhea was found most among children aged 6 month to 2 year old compared with other age group (WHO, 1992), because the children of this age can be to grasp the food or many things and put them into their mouths. Therefore, if the things are contaminated with feces or microbes they may cause diarrhea and the children over 6 months of age will start having supplementary food. As a result, if the food is not clean, the children are very likely to get some germ and can get acute diarrhea. But this finding was not congruent to the study by Moawed SA and Saeed AA who studied the diarrhea among the children under one year of age in Saudi Arabia in the year 2000 by using Cross-Sectional Method, and selecting the samples by using Systemic Random Sampling. The data analysis was calculated by means of the percentage, which showed that the morbidity rate of diarrhea among the children under one year of age was mostly found among children aged less than 6 months.

Birth weight of the children

The infants with the weight lower than 2,500 grams had a lower percent from diarrhea than those whose weight was 2,500 grams or higher. This finding was not congruent to the study by Paiboon Anudit and company in 1999 and by Etiler N in 2004, who studied the children under five years old in Turkey. The study found that the children whose birth weight was lower than 2,500 grams had a higher risk form diarrhea than those whose birth weight more than 2,500 grams. According to the study by Panjawat Plengsa-ard in 1999, the researcher studies the diarrhea among the children under five years of age by using the case- control method. The selection of the samples was carried out by using the Simple Random Sampling method, and the data analysis was calculated by T-Test, Chi-square Test, and 95% of CI of Relative Odds Ratio. This study found that the birth weight was not related to the onset of diarrhea because the onset of acute diarrhea were directly caused by the care-givers' preventive practices. If the care-givers had good preventive practices, the children would not develop diarrhea. This study also found that the infants whose birth weight was lower than 2,500 grams were living with the care-givers with better preventive practices than those who took care of the children whose birth weight was 2,500 grams or higher, so the former group had a less risk from diarrhea than the latter (Appendix D)

Nutritional status

It was found that the children who were malnutrition had a percentage of acute diarrhea than those with normal nutrition. This finding was congruent to the study by Etiler N et el in 2004. The researcher studied the children under five years of age and found that the nutritional status was related to the onset of diarrhea, but it was not

congruent to the study by Wantanee Issarapaijit (1995) and Panjawat Plengsa-ard(1999) which found that the nutritional status of the children under five years old was not significant relationship to the onset of acute diarrhea.

Immunization

It was found that the children who were not completely receives of vaccination were more get on diarrhea than those who completely receives of vaccination. This finding was congruent to the study by Getanch, Assefa and Tadesse who carried out their study in Ethiopie in 1997. They found that receives of vaccination was related to the onset of acute diarrhea among the children, but it was not congruent to the studied by Panjawat Plengsa-ard (1999), who found that there was no relationship between receives of vaccination and the onset of acute diarrhea among the children under five years of age.

However, when checking the relationship between the nutritional status and receives of vaccination with the onset of acute infantile diarrhea, the researcher didn't find any statistically significant relationship. Maybe this study was conducted in only the municipal communities of Thungsong District, so the data were not widely and well disseminated. As a result, there was no distinct statistic relationship.

Factors regarding environmental sanitation

It was found that the garbage disposal was significantly related to the onset of acute infantile diarrhea. This finding was congruent with the study carried out by Wantanee Issarapaijit (1995), who studied the incidences and related factors of diarrhea

in urban communities, Sukhothai province. The result of study showed that the unhygienic garbage disposal was statistically and significantly related to the onset of acute diarrhea among the children under 5 years of age. But this finding was contradicted with the study carried out by Dusit Sujirarat (1990), who studied the risk factors of the onset of acute diarrhea among the children under five years of age in the province of Singhaburi by using the Cross – Sectional Study Method. The sample group consisted of 466 children under five years of age living outside the municipal areas of Singhaburi. The selection of the samples was conducted by Multi- stage Sampling Methods. The data collection was done through the reports of the public health staff and interviewing the children for the ailment background. The data analysis was carried out by using Stepwise Logistic Regression Method. At any rate, it was found that no significant relationship was found between the environmental sanitation and the onset of acute diarrhea among the children under five years of age. And Ekanem E E, Adedeji OT, and Akitoye CO, studied the environmental sanitation and risk practices of onset with diarrhea in Nigeria and it was found that no significant relationship was found between the environmental sanitation and the onset of acute diarrhea among the children under five years of age.

Sewage disposal and control/eradication of houseflies.

It was found that the percentage of children with who living in the household that practiced proper sewage disposal was lower than those in the houseflies that did not practiced proper sewage; and in the household that practiced proper method to control/eradication of houseflies, the percentage of the children who were sick with acute diarrhea was lower than of the children in the household that did not

control/eradication of houseflies. This finding was congruent to the study by Wantanee Issarapaijit (1995) and Panjawat Plengsa-ard (1999), who found that the unsanitary way of sewage disposing and houseflies had a relationship with diarrhea the onset of acute diarrhea among the children under five year of age, but it was not congruent to the study by Dusit Sujirarat (1990), and it was also contradicted to the study by Ekanem E E, Adedeji OT, Akitoye CO. (1994).which found that no significant relationship between the environmental sanitary and the onset of diarrhea among the children under five years of age

However, when checking the relationship between the sewage disposal and control/ eradication of houseflies and the onset of acute infantile diarrhea, the researcher didn't find any statistically significant relationship. Maybe this study was conducted in only the municipal communities of Thungsong District, so the data were not widely and well disseminated. As a result, there was no distinct statistic relationship.

Recommendations

Recommendations from the Research Results

From this study it was found that there are many factors that related to acute infantile diarrhea. Therefore, in order to lessen the morbidity rate of acute infantile diarrhea, the following procedures are recommended :

1. Health education activity should be organized for mothers by using group process, demonstration, role-playing, and local media. The community

leader should be the focal person for community activities and public health personnel should be motivated to educate, to facilitate, to provide consultation to the mothers / care –givers, to develop their knowledge, positive attitudes, and proper hygienic behaviors. Especially care-givers with high risk of infantile diarrhea. The group consisted of the care-givers under 25 years of age. They completed primary level of education or lower, and their income was lower than 5,000 bahts per month.

2. For the children age 7-12 months care givers should take a good care of the their children, always keep children under closed watch and the floor where the children play should be clean.
3. Promoting the improvement of environmental sanitation in the community and houses on garbage disposal, sewage disposal and houseflies' eradication including coordinating with the community leader.
4. In the hospital, the discharge plan should be set for the diarrhea patients and refer them to primary care unit for follow up and home- visit, and diarrhoeal surveillance activities.

Recommendation for Further Researches

1. This study was carried out in the municipal communities of Thungsong District, Nakhon Si Thammarat Province because there was a limitation of time and budget. The further study should be expanded to cover all of the municipal communities of Nakhon Si Thammarat Province or of the whole southern regions or of the national level.

2. This type of study should be carried on in outside municipal communities to compare the result of the research and find out what factors are similar or different, so that the people involved can use that information to make a scheme to prevent the outbreak of the diseases in both the municipal and outside municipal communities.
3. The research should be done studying the relationship between the caregivers preventive practices and the onset of acute diarrhea.
4. The research should be done in the matter of trial group by setting up the preventive behavior improvement project to compare the result of the changes to find out how that result can be practically applied to prevent diarrhea.
5. The research should be done studying the relationship between types of feeding and the onset of acute diarrhea.
6. This research methodology should be used to study other communicable diseases.