Chapter 5

Conclusions and Discussion

This study is a cross-sectional survey studying the risk factors related to acute diarrhea disease in children aged under 5 years in Pattani Province. The purpose of this study was to investigate the risk factors related to acute diarrhea disease in children aged under 5 years. A future objective is to develop a model to predict the risk of acute diarrhea disease in children under 5 years old using mother and child carers in Pattani Province as subjects. The samples were selected by stratified four-stage sampling. The data were collected in 22 villages of Panarehk District in Pattani Province during the period of 1-28 February 2000. There were 220 subjects sampled. The following findings were observed in the study.

For collecting data, a questionnaire was used in order to get information about risk factors related to acute diarrhea disease in children under 5 years old in Pattani Province. Statistics for descriptive analysis of the data include percentages, means and standard deviations, and statistics for inferential analysis of the data are odds ratios, Pearson's chi-square test, t-tests and logistic regression analysis.

5.1 Conclusions

The carers in this study contain both female (96%) and male (4%), with the mean age of 34 years old. Ninety-three percent of these carers were married, with 82% were mothers. Seventy-four percent of these had the education only at primary school. The rest (26%) had the education at high school up to Bachelor's degree. The main source of drinking water for children was well water (68%), while the rest-included tap water (15%), bottled water (14%) and rainwater (3%). The carers improved the water quality before giving child drinking (77%) and 80% of them had defecation excrement in the toilet. Furthermore, most of the carers were found to get rid of rubbish by burning (84%).

The preliminary data analysis, based on Pearson's chi-squared test, odd ratios and t-test found that, age, water quality, pets, keeping oral dehydration salt, washing hands

after use of toilet, keeping food overnight, cleaning the patient's dress and cleaning fingernails, were all associated with acute diarrhea disease in children aged under 5 years in Pattani Province.

The multivariate analysis in the full model showed all 18 categories of the determinant variables with p-values < 0.1 and some variables which had p-value > 0.1 from the preliminary data analysis were taken into account in the final model.

In the final model, of the socio-demographic factors, only education of carers was related to acute diarrhea disease in children aged under 5 years in Pattani Province. The other socio -demographic factors were not significant. Of the environmental factors, only having domestic animals was related to acute diarrhea disease. For the personal hygiene variables in behaviour factors, including reheat meal every time for food or milk kept overnight, cleaning the patient's dress by soap with boiling, and cleaning fingernails twice a week, were all related to acute diarrhea disease in children aged under 5 years in Pattani Province. The knowledge factors were not found to be related to acute diarrhea disease.

These five significant variables were used to assess the probability of risk factors related to acute diarrhea disease. The modeled estimates of these measures were derived from regression coefficients (Figure 4.7) to give an expression of the probability of risk factors related to acute diarrhea disease as shown.

$$P = \frac{1}{1 + \exp\left[1.3147 - 0.8542X_1 - 1.5812X_2 - 0.8699X_3 - 1.4843X_4 - 1.4147X_5 - 0.6038X_6\right]}$$

Where X_1 = education above primary school

X_2 = have domestic animal

X_3 = reheat milk and food kept over night not every time

X_4 = cleaning the patient's dress by washing and not boiling

X_5 = clean fingernails once a week

X_6 = clean fingernails less than once a week

This model provides a simplified interpretation of the probability of risk factors related to acute diarrhea disease in children aged under 5 years in Pattani Province.

5.2 Discussion

For socio-demographic factors, only education of carers was found to be related to knowledge of diarrhea disease, which to acute diarrhea disease in children aged under 5 years in Pattani Province. It was found that 80% of carers had the education above primary school had good knowledge of diarrhea disease and 58% of these had the education only at primary school. The carers having education above primary school, have good knowledge and awareness of cause, symptom and danger sign for diarrhea disease. When their children get sicked with diarrhea disease, they are taken immediately to the doctor. For the carers, who had the education only primary school, they had no knowledge of cause and symptom about diarrhea disease. Although their children had a diarrhea sickness but the carers did not take them to receive treatment. Furthermore these carers have a mistaken belief in diarrhea disease that their children have water excrement, it is normal pattern for the children at each growth development period. This result in lacking of taking care of their children, until the sickness had disappeared by itself, or the children had heavy sickness with diarrhea disease and then the carers would take their children to the doctor. This is consistent with the study of Sutra, et al (1990) and Sornngai (1989). They found that, the belief pattern for life style of mothers, receiving from their parents ancestors was associated with the occurrence of diarrhea disease.

In addition, the study is consistent with the study of Waravit, et al (1990) and Hasdee, et al (1995) and Sutra, et al (1990). The first revealed a significant low level education of mother being the risk factors of diarrhea disease in children age 0-5 years in Bangkok. While the others reported that, education level was significantly related to mother and cares givers' behaviour of prevention of children with diarrhea disease. Other variables in the socio-demographic factors including carer, age, sex, marital status, religion, occupation and income are not associated to acute diarrhea disease.

The study of domestic animal by surveying animal stalls in area of 30 meters around the house by the Office of Committee of Primary Health Care (1989) reported that people who had domestic animal would cause their children aged under 5 years having sickness with diarrhea disease 1.6 times higher than the people who had no domestic animal.

The domestic animals may contain the germ that is a carrier of diarrhea disease and causes sickness to children playing with their animals. Sattayavisis (1990) reported that the children playing with domestic animals had incidence rate due to diarrhea disease 1.44 times higher than those who did not play with their animals. Gortet, et al (1998) also showed the association between the domestic animal and the transmission of childhood diarrhea in rural Nicaragua.

Another variables in environmental factors including water, child plays area, garbage disposal and defecation pattern were not related to acute diarrhea disease.

From the study the reheat meal every time (for food or milk were kept overnight), cleaning fingernails twice a week and cleaning the patient's dress by soap and boiling were related to acute diarrhea disease. The association is consistent with the study of Rasdjarmrearnsook (1998). The result of this study showed that the children having nail clipping done twice a week had less risk due to diarrhea disease than those that were not done twice a week. The sources of milk variables in behaviour factors were not found to have an association to acute diarrhea disease.

The knowledge factors about diarrhea diseases, including cause, symptom, prevention, treatment and danger signs variable, of mother and child carers were not found to be related to acute diarrhea disease in children aged under 5 years in Pattani Province. This result is different from the study of Sutra, et al (1990), which reported that the knowledge factors about diarrhea diseases of mother were association with diarrhea disease in children under 12 years old.

The benefit of this model is that it can predict the probability of diarrhea disease occurrence in children aged under 5 years. Of 220 samples collected, 84 children had 252 times of sickness with diarrhea disease. The model obtained from this study has a forecasting capability up to 73%. This indicates that it can be used to predict effectively up to 184 out of 252 times of occurrence of the diarrhea sickness. When considering the cost of diagnosis and treatment for one patient having diarrhea sickness being 500 baht per time (Department of public Health, 1997), the cost for the treatment would reduced more than half of the total of 126,000 baht to 34,000 baht, if the model is used.

In addition, providing health education to the child carers and familyies could be one methods ot prevent the occurrence of diarrhea disease in children in Pattani Province. Main objective of providing education is to change behaviour of mother and child carers for prevention of diarrhea disease in children having risk factors related to acute diarrhea disease. These factors include domestic animals, not reheating meal every time for food or milk kept overnight, cleaning the patient's dress by soap without boiling and cleaning fingernails less than twice a week.

5.3 Suggestion and Further Research

This study was retrospective and collected data during period of one-year, using mother and child carers was subjects. The problem of this study was that the carers could not recognize all occurrences of diarrhea disease and sickness of their children in the past one- year. Apart from those subjects, the diarrhea disease patients admitted in local hospitals should be include to achieve the information of the cause of diarrhea disease.

For collecting data by answering questionnaire, some subjects did not give a good response, some did not intentionally complete all the answers, and these could lead to bias data. Furthermore the mother or child carers could speak only in Malay, resulting in difficult in data collection. Therefore the interviewers should have ability of speaking in Malay to communicate with those subjects.

The information for this study was only obtained by collecting data during February 2000, in Panarehk District. From the cases taking care of children aged under 5 years who stayed at home not including those in the nursery houses and kindergarten schools. All of aged groups from this source taken into account to obtain better model for forecasting.

For further study, the comparison between group of districts, which had highest and lowest incidence rate of diarrhea disease, should be performed. Also the association between risk factors related to acute diarrhea disease in children and the cultural performance characteristic, such as the religion fasting of Muslim should be explored.

The developed model could be only used to forecast the risk factors related to acute diarrhea disease in children aged under 5 years in Pattani Province and the other areas having similar geographical, and demographically characteristics. For the different geographical and demographically characteristic areas, should be considered other factors including prevention behaviour, consumption behaviour, childcare behaviour and house environment.

Finally, the participatory action research should be conducted to obtain a better result as the subjects' participate in the operation process, so they have knowledge and skill of cause, treatment and prevention of diarrhea disease. This would be of a great benefit to the diarrhea disease prevention in the community.