

CHAPTER II

LITERATURE REVIEW

1. Theory related to the study

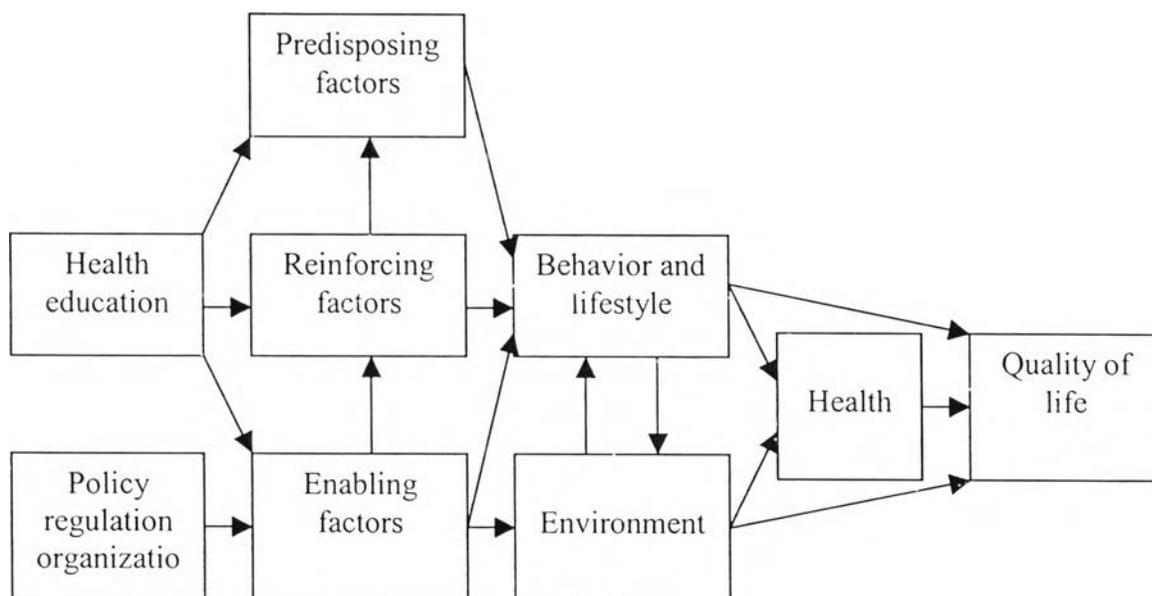
Many factors are related to preventive behavior. This study of preventive behaviors against dengue infection among Family Health Leaders draws on the PRECEDE-PROCEED behavioral model, as described by Green and Kreuter (1999). This concept emphasizes two fundamental propositions: (1) health and health risks usually have multiple determinants and (2) to be effective, efforts to effect behavioral, environmental, and social change must take these multiple determinants into account. A combination of processes and techniques are required to develop a plan and to determine strategies for health behavior changes.

The PRECEDE-PROCEED model was developed as a planning framework from which health education and health promotion programs could be designed (Green, Kreuter, Deeds, and Partridge, 1980; Green & Kreuter, 1999). PRECEDE stands for “Predisposing, Reinforcing, and Enabling Factors Constructs in Educational Diagnosis and Evaluation.” Predisposing factors include knowledge, attitudes, beliefs, personal preferences, existing skills, and self-efficacy toward the desired behavior change. Reinforcing factors include factors that reward or reinforce the desired behavior change. Enabling factors are psychological/emotional or physical factors that facilitate motivation to change behavior. This process is composed of five

steps of analysis starting from current situation of health problems. The problems are then examined backward to identify the causes of the problems and the obtained data are utilized in the planning of further management for behavioral changes. PROCEED stands for “Policy, Regulation, and Organizational Constructs in Educational and Environmental development” is the development and implementation of plan. The PROCEED component of the model acknowledges the importance of environmental factors in determining behaviors. This part should be completed before the planning starts; it, then leads to implementation and evaluation in steps 6 to 9. In summary, the model begins with the outcome of interest and the model is used to design an intervention for achieving the desired outcome. The details about each step of the PRECEDE-PROCEED framework are shown in Figure 2.

PRECEDE

Phase 5	Phase 4	Phase 3	Phase 2	Phase 1
Administrative and policy Assessment	Educational and Ecological	Behavioral and Environmental	Epidemiological Assessment	Social



Phase 6	Phase 7	Phase 8	Phase 9
Implementation	Process Evaluation	Impact Evaluation	Outcome Evaluation

PROCEED

Figure 2 The PRECEDE – PROCEED model (Green & Kreuter, 1999)

Step 1 Social assessment is a process of considering and analyzing quality of life. It involves the assessment of problems in various population groups, judging which problems have impacts on an individual, group of people and their health. The assessed problems indicate levels of quality of life of the population, for example, unemployment, crime, overpopulation.

Step 2 Epidemiological assessment is an analysis of health problems which affect the population being studied. The epidemiological diagnosis helps in specifying health problems, understanding the distribution of the problems and the risk factors related to the problems. The data are then utilized in determining the priority of the problems so that the more important ones can be selected for further management.

Step 3 Behavioral and environmental assessment is the process of examining the environmental and behavioral components that are related to health conditions and health problems.

Step 4 Educational and ecological assessment is an examination of factors that cause or affect health behavior. The factors are categorized into predisposing, enabling, and reinforcing factors.

Step 5 Administrative and policy assessment is associated with the assessment of capacity and resources of an organization, as well as its policy, which leads to the management plan, and the actions, which should be consistent with the factors influencing health behavior found from step 4.

Step 6 Implementation is the utilization of the plan.

Step 7-8-9 Evaluation involves three aspects as follows:

Process evaluation is the evaluation of problems arising during the implementation as well as the evaluation of the progression of the program in order to assess and ensure that the program is progressed as planned.

Impact evaluation is the evaluation of unexpected impacts, both in positive and negative ways. Outcome evaluation is the evaluation of the outcomes directly resulted from the program. This evaluation includes three issues: effectiveness, adequacy and efficiency.

My study focuses mainly on steps 3 and 4 of the PRECEDE-PROCEED framework. It was examination of factors associated to preventive behaviors against dengue infection. These factors are categorized into predisposing, enabling, and reinforcing factors, as discussed above.

2. Policy of Family Health Leader Development Project

2.1 Concept and Policy of Family Health Leader

The policy of fundamental public health development according to the 8th Edition of Public Health Development has paid importance to the personal development, that is, to individual, family and community to have appropriate health in terms of health promotion, disease prevention and self-health care, which can be conducted according to the following strategies: (MoPH, 1999).

- (1) To encourage people to utilize the bonding relationship of family and community as the fundamental of health care to family members and community permanently and continuously.

- (2) To encourage and develop people to gain knowledge and necessary skills appropriate to self-health care and to participate in the prevention and solution of public health problems of community.

According to the previous performance of fundamental public health, public health volunteers (PHV) have significant role in the village. Each volunteer is responsible for 8-15 households in order to build a network of cooperation with the community in each family. However, there is still a lack of distinct operation at the personal level. In each family, there should be members who cooperate closely with the PHVs and officers. Based on the nature of Thai family, there are generally one or more persons acting as leaders, who will take care of other members' health care. Such persons responsible for health care are recognized as "Family Health Leaders". Developing correct health care for these persons will provide a potential of improving their own family's health care. Moreover, this should promote the continuous development of health care, which is an additional factor for family health.

2.2 Objective: Every family has at least one person , who:

- (1) Has knowledge and ability to take care of his/her health and family members' health so that all members can have proper and correct health behavior.
- (2) Can take care of a patient at the first stage and promptly take such patient to a public health institute when a sickness is occurred.
- (3) Is the local resource to participate in community development in terms of public health and other issues.

2.3 Meaning / Definition

Family Health Leader is a family member acting as a leader and takes care of health for other family members in order to make all members healthy both physical and mental. Thus, all families already have a family health leader, who can be father, mother, uncle, aunt, brother, sister, etc. based on the appropriateness, readiness and willingness of member who will become family health leader. As the family health leaders gain health knowledge from various sources such as prints, electronic or personal media, and public health officers, public health volunteers, and other persons, there can be a mistake or misunderstanding resulted from giver and receiver. Accordingly, there should be knowledge development and skills provided sufficiently to the family health leaders for suitable health care of family members. If the family health leaders are literate and have sufficient time to perform a duty, such leaders will be able to learn more efficiently than self-learning from print media.

2.4 Role: The Family Health Leaders have the responsibility:

- (1) To be a major leader of family to take care of family members' health.
- (2) To be a good example of practicing good health care to family members.
- (3) To be a coordinator of family in participating in problem solving and public health development of family and community.

3. Review of research related to dengue prevention behavior

Most research on dengue fever is about surveys or studies concerning knowledge, attitude, and practices in various groups of people, the study of the health education programs, the effectiveness of education program to practicing disease control, the participation of sharing of various organizations in the community, and

the comparison among other prevention and disease control programs in the community. Most of the studies concern the relationship among each variable in preventive behaviors that were found in the study of health behavior or self-care. Relevant study findings are summarized below.

3.1 Predisposing factors

Sex

B.H.B. van Bentem et al. (2002) conducted a study in knowledge and use of prevention measures related to dengue in northern Thailand. They conducted an epidemiological survey among 1650 persons by using a structured questionnaire. Logistic regression was used to identify determinants of knowledge and found that in multivariate analyses, after adjustment for the other factors, sex appeared significantly related to knowledge of dengue. Women had better knowledge of dengue than men (OR: 1.31, 95% confidence interval (CI): 1.03-1.67).

Ratchanee Putkumtod and Tanin Suteeprasert (2002) conducted a study of factors affecting dengue fever control and preventive behaviors of people in Muang Suphanburi Municipality, Suphanburi Province. Interviewing 430 family leaders by constructed interview of researchers and analyzed by descriptive statistics. Finding factors relative and predictive ability to dengue fever control and prevention behaviors of people by Pearson's product moment correlation coefficient and found that sex was not related in the preventive behavior on acute dengue fever ($p > 0.05$). (Note: Family leaders and family health leaders are not necessarily the same people. The family leader is the head of household, and the family health leader is as described above in section 1.8 (operational definitions.)

Somchai Teetipsatit (2005) studied factors associated to preventive behavior on dengue fever among family leaders in Ban Chang-lo, Bangkok-Noi, Bangkok. The sample was comprised of 414 family leaders who were interviewed by the public health officers. Data were collected with questionnaires. Chi-square test was calculated and found that there was not significant association between gender and preventive behavior on dengue ($p = 0.263$).

Social economic status

B.H.B. van Benthem et al. (2002) conducted a study in knowledge and use of prevention measures related to dengue in northern Thailand found that younger people knew more about dengue than older people: adjusted odds ratio (OR) of 6.75 [95% confidence interval (CI): 4.32 – 10.6] for the 15 –29 age group compared with people aged 60 and older ($p < 0.0001$).

Ratchanee Putkumtod and Tanin Suteeprasert (2002) conducted a study of factors affecting dengue fever control and preventive behaviors of people in Muang Suphanburi Municipality, Suphanburi Province. Analyzed by Pearson's product moment correlation coefficient found that age and education level were related in the preventive behavior on acute dengue fever ($r = 0.098$, $p < 0.05$ and $r = 0.103$, $p < 0.05$, respectively) and analyzed by stepwise multiple regression found that adequate income was related in preventive behavior on acute dengue fever.

Phiraphol Chusongsang (2005) studied factors affecting dengue fever prevention and control behaviors of household leaders and primary school teachers in Khuankhanun District, Phatthalung Province. Data collection was done by using a structured questionnaire to interview 350 household leaders randomly sampled from the population census from February to March 2004. Logistic regression analysis was

used. The results showed that household leaders who received income higher than 5,000 baht/month had better prevention and control behaviors on DHF than those who received lower income (OR=2.00, 95% CI = 1.1.-3.65).

Knowledge

B.H.B. van Benthem et al. (2002) conducted a study in knowledge and use of prevention measures related to dengue in northern Thailand. They found that of the 1650 persons, 67% had knowledge of dengue. Persons with knowledge of dengue reported a significantly higher use of prevention measures than persons without knowledge of dengue. In multivariable analyses, knowledge of dengue significantly differed by age, sex, occupation and site ($p < 0.05$). The authors did not give the directions of the associations.

Ratchanee Putkumtod and Tanin Suteeprasert (2002) conducted a study of factors affecting dengue fever control and preventive behaviors of people in Muang Suphanburi Municipality, Suphanburi Province. Analyzed by Pearson's product moment correlation coefficient and found that knowledge of dengue fever was related to the preventive behavior on acute dengue fever ($r = 0.178$, $p < 0.01$)

Hairi et al. (2003) conducted a study on knowledge, attitude and practices (KAP) on dengue among selected rural communities in the Kuala Kangsar district. The study population was 1,511 by simple random sampling method. The data was collected by a face-to-face interview of the head of households using a semi-structured questionnaire and found that the knowledge on dengue of community was good. Cross-tabulations were done between knowledge and practice, knowledge and attitude, and attitude and practice. There was no significant association seen between

knowledge and practice. However, there was a significant association seen between knowledge and attitude towards *Aedes* control ($p = 0.047$)

Sanya Kittisoontaropas (2003) studied evaluation of dengue fever prevention and control program in Nakhonnayok Province. The samples consisted of 640 household heads. The data collection took place from 1st –30th June 2003 using a structured questionnaire. Chi-square was used to describe the relationship between knowledge and preventive behaviors and found that knowledge of DHF and preventive behavior was significantly related ($p=0.004$).

Phiraphol Chusongsang (2005) studied factors affecting dengue fever prevention and control behaviors of household leaders and primary school teachers in Khuankhanun District, Phatthalung Province. Logistic regression analysis was used. The results from univariate analysis showed that household leaders with higher level of knowledge had 3.73 times better prevention and control behaviors on DHF ($OR=3.73, 95\%CI=2.10-6.61$).

Witaya Swaddiwudhipong, et al. (1992) conducted a study on knowledge, attitude and practice of the prevention of dengue fever in an urban community in Thailand, a survey of 417 households, selected by a systematic-cluster sampling method were interviewed. They found that more than 90% of them knew that the disease is transmitted by *Aedes* mosquitos and indicated water jars and water retention in the house as the common breeding places. However, the other two common breeding places, ant-traps and cement baths , were less frequently mentioned.

Pornpimol Pounngern (1994) studied the situation of the DHF disease in the Huay Kwang Slum, Bangkok, in the community environment, the practice in prevention and control of the DHF disease in the Bangkok staff, including knowledge,

attitude, and practice of the people in this community on prevention and control of the DHF disease. The sample population was the head of the family or spouse of 712 families in 629 households. The data was collected by interview during the period of September through December 1994. The study revealed that only 50% of the study population had the knowledge regarding the prevention and control of DHF, most of them had positive attitude (90%) but poor practice. Chi-square test was calculated and found that the relationship between knowledge and practice was significant ($p < 0.05$).

Attitude

Hairi et al. (2003) conducted a study on knowledge, attitude and practices (KAP) on dengue among selected rural communities in the Kuala Kangsar district. Cross-tabulations were done between knowledge and practice, knowledge and attitude, and attitude and practice. Chi-square test was calculated and found that there was no significant association seen between attitude and practice. However, there was a significant association seen between knowledge and attitude towards *Aedes* control ($p = 0.047$)

Somchai Teetipsatit (2005) studied factors associated to preventive behavior on dengue fever among family leaders in Ban Chang-lo, Bangkok-Noi, Bangkok. The sample was comprised of 414 family leaders who were interviewed by the public health officers. Data were collected with questionnaires. Chi-square test was calculated and found that there were significant positive association between attitude and preventive behavior on dengue ($p < 0.001$).

Kyu (2003), studied knowledge, attitude and practices of migrant woman caretakers from Myanmar on prevention of dengue fever in Mae sot sub-district Tak Province, Thailand. The sample population was 307 households out of 1014 Myanmar

migrant households were selected using the systematic random sampling method and one woman caretaker per household was interviewed using a structured. Chi-square test was calculated and found that there was also a very highly significant positive association between attitude and practices regarding dengue fever prevention ($p < 0.001$).

3.2 Enabling factors

Resources for the prevention on dengue infection

Resources are associated with health care and evolved an individual to conduct health behavior. The availability of resources for prevention on dengue infection comprising mosquito nets or mosquito screens, covers for water containers and abate sand put in water containers, will enable people to prevent dengue infection, as well as the capability of family to obtain the resources and supplied from concerning organizations. The availability of sufficient of resources for the prevention on dengue infection, means there is an adequate number of mosquito nets, covers for water containers and abate sand to put in water containers. Somchai Teetipsatit (2005) studied factors associated to preventive behavior on dengue fever among family leaders in Ban Chang-lo, Bangkok-Noi, Bangkok and found that in chi-square test, there was significant associations between adequate resources with preventive behavior on DHF ($p < 0.001$). A study conducted by Vipa Limkhumsuk (1997) demonstrated that the use of damaged mosquito nets has positive relationship with the illness with acute dengue fever, as the use of damaged mosquito nets leads to increased risk of mosquito bites.

3.3 Reinforcing factors

Reinforcing factors means the information, encouragement or support from surrounding people (health officer, health volunteer, mass media) who have influence on individuals that lead to those individual to perform behavior with an expectation of something in return. It can be positive or negative reinforcement. Somchai Teetipsatit (2005) studied factors associated to preventive behavior on dengue fever among family leaders in Ban Chang-lo, Bangkok-Noi, Bangkok and found that in correlation coefficient test, there were significant associations between information from media, and support and supervision from health officers with preventive behavior on DHF among family leaders ($r = -0.197$, $p < 0.001$ and $r = -0.191$, $p < 0.001$, respectively). Ratchanee Putkumtod and Tanin Suteeprasert (2002) conducted a study of factors affecting dengue fever control and preventive behaviors of people in Muang Suphanburi Municipality, Suphanburi Province and found that reinforcing factors was positively related to control and prevention behavior of dengue fever ($r = 0.452$, $p < 0.01$).