

COMMUNITY PERCEPTIONS OF HEALTH DETERMINANTS IN KHON KAEN PROVINCE, THAILAND

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Abstract. Local health determinants, perceived by a local community in Mueang District, Khon Kaen Province, were explored using a qualitative approach during November 2006. Health determinants could be classified into three categories: environmental, individual and family, and institutional factors. Community perspectives on health determinants included flooding, habits of lottery buying, fluctuation of vegetable market prices, and job opportunities. Community participants gave high value to the social determinants of health as opposed to environmental/biomedical factors, considering that such conditions could positively build social cohesion and even lead to better well-being. They prioritized flooding as a major environmental health determinant that affected villagers' physical and mental health, as well as family income. For social health determinants, they also indicated that many villagers were addicted to lottery buying that led to mental and financial problems within families.

INTRODUCTION

A public health movement that further sustained the Primary Health Care (PHC) movement was reflected in the 1986 Ottawa Charter for Health Promotion. It put health on the agenda of policy makers in all sectors at all levels (WHO, 1986). The Adelaide Recommendations on Healthy Public Policy emphasized on people's involvement in health policy and recommended that governments must measure and report the health impacts of their policies to all groups in society (WHO, 1988).

Health impact assessment (HIA) is a tool that supports a sustainable development

strategy by informing decision makers about the possible negative consequence on population health from any proposed policy, program, and project instruments (Caussy *et al*, 2003; Quigley and Taylor, 2004). The new public health emphasizes an assessment of a broad ranges of physical and social environmental determinants of population health that are possibly due to the impact of those policy, program, and project instruments (Steinemann, 2000). Changes of such health determinants have been leading to poor population health and inequities (Wilkinson and Marmot, 2003). Policy makers should take into account the determinants of health in which any proposed policy, program, or project instruments would be attributable to impaired community health status (Marmot, 2005). Conventional health policy practices that focus on health outcomes alone would not be effective, but tackling the social and environmen-

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tal determinants of health would be much more benefit for health-promotion process implementation (Frohlich *et al*, 2006).

HIA practices using a community-based approach could be very appropriate, as this would provide locally specific information on health impact to the proposed policy and programs (Mittelmark, 2001; Lester and Temple, 2004). Such community involvement could enable local people collaboratively to use evidence with the planning authorities to reach better-informed decisions, especially those that would possibly change local health determinants resulting from the development proposal (Elliott and Williams, 2004; Hay and Kitcher, 2004).

A prerequisite for doing research on HIA is an understanding of the determinants of health (WHO, 2005). Limited published documents involving local health determinants are available in the Thai context, while such a study may give more insight into meaning that may be different from the concepts of developed countries.

In Thailand, local health assessment practice was included in the quality of life (QOL) evaluation using basic minimum needs (BMN) indicators. The Thai government has applied QOL/BMN as the national socioeconomic development outcome assessment tool since 1985 (Office of the National Economic and Social Development Board, 2007a,b; Rural Development Information Center, 2007). The current BMN are composed of six elements-health, shelter and healthy environment, education accessibility, occupation and income, Thai values, and social cohesion-with 42 indicators. However, such QOL/BMN indicators are the assessment tools for quantifying the end-point development outcomes, rather than for the planning process, which is the focus of the HIA methodology.

The HIA is expected to become a crucial tool for both the present and future situ-

ations in Thailand as the government decentralizes power and development planning activities from the central to the local levels, the Sub-district Administrative Organizations (SAOs) in particular. By regulation, each SAO must prepare a Five-year Strategic Development Plan, a Three-year Rolling Development Plan, and an Annual Implementation Plan (Department of Local Administration, 2004). These proposed development policy, program, and project instruments will combine both positive and negative factors that affect the local population health status. The HIA study could facilitate the submission of informed recommendations to policy makers as to how to improve their proposed instruments while reducing the negative effects and maximizing the population health benefits. An understanding of the meaning of health determinants perceived and interpreted by local community would be of much benefit at the initiation of a full-scale HIA.

This study chose the Bueng Nium SAO as the site for investigation. In August 2006, this SAO completed the Three-Year Rolling Development Plan (2007-2009), which consisted of seven Sub-Plans, including the following issues: 1) poverty reduction; 2) city and healthy community development; 3) human resources and quality society development; 4) grass root economy, trade, and investment development; 5) tourism development; 6) natural resources and environmental management; and 7) good governance development (Bueng Nium SAO, 2006). The expected outcome of this study was critical information to be used as an assessment framework for a full-scale HIA study of the SAO Development Plan and its Sub-Plans.

The specific objectives of this study were (1) to explore health hazards, diseases, and health determinants as perceived by the Bueng Nium community; and (2) to elicit

community perceptions on local disease threats and their associated health determinants.

MATERIALS AND METHODS

Study area and population

The Bueng Nium community of Mueang District, Khon Kaen Province, is located in Northeast Thailand, 12 km to the east of Khon Kaen City, and along the Nam Pong river, one of the major river systems of the Mekong catchment area. The Bueng Nium SAO is responsible for 12 villages and 1,598 households, with an area of 41.23 km², and a population of 8,000, including 4,051 men and 3,949 women (mid-year population, 2006 July 1; Bueng Nium SAO, 2006). This community is also well known as the leading vegetable growing farmland of Khon Kaen Province. The Bueng Nium SAO was established in 1997, and it is one of the autonomous community-based local governments among 6,616 SAOs in Thailand (Bueng Nium SAO, 2006).

Methods

The study used a focus group discussion (FGD) method to explore health determinants as perceived by the Bueng Nium community representatives, and data were collected by archival search from the local health facilities.

The qualitative technique can provide data that offer important information -an alternative to the traditional quantitative or epidemiological approaches -such as information about needs, beliefs, attitudes, and values of various individuals or groups within the more complex public issue of interest (Slaughter *et al*, 1999; Clark *et al*, 2003). The FGD method has an advantage in achieving group dynamic interaction as well as building empowerment of the participating individuals (Skop, 2006). The FGD tech-

nique is increasingly used in health services planning in various forms (Gelula and Sandlow, 1998; Barbour, 2005; Tipping, 2005; Freeman, 2006). A focus group can provide an effective means of exploring an insightful information on community perception and needs to further use that for social development policy and planning (Clark *et al*, 2003) as well as policy analysis and evaluation (Kahan, 2001). Focus group study is recommended when involving a relatively small group (10-12 participants) for immediate discussion and exchange of ideas that could generate insightful information as compared with a structured survey or individual interview (Mack *et al*, 2005; Zepeda and Kim, 2006).

We applied the FGD method for this study using a selection criterion that identified FGD participants who were local key participants actively involved in community health and development affairs. The participants included 1) individuals who have been involved in the SAO planning process implementation, 2) representatives from community groups (youths, elderly, health volunteers, community development volunteers, farmer group representatives, and community leaders), and 3) those who have been directly affected by the SAO Development Plan. There were 10-12 participants engaged in FGD activities.

Guiding questions for the FGD were pre-tested for comprehension with the SAO officers and village leaders. The modified questions were:

What are important health hazards in your community as perceived by local villagers?

What are important diseases as perceived by local villagers?

What are the factors that influence health status changes in your community (health determinants)?

What health determinants are associated with each disease?

Twelve FGDs were conducted at the community center of each one of 12 villages within the Bueng Nium Sub-district boundary during November 2006. Each FGD lasted from 1 to 1.5 hours. The FGD were organized in the following steps:

1. The researcher introduced herself and gave a briefing on the objectives of the FGD.

2. The FGD members introduced themselves and their respective development roles within community.

3. The researcher acted as a facilitator for group discussion following the guiding questions, and the discussion was recorded.

4. The FGD members discussed predetermined issues of health hazards, diseases, and health determinants, as they perceived them, while the researcher listed the points made on a flip chart.

5. Once such their perceptions were listed, the FGD members were then asked by the facilitator to check whether that the written points were accurate and consistent with their respective true meanings.

6. The FGD members later discussed about any health determinants that were associated with each disease, while the researcher also listed the items on a flip chart.

7. The FGD members were asked by the facilitator to review the entire context and meaning of their issues listed on the flip chart.

8. The researcher summarized the overall discussion results considering the FGD objectives set forth, while later providing an opportunity for the FGD members to make any corrections of context and the meaning of their respective expression and to add further comments.

The FGD data were analyzed by con-

tent analysis method by identifying key statements and subsequently grouping similar categories. The procedure was as follows:

- 1) Transcribing audio recordings from FGDs; 2) Reading of the full transcripts in order to acquire a feeling of the participants' descriptions, strict concentration was required in contemplating the data by using an undisturbed reading and re-reading of the descriptions for the purpose of uncovering the meanings of life experiences of the participants; 3) Extracting significant statements from line-by-line analysis of each transcript and coding of data to establish the categories; and 4) Summarizing main ideas, formulating the meaning of each significant statement, and organizing into subcategories.

The research proposal and all of the research instruments were reviewed and approved by the Khon Kaen University Ethics Committee for Human Research (Reference No. HE 500138).

RESULTS

Health determinants perceived by the community were classified into three categories, including environmental determinants (related to biophysical, social, and economic environments), individual and family related determinants, and institutional determinants. The expressions of health determinants by the community members were closely related to the environmental and social conditions of respective villages. A summary of health hazards, diseases, and health determinants derived from the FGDs are shown in Table 1. The community's perceptions of diseases and associated health determinants are summarized in Table 2. The following statements represent aspects of local perceptions on community health hazards and health determinants as reflected from the FGDs.

Table 1
Perceived health hazards, diseases, and health determinants.

Perceived community health hazards/diseases	Perceived health determinants
Community health hazards	Physical and chemical environments
Intestinal pathogens	Flooding
Influenza virus	Food quantity and hygiene
Dengue virus	Water quantity and quality
Pesticide poisons	Air
Particulate matter from the rice mill factory	Soil quality
Traffic	Recreation area
	Housing
Diseases	Community sanitation
Diabetes mellitus	Infrastructure
Hypertension	Industrial pollution
Traffic accident and injuries	
Diarrhea	Biological environment
Dengue fever	Disease vector breeding places
Respiratory disorders (caused by air pollution)	Crop insect attacks
Skin rashes (caused by air pollution)	Vegetation diseases
Hong Kong foot (dermatophytosis)	
Conjunctivitis	Social environment
	Religion, beliefs, local culture, traditions
	Community development activities
	Community agreements
	Social cohesion
	Lottery buying
	Individual/family/community security
	Burglary, crime and drug abuse
	Economical environments
	Income,
	Debt
	Local agricultural product prices
	Individual and family determinants
	Age, gender, education,
	Occupation
	Eating behavior
	Risk acceptance, risk behavior
	Alcohol consumption
	Exercise
	Family structure
	Institutional determinants
	Local regulation
	Sub-district health center services
	Health volunteer services
	Police services
	Sub-district administrative organization services
	Solid waste collection service
	Emergency response and community security services

Table 2

Diseases and associated health determinants perceived by the Bueng Nium community.

Diseases	Health determinants		
	Environmental determinants	Individual and family determinants	Institutional determinants
Diabetes mellitus (DM)	High caloric and much sweeten food	Genetic Inappropriate eating behavior Lack of exercise	Health education program on nutritional education, DM prevention and self-care for DM patients by Sub-district Health Center
Hypertension	High caloric food Income Debt Local agricultural product prices	Elderly Lack of exercise	Health education program on hypertension prevention and nutritional education by Sub-district Health Center
Traffic accident and injuries	Unsafe road	Risk unawareness Fast driving No helmet use	Inadequate warning signs provided Road maintenance by the SAO Campaign on road safety and safety riding by the SAO and Sub-district Health Center
Diarrhea	Flooding Unsafe drinking water Contaminated food Unsafe sewage and excreta disposal Poor community sanitation	Poor personal hygiene	Health education program on diarrhea prevention by Sub-district Health Center Local regulation on water resource protection
Dengue fever	Increase of <i>Aedes</i> mosquito breeding places during rainy season Lack of household mosquito screen	Poor preventive behavior from mosquito bite	Local regulation on mosquito breeding place disposal Health education program on dengue fever prevention by Sub-district Health Center
Respiratory disorders	Dust from rice-mill factory Dust from traffic Poor housing sanitation	Poor personal hygiene	Health education program on personal hygiene by Sub-district Health Center
Skin rashes	Dust from rice-mill factory Contaminated body-cleaning water	Poor personal hygiene	Health education program on personal hygiene by Sub-district Health Center
Hong Kong foot	Flooding Contaminated body-cleaning water	Poor personal hygiene	Health education program on personal hygiene by Sub-district Health Center
Conjunctivitis	Flooding Contaminated body-cleaning water	Poor personal hygiene	Health education program on personal hygiene by Sub-district Health Center

The vegetable growers talked about their experiences with pesticide use within their community. They appeared to be aware of the possible health effects from chemical poisoning. However, they expressed reasons for a continued use of pesticides and argued that vegetable buyers favored a more green and healthy good-looking product. Therefore, to achieve a good market price, they have to continue using pesticides. The Bueng Nium vegetable growers elaborated their views, as follows:

We have well perceived on pesticide poisons. We know how to prevent pesticide poisoning; some of us use personal protective equipment during pesticide spraying. Most of us witnessed our parents and grandparents using pesticide for a long time, 20-30 years, with no health problems, so we are not afraid of pesticide poisoning.

We still use pesticides because of the agricultural product prices. The market likes healthy looking vegetables, and we can sell at good price. If we did not use the pesticides, we are not sure whether we can sell our product at a good price or not. We need support from the SAO to demonstrate to us how to do a pesticide-free vegetable growing farm as well as using organic composts, and provide us with a pesticide-free vegetable market. If all of these are successful, we think most of us will grow pesticide-free crops.

The FGD members gave their views on communicable disease outbreaks, prevention, and control. They were not particularly worried about communicable disease problems because they may prevent such with individual self-care and through good services provided from the village health volunteers and health institutions. Specific views associated with diseases were expressed as:

We were not worried much about communicable diseases such as diarrhea and den-

gue hemorrhagic fever because we can prevent those by our self-care. The Bueng Nium Health Center provides us with good health services. The village health volunteers have good knowledge on disease prevention. They are the leaders and work with villagers on *Aedes* mosquito larvae control by spraying the breeding places once a week.

The environmental health problems included issues related to flooding, which appeared to be a major health determinant that affected peoples' physical and mental health and was also related to their incomes:

Flooding is an important problem of our community. The severe flooding that occurred during the rainy season in 2002 caused heavily damage to our crops, and after flooding, we faced infectious conjunctivitis and Hong Kong foot disease (dermatophytosis). We often experience small floods annually during the rainy season. It made us stressful because the crops are damaged, and it means that our income is decreasing.

In relation to environmental health-related problems caused by a local factory, the FGD members suggested that such problems were beyond the capacity of the SAO, and the SAO should request technical support from concerned provincial organizations.

Participants highly valued social determinants of health. They viewed activities, such as annual village tidiness and development contest event, the Thai New Year celebration, Father's Day, Mother's Day, Elderly Day, Children's' Day, and the Annual Vegetable Exhibition Day, all could build social cohesion and even lead to better community well being. Their remarks on social health determinants were as follows:

The social activities and festivals can build local community well-being. The annual village tidiness and development contest event organized by the SAO with the award-winning village receiving 100,000 THB. It motivated us

to take part in this community-sanitation improvement activity. The annual vegetable exhibition day in December each year, also promotes a social cohesion in our community. The event lets us celebrate during post-harvested season, and it is joined by many villagers from our neighboring communities.

In terms of psychosocial wellbeing, participants explained that many villagers experience the adverse mental effects of an addiction to buying lottery coupons. This gambling habit has also caused financial problems within a family. Some remarks related to the gambling problem were as follows:

We think that more than 90% of the people in our community buy lottery coupons. When they did not buy the lottery, they were much worried that the expected winning numbers may come out and that frustrated them. Many villagers are addicted to lottery gambling; some even get a money loan to play the lottery, and that increases family debts.

DISCUSSION

Overall, the perception by communities was that their principal non-communicable health threats were diabetes mellitus and hypertension. This was in agreement with the significant population health problems recorded by the Bueng Nium Health Center, with prevalence rates of 18.0 and 5.61 per 1,000 populations, respectively (Bueng Nium Health Center, 2007). Their perceptions referring to key communicable diseases were that diarrhea, dengue fever, respiratory disorders, dermatophytosis, and hemorrhagic conjunctivitis were the important health concerns, which was confirmed by the health authority epidemiological records, except for dermatophytosis, which was not ranked in the top-ten communicable diseases of the years 2006 and 2007 (Bueng Nium Health Center, 2006, 2007; Khon Kaen

Regional Hospital, 2007). That was perhaps because dermatophytosis had a high occurrence only during flooding. The consistency between information on high-risk disease perceived by community and the health authority records suggested that the FGD exercise could provide a reliable result in quantifying the community-health problem situation.

For the career-related health determinant of farm pesticide use, the FGD members expressed not much concern about pesticide poisoning, as they already know how to protect themselves. Rodsawad *et al* (2006) noted that the continuing use of pesticides and their driving force were from the agricultural commercialization policy. Such a policy made the rural farmer more concerned about ensuring that their agricultural products are safe from any diseases and pest destruction rather than their health consequences (Sabrum, 2005). Moreover, the existing laws and regulations related to agricultural pesticide use does not place emphasis on farmer safety, but it is limited only to controlling and prohibiting the use of some hazardous chemical substances by the processing manufacturers (Department of Agriculture, 2002). Punpeng (2005) also reported that there existed only a limited amount of research and surveillance activities made on long-term pesticide exposure and health effects of rural farmers in Thailand.

Key environmental and social determinants of health expressed by the FGD members were flooding, fluctuation of vegetable market prices, and lottery addicted behavior; these were largely related to cultivated land and housing, and income issues. These determinants were insecurity factors that led to poor community well being; featuring very local specific conditions that required the proposed SAO policy, program, and project instruments should take into account.

This also raised insightful information, rather than taking a boarder perspective of health determinants as perceived in a western context, for instance, shelter, education, income, and so forth (WHO Regional Office for Europe, 1999; Scott-Samuel *et al.* 2001). It also referred to the specific development interventions needed by the community members; which the Bueng Nium SAO should consider as further remedial actions to be included in their policy, program, and project instruments.

The FGD method could elicit detailed information on health determinants specific to local situation. This was of much benefit to the subsequent implementation of a full-scale HIA for the Bueng Nium Development Plan, instead of relying on a set of data abstracted from western literature. Leipert and George (2008) claimed that it was worth exploring health determinants as they was more complex and specific, while the rural and urban communities may perceive them differently. Health determinants also reflected the root cause of health inequity, while involving wider social and environmental issues related to the policy and planning spectrum (Marmot, 2007). The social health determinants found by this study, especially lottery addiction, which was a crucial community matter of losing family income. It was a social behavior condition that would require the local government to conduct further detailed study of root causes.

Raphael (2007) reported that there was an increasing need to explore social health determinants in USA, as that would generate as well as improve current healthy public policy interventions. The understanding of social health determinants was necessary even to disease specific but complex-cancer. Hiatt and Breen (2008) noted that such an exercise could lead to a better understanding of the causes of cancer. Viswanath and Bond (2007) suggested that the underlying

diet and nutrition problems were very complex; understanding its related social determinants will further improve better communication in dealing with the root causes. Myer *et al* (2008) studied mental illness that is associated with lower socio-economic conditions; they reported that there was very limited data on social determinants related to mental problem existed in developing nations. Various conditions share a common need for an improved understanding of the social health determinants, as was found in this study.

This study showed specific results from exploring the health determinants as perceived by the Bueng Nium community representatives; the information could build an impact framework assessment used for conducting a full-scale HIA of the Bueng Nium Development Plan and Sub-plans. This case study revealed some insightful information on environmental and social health determinants that reflected a need for any HIA practitioner to study local detailed information relevant to conducting an effective HIA study of the proposed development policy and program. However, the FGD results were limited to in-dept information that was the experience of community individuals and groups, while the quantitative data sources should be included to confirm and complete the information needed on health determinants. However, the FGD information collected in this study, especially the disease incidence, was consistent with that which the health authorities recorded on community-health problem profile. For rapid assessment procedures necessitated by limited resources, this case study demonstrated that the FGD provided sufficient information of health determinants to contribute to a full-scale HIA investigation. The more detailed full-scale HIA implementation, especially as proposed in the national and regional development policy and plans,

would require more diverse FGD groups, with more quantitative information sources to complete the quality of data collected.

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