

RESEARCH COMMUNICATION

Situation Analysis of Risk Factors Related to Non-communicable Diseases in Khon Kaen Province, Thailand

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Abstract

A descriptive cross-sectional study was carried out in Khon Kaen Province during January 1 to June 30, 2008. The aims were to assess: (1) the prevalence of risk factors for chronic diseases such as cancer, diabetes, blood pressure; and (2) health behaviour and health education needs. There were 338 sample subjects aged between 20-60 years, from urban, semi-urban and rural areas. Some 20.4 % of the sample subjects reported that they were unhealthy (10.4% diagnosed with hypertension, 9.8% with diabetes, and 0.9% with cancer). For history of illness in the family, the most common were diabetes (42%), high blood pressure (16.5 %) and cancer (14.8 %), and 66.9% reported stress within the last 6 months. In terms of risk behavior, 82.3% of males smoked cigarettes but only 1.9% of females. The respective figures for alcohol were 68.4% and 26.6%. The majority (61.2) had low physical activity (sitting or standing, little movement). Almost one third (32%) reported testing positive for *Opisthorchis viverrini* eggs in stool. For health education needs, 64.2%, 54.7% and 42.6% wanted to learn more about cancer, diabetes and hypertension, respectively. For means of health education delivery, 31.7% want to learn from medical doctors, 20.4% from TV, 16.3% from village's broadcasting and 13.6% from health volunteers. Suitable means to delivery health education are needed to convey knowledge to the population. Community health volunteers may be one of the best sustainable alternative methods to transfer knowledge.

Keywords: Non-communicable diseases - risk factors - education needs - rural Thailand

Asian Pacific J Cancer Prev, 12, 1337-1340

Introduction

Chronic diseases such as diabetes, cancer, hypertension are major problems for Thai people. One reason may due to globalization that people around the world have similar behavior of food consumption or daily life behaviors and force them to have a lot of exposures which may be risk factors to those diseases. However these problems can be solved if people have knowledge, received sufficient health education and they have awareness.

Khon Kaen province, Thailand is a province situated in the northeastern part of Thailand. It is a so-called capital of the region and the incidence of chronic diseases and especially cancer is high. The population-based cancer registry of Khon Kaen province reported that cancer of liver was highest in the world (Vatanasapt et al., 1990), and many other cancers remain significant health problem (Vatanasapt et al., 1993; 1995; Deerasamee et al., 1999; Sriplung et al., 2003; Sriamporn et al., 2005a; 2005b; Khruhaprema et al., 2007; 2010).

Use of Lay Health Workers (LHW) in a Community-Based Chronic Disease Control Program is one of the

efficient methods for diseases prevention and control (Wiangnon et al., 2007). This study aimed to study (1) the prevalence of risk factors for chronic diseases such as cancer, diabetes, hypertension and (2) health behavior and health educational need before launching the programme "Multi-professional Intervention and Training for Ongoing Volunteer-based Community Health Programme in the North-East of Thailand".

Materials and Methods

A descriptive cross-sectional study was carried out in Khon Kaen Province during January 1, 2008 to June 30, 2008. There were 338 participants aged between 20-60 years included in this study from (1) Urbanized area at Srichan (2) Semi-urbanized at Daengnoi village (3) Remote area at Wangsaeng village, Channabot district of Khon Kaen Province. Use systematic random sampling. The formula to calculate sample size was:

$$n_{eq} = \frac{L \sum_{h=1}^L N_h^2 P_h (1 - P_h)}{N^2 D^2 + \sum_{h=1}^L N_h P_h (1 - P_h)}$$

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Table 1. Characteristics of the Sample Subjects

Variables	Urban n=68	Semi-urban n=214	Remote n=56	Total N=338
Sex				
Male	22 32.4	43 20.1	14 25.0	79 23.4
Female	46 67.6	171 79.9	42 75.0	259 76.6
Age				
<40	33 48.5	51 23.8	17 30.4	101 29.9
40-50	14 20.6	85 39.7	22 39.3	121 35.8
>50	21 30.9	78 36.5	17 30.3	116 34.3
Education level				
None	1 1.4	3 1.4	1 1.8	5 1.5
Primary	34 50.0	175 81.8	50 89.3	259 76.6
Secondary	17 25.0	24 11.2	3 5.3	44 13.0
College	16 23.6	12 5.6	2 3.6	30 8.9
Work				
Employed	44 64.7	110 51.4	10 17.9	164 45.8
Unemployed	3 4.4	10 4.7	0 0	13 3.8
House work	20 29.4	0 41.6	0 0	20 5.9
Student	0 0	5 2.3	0 0	5 1.5
Health status (Self evaluated)				
Excellent	3 4.4	2 0.9	2 3.6	7 2.1
Good	38 55.9	98 45.8	16 28.6	152 45.0
Fair	17 25.0	77 36.0	16 28.6	110 32.5
Poor	10 14.7	37 17.3	22 39.2	69 20.4
Health status with chronic disease (by physician)				
Diabetes	5 7.4	23 10.8	5 8.9	33 9.8
Hypertension	7 10.3	20 9.4	8 14.3	35 10.4
Cancer	0 0	3 1.4	0 0	3 0.9
Others	10 14.7	45 21.0	16 28.6	71 21.0
Chronic disease in the family				
Diabetes	23 33.8	99 46.3	20 35.7	142 42.0
Hypertension	11 16.2	34 15.9	11 19.6	56 16.6
Cancer	10 14.7	33 15.4	7 12.5	50 14.8
Others	5 7.4	19 8.9	13 23.2	37 10.9
Have stress in the past 6 months				
No	20 29.4	67 31.3	25 44.6	112 33.1
Yes	48 70.6	147 68.7	31 55.4	226 66.9
Cause of stress				
Loan, debt	2 2.9	13 6.1	9 16.7	24 7.1
Unemployed	0 0	1 0.5	1 1.8	2 0.6
Child problem	0 0	18 8.4	9 16.1	27 8.0
Number of deep sleep hours per day				
1-7	37 54.4	112 52.3	29 51.8	178 52.7
8	23 33.8	83 38.8	20 35.7	126 37.3
9-10	8 11.8	19 8.9	7 12.5	34 10.0
Smoker				
Male Yes	17 77.3	36 83.7	12 85.7	65 82.3
No	5 22.7	7 16.3	2 14.3	14 17.7
Female Yes	2 4.4	2 1.2	1 2.4	5 1.9
No	44 95.6	169 98.8	41 97.6	254 98.1
Age start smoking (yrs) (Both sexes)				
≤15	9 13.2	17 7.9	5 8.9	31 9.2
>15	10 14.7	21 9.8	8 14.3	39 11.5
Alcoholic beverage in the past 12 months				
Male Yes	14 63.4	30 69.8	10 71.4	54 68.4
No	8 36.4	13 30.2	4 28.6	25 31.6
Female Yes	13 28.3	41 24.0	15 35.7	69 26.6
No	33 71.4	130 76.0	27 64.3	190 73.4
Number of standard glass drinking at a time (Both sexes)				
≤5	21 77.8	61 86.0	19 76.0	101 82.1
6-10	6 22.2	5 7.0	5 20.0	16 13.0
>10	0 0	5 7.0	1 4.0	6 4.9
Ever chew betel nut				
Yes	1 1.5	1 0.5	10 17.9	12 3.5
No	67 98.5	213 99.5	46 82.1	326 96.5
History of Praziquantel use				
Ever used	6 8.8	33 84.6	26 46.4	65 19.2
Never used	62 91.2	181 15.4	30 53.6	273 80.8

Where: L = number of stratum = 3 i.e. (1) Urbanize area (2) Semi-urbanized (3) Remote area; h = number of stratum from 1 to L (L= 3); N_h = number of stratum which consisted of N_1 = number of population in urbanize area = 620, N_2 = number of population in semi-urbanized area = 1,949, N_3 = number of population in remote area = 512; P_h = proportion of people who know about obesity in each stratum which consisted of, P_1 = proportion of people who know about obesity in urbanize area = 0.50, P_2 = proportion of people who know about obesity in semi-urbanized area = 0.45; P_3 = proportion of people who know about obesity in remote area = 0.40.

Total sample size needed for this study was 338. The samples was randomized from the urban area = 68, from semi-urbanized area = 214 and remote area = 56.

The variables of interest were: general characteristics of subjects; age, sex, level of education, occupation, socioeconomic status, health status, risk behavior; smoking, alcohol consumption, food consumption, physical activity, *Opisthorchis viverrini* (OV) infestation, the need for health education. Structured-questionnaires were used and interviewed by trained staff. Weight, height, waist circumference and blood pressure were measured for every sample subject. Body mass index (BMI) were calculated using the formula; BMI = weight (kg)/height (meter)².

Results

Results are shown in Tables 1 to 3. The total sample size was 338, 68 from urbanized, 214 from semi-urbanized and 56 from remote areas. There were 76.6% females, 23.4% males. The results showed that 20.4%, of the sample subjects reported that they were unhealthy. 10.4% used to get diagnosed as hypertension, 9.8%

Table 2. Nutrition Status, Exercise and Blood Pressure of Sample Subjects

Variables	Urban n=68	Semi-urban n=214	Remote n=56	Total N=338
Sex				
Male	22 32.4	43 20.1	14 25.0	79 23.4
Body Mass Index (BMI)				
<18.5	1 1.5	8 3.7	1 1.8	10 3.0
18.5-22.9	22 32.3	42 19.6	16 28.6	80 23.7
23-24.9	11 16.2	24 11.2	12 21.4	47 13.9
25-29.5	28 41.2	93 43.5	19 33.9	140 41.4
≥30	6 8.8	47 22.0	8 14.3	61 18.0
Waist circumference (High risk >90 cm., > 80 cm)				
Low risk	39 57.4	96 44.9	33 58.9	168 49.7
High risk	29 42.6	118 55.1	23 41.1	170 50.3
Regular work usually sit or stand				
Yes	52 76.5	119 55.6	36 64.3	207 61.2
No	16 23.5	95 44.4	20 35.7	131 38.8
Usually walk or cycling more than 10 minutes at a time				
Yes	21 30.9	80 37.4	38 67.9	139 41.1
No	47 69.1	134 62.6	18 32.1	199 58.9
Blood pressure				
<120	33 48.5	105 49.1	28 50	166 49.1
120-139*	27 39.7	70 32.7	21 37.5	118 34.9
140-159**	8 11.8	32 14.9	5 8.9	45 13.3
≥160**	-	-	7 3.3	9 2.7

*prehypertension; **hypertension

Table 3. Health Care Type, Access and Information of Sample Subjects

Variables	Urban n=68	Semi-urban n=214	Remote n=56	Total N=338
Type of Health Care Service Center Used				
Hospital	61 89.7	118 55.1	46 82.1	225 66.6
PHCC	7 10.3	75 35.1	54 96.4	136 40.2
Physician private clinic	16 23.5	73 34.1	15 26.8	104 30.8
Nurse private clinic	1 1.5	39 18.2	2 3.6	42 12.4
Private hospital	4 5.9	70 32.7	0 0	74 21.9
Alternative medicine	2 2.9	12 5.6	5 8.9	19 5.6
First action when sick				
Go to doctor immediately	38 55.9	124 57.9	39 69.6	201 59.5
Buy medicine from pharmacy	8 11.8	50 23.6	12 21.4	70 20.8
After taking medicine, go to see doctor if not better	21 30.9	41 19.3	13 23.2	75 22.3
Never go to see doctor	1 1.5	3 1.4	1 1.8	5 1.5
Health information				
Sufficient	40 58.8	118 55.1	24 42.9	182 53.9
Not sufficient	28 41.2	96 44.9	32 57.1	156 46.1
Health information needed about				
Cancer	47 69.1	133 62.2	37 66.1	217 64.2
Diabetes	37 54.4	121 56.5	27 48.2	185 54.7
Hypertension	32 47.1	89 41.6	23 41.1	144 42.6
Source of information received				
Television	53 77.9	156 72.9	31 55.4	240 71.0
Radio	14 20.6	82 38.3	20 35.7	116 34.3
Community radio	5 7.4	152 71.0	33 58.9	190 56.2
Newspaper	13 19.1	39 18.2	12 21.4	64 18.9
leaflet, Poster	18 26.5	62 28.9	16 28.6	96 28.4
Internet	7 10.3	7 2.9	1 1.8	15 4.2
Doctor/health personnel				
Community health volunteer	29 42.7	104 48.6	20 35.7	153 45.3
Book or Journal	15 22.1	30 14.0	12 21.4	57 16.9
Meeting/ Training/ Seminar	16 23.5	59 27.6	22 39.3	97 28.7
Friend/relative/partner/relatives/friend	37 54.4	88 41.1	23 41.1	148 43.8

PHCC, primary health care center

diabetes, and cancer 0.9 %. For the history of illness in the family; the most common was diabetes (42%), high blood pressure (16.5 %) and cancer (14.8 %). Some 66.9% reported that had stress in the last 6 months, mostly for unclear reasons.

In terms of risk behaviors and factors for chronic diseases, 82.3% of male sample subjects smoked cigarettes but only 1.9% of females. There 68.4% and 26.6% of male and female sample subjects consumed alcoholic beverage. Only 3.5% ever chewed betel nut. There was 32% ever had positive OV egg in stool. There were 61.2% had low activity (sit or stand, little movement), 20.8% bought medicine by themselves for first treatment.

For health education needs, 64.2%, 54.7%, 42.6% want to learn more about cancer, diabetes and hypertension respectively. The means of health education delivery, 31.7% want to learn from medical doctors, 20.4% from

TV, 16.3% from village's broadcasting and 13.6% from health volunteer.

At the date of interview 16.0% had systolic blood pressure ≥ 140 mmHg, 11.3% had diastolic blood pressure ≥ 90 mm Hg, 50.3% had waist circumference at high risk (men > 90 cm., women > 80 cm.). 73.3% had BMI ≥ 23 .

Discussion

The use of LHWs or community health workers (CHWs) has become increasingly popular as an effective means of secondary prevention in hard-to-reach, underserved populations. In the US, trained Vietnamese lay health workers significantly increased Vietnamese women's recognition, receipt, and maintenance of breast and cervical cancer screening tests (Bird et al., 1998). Similarly, combined LHW outreach and media education motivated more Vietnamese American women in California to obtain their first Pap tests and to become up-to-date than did media education alone (Mock et al., 2007). In Mexican Americans culturally specific intervention consisting of participative group education, telephone contact, and follow-up using inspirational faith-based health behavior change postcards, significantly increased diabetes knowledge (Lujan et al., 2007).

However, published evaluations of CHW/LHW training programs are rare (Han et al., 2007). Since 1994, Brazil has developed a primary care system based on multidisciplinary teams which include not only a physician and a nurse, but also 4-6 lay community health workers - but only now is a population-based cross-sectional study of primary care in the municipality being conducted (Harzheim et al., 2006) In one training program for hypertension and diabetes management for Korean-American seniors expectations were met (average 9.3 on a 10-point scale) and success was achieved in empowering the participants to assume roles as 'health initiator', 'health advertising agents' or 'health role models' (Han et al., 2007).

Once trained, respondents appear to become engaged in a wide range of activities, well beyond simple health care. In South Africa, by engaging community stakeholders, it was possible to develop a research framework that incorporated the community's concerns and priorities, and stressed the intersecting roles of poverty, violence, and other cultural forces in shaping community members' health and wellbeing (Mosavel et al., 2005). A cardiovascular disease prevention program for women was similarly designed to build on the strengths of the Alaska Native culture as a way to support and encourage positive lifestyle behaviors with the focus on healthy eating, active living, stress management, and tobacco cessation (Stefanich et al 2005). In Taiwan community health development (CHD), has been initiated, a new approach to national community health care with a shifting from 'traditional' research to 'participatory' research (Huang and Wang, 2005).

The history of participatory research in Asia is relatively short but one recent study in Thailand showed that participation with farmers could create a real sustainable model to promote their health and

prevent occupational health hazards (Buranatvedh and Sweatsrskul, 2005). The Thai Ministry of Public Health has developed and implemented a public health policy with the introduction of health promotion programs nationwide. Although particular health promotion programs, such as family planning or immunization services, have been successful, others such as for traffic accident prevention, smoking cessation or campaigns against liver cancer not been proved effective or sustainable (Lyttleton, 1996). In general, health promotion programs are only effective when health practitioners have to follow policy decisions or when it is financed by both government and non-government organizations (Wibulpolprasert, 2000). Some programs are also short term in practice because responsible health personnel have to turn their attention to new policies. In terms of health promotion for middle-aged women, the focus has been on reproductive health, such as menopausal clinic and cervical screening programs, which have been established both in the government and private health sectors. This, however, is not totally consistent with the local women's way of life and/or their perception of health (Chirawatkul, 2002, Senarak et al., 2006).

Acknowledgements

This study is a part of "The multi-professional volunteer dedicating to the community-based health program in the northeastern Thailand (MITVNET)" funded by BUPA, United Kingdom. The study was approved by the research ethics committee, Faculty of Medicine, Khon Kaen University, Reference No. HE510309

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